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CÉLINE GAUER

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Dear Ms. CÉLINE GAUER,

We would like to share with you our assessment of the final

Bulgarian Recovery and Resilience Plan - Evaluation and Recommendations

In the final version of the Bulgarian Recovery plan, published on 15th October 2021, there are projects and reforms that do not meet the philosophy of Energy transition and Just transition.

Perhaps the reason is that the plan was prepared by two different governments and different experts. In the recovery plan there is no general, unifying idea of moving to a low-carbon economy. It has nothing to do with the holistic goals of the Green deal. It looks like a selection of individual projects with no connection, even contradiction between some of them.

A good example in the plan is that the proposal of the NGO experts for the establishment of a Commission for energy transition, to produce scenarios for an end date for the use of coal, was accepted. This is important so that we have a clear plan for the energy transition and so that ultra rapid and more painful changes are not required.

Our recommendations for more money for renewable energy systems (RES), as well as for better quality of the renovation of the buildings, were also adopted.

In our opinion, there are several projects that are not suitable for funding with EU funds.

Projects H1 - replacement of production of 1 gigawatt of coal with fossil gas. This is an expensive and temporary measure that will not have a sustainable effect.

In the summer of 2021 after the plans for coal to gas conversion were announced, Za Zemiata together with Greenpeace Bulgaria, WWF Bulgaria and Fridays For Future Bulgaria expressed our concerns about the proposal in letter send to the EC In addition to the arguments raised in the letter we believe that this project could undermine the process of development of the territorial just transition plan for the region that is at the very initial stage. This projects and connected with it gas supply infrastructure have not went to any form of strategic assessments and comparison with alternatives and have never been discussed with public about its environmental and social impacts.

Project P13 for construction of future hydrogen transmission infrastructure. In our opinion this project is actually for the construction of gas infrastructure and will not help the energy transformation in the Maritza Iztok coal region. There are more important projects related to decentralized electricity generation and support for individual households to produce electricity from renewable sources that need additional boost.

Central to the energy transformation plans in the Maritza Iztok coal region is the conversion of the state owned Maritza Iztok 2 coal fired power plant to gas powered with CCGT technology. We see a number of issues arising from this project in particular. To begin with, while gas outperforms coal in terms of carbon emissions, measuring the environmental impact of a substance by carbon statistics alone will not paint a useful or full picture of how a substance interacts with the wider environment. It is reasonable to expect that methane will make up the primary component of the gas being burned in the power plant after its conversion. Methane however has a far more damaging impact on the atmosphere (the IPCC estimates it has a Global Warming Potential 82.5 times greater than CO₂). Gas / methane leaks in the new infrastructure will also bring wider impacts on human populations within the Maritza region as it carries the risks of health problems resulting from inhaled gas from the air as well as the equally dangerous potential of pipeline ruptures (which we have seen recently in the rupture of the Balkan/South Stream pipeline in the Varna region). RES simply does not carry these health risks, nor does it impose anywhere near the same costs as the total restructuring and conversion of the power plant from coal to gas.

Over the last 4 weeks the European energy sector has been crippled by price spikes in the gas sector. It should be obvious that the energy price spike resulting from the gas supply crisis is far from over and will reach a critical point when peak winter demand is reached and there are insufficient gas reserves within the country and supply from abroad. If RES were to be deployed to the same scale that the government is promising to deliver gas then we could rest assured that no matter what difficulties arise in the other energy sectors, the sun will always shine, the wind will always blow and the Bulgarian people will always have power. Such crises could be totally avoided and Bulgaria could make leaps and bounds in the transition to net zero. A gas fired power station will not achieve this at all. It will not only fail to alleviate the impacts of a gas crisis; it will exacerbate them as citizens are forced to either pay for the failures of the gas industry or go without power at the time that they need it most. The gas industry would like us to believe that this month's price spike was a freak incident caused by higher demand earlier in the year and that the solution is more gas; but this is simply not true. As the impacts of climate change grow larger and extreme weather patterns become the norm, crises such as this will become commonplace. We know that this will happen because the scientific community around climate has concluded it with near total agreement. Why should the government be allowed to undermine the security of the country's energy sector all because of illogical skepticism of green energy.

Reform 10 - establishment of a state enterprise for mine recultivation. There is no need to finance such an enterprise, especially with EU money. The recultivation of Maritza East Mines is an obligation of the mines and they have a special fund for this activity. In [briefing paper](#) on Polluters pays principles developed by Bankwatch and European Environmental Bureau we call EC to carefully assess such type of projects regarding the risk of shift of the responsibility for land restoration away from the companies that have profited from mining and fossil fuel-fired energy production and into the Just Transition Fund (JTF) and other related funds. Thus, a stricter application of the Principle is necessary and EC should consider specific guidelines for application of the principles as regard to the EU funding;

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Questions arising from the Bulgaria's Coal-to-Gas Plans

If Europe is to decarbonise successfully the next decade does not offer much room for U-turns and serious mistakes within the chosen paths. While uncertainties remain, it is clear that all policies, investment and projects have to cover three main principles:

1. No preventable lock-in investments into fossil fuels should happen – the risk of stranded assets and crowding- out of renewable energy capacity should be avoided
2. Maximal cost-efficient renewable energy penetration into the energy mix should be facilitated – with regional markets and cooperation being critical to achieve that
3. The decentralisation trend has to be combined with democratization of who could produce and consume the energy

The updated RRP of Bulgaria was published by the caretaker government on the 15th October 2021. Despite significant improvements in the planned reforms and investments compared to the previous versions, the document still includes the development of capacities to transport fossil gas and produce energy from fossil gas. Bulgaria is planning to retire a minimum of 1.4 GW of lignite capacity by 2026. At the same time the RRP foresees at least 1 GW of CCGT capacity partially funded by the RRF. The foreseen pipeline to these capacities is almost entirely (90%) funded through the RRF. These investments are justified on grounds of energy security and the need to provide dispatchable back-up for the intermittent renewable capacity expected to further come into the system.

Upon examination, we find that it remains to be proven that these investments are indeed the minimum needed for the security of supply. Bulgaria and the European Commission have to weigh up carefully whether the energy security benefit is indeed large enough to warrant the risk of these new assets becoming stranded.

A few things the way they have been stated in the RRP remain unclear or prone to interpretation, including:

1. Why is this capacity needed if the coal exit of Bulgaria is considered late and just 1/3 of the current lignite capacity is planned for retirement in the coming years?

The country is probably the CEE Member State lagging behind the most on actual plans for the coming coal-phase-out. Even Poland and The Czech Republic, despite the lack of an exit date, have taken more consistent steps to prepare their coal regions for the coming change. Bulgaria covers in extreme peaks less than 50% and on average on an annual basis around 40% of the country's energy mix by coal. The 1.4GW of lignite capacity pledged for retirement by 2026 is 1/3 of the operating capacity. Even if we assume that this requires a new source for 1/3 out of what is covered by the coal plants today this is less than 15% of the power mix – a number absolutely manageable with extra RES capacity much of which is already in the pipeline. Even according to the current outdated NECP RES in the power mix will rise by 10% by 2030. RES sources have become extremely competitive and are increasingly the preferred choice of energy sourcing or on-site energy production for the business. With the envisaged battery capacity in the RRP, the foreseen reform and investment to digitize and improve the flexibility of the TSO network also budgeted in the RRP, with the existing 860 MW of pump hydro and with the market integration in the region, much more RES capacity should be possible to get integrated without the necessity of a fossil fuel back-up.

2. A decision to increase the fossil fuels capacity supported by public funds in times of climate emergency should be based on modeling

As development of new fossil fuel capacities should be kept to the minimum while old fossil-based capacities are being retired, the only reasonable path to invest in new gas capacity is to prove it is the only viable option to provide security of supply and stability of the grid. In a recent report of 2020 by IRENA - Renewable Energy Prospects for Central and South-Eastern Europe Energy Connectivity (CESEC) the needs for gas capacity in the region till 2030 are with the prospect to decline. The report is envisaging a modest increase for Bulgaria though from the current 626 MW installed power generation capacity to 1040 MW in 2030 (Table on p. 76) - an increase of just 414 MW. The current

plan in the RRP is “a minimum of 1 GW” to be installed which is more than double of what the model says. Already at Rupite, Petrich Municipality there is a private investment gas project for 270 MW of thermal capacity (resulting to roughly around 150-160 MW of electricity generation if CCGT is used) and another investment intention for new gas capacity in TPP Varna which has 550 MW of thermal (300 MW of power) capacity. These two private investment intentions already bring nearly half a gigawatt of back-up power capacity into the system. It is not clear if these planned private plants will be competing for part of the funds planned for gas capacity under the RRP – if not, then all this will result in new gas power generation capacity in Bulgaria of at least 1.5 GW.

- 3. Considering that there is a 125 km planned pipeline in the RRP to provide options to all the power plants in the Maritsa East Energy Complex to be able connect to the gas network given there is interest. On one hand this likely opens the door for even more gas capacity in Bulgaria. On the other hand the planned infrastructure to connect Maritsa East to the gas network is providing a clear incentive to power plants to switch from coal to gas. This could easily turn into a market distortion.**

- 4. How will the increasing price of CO₂, as a result of ETS reform, impact gas investments?**

The current plans are not clear enough whether the new gas capacity will be operated only as a peak-load plant or used as a base-load capacity. If the capacity will serve as a baseload, then the country will soon be in a similar position struggling with the high price of the CO₂ emissions like it is now with the lignite fleet. According to the numbers in the [NECP¹](#) the Bulgarian government has made the projections at prices of tons of CO₂ in 2030 at just 31 EUR while the current price is already at around 50 EUR and the actual projections show that prices around 70 EUR are to be expected by the end of the decade. If the plant is operated as a peak load, it will provide very expensive energy to Bulgarian citizens. In either case this plant will be providing expensive energy which proves that the gas capacity should be kept to the very necessary minimum, avoiding a crowding out effect for the renewable energy sources that are at the front of the merit order. The government and the EC should perform a stress test of the economic viability of these plants in providing power under different CO₂ price scenarios and compare them to other options, including renewable capacity, grid strengthening or demand side response.

- 5. What parameters are used to justify the choice of technology?**

For a public investment to deliver maximum socio-economic value, the turbines should be selected in a way that they can be reliable, require minimum maintenance in the long-term and suited for only rather covering the peaks and not selected in a way that predetermines their use as baseload capacity.

The document states that the selected turbines will operate at 60% efficiency. The optimal efficiency is usually reached when the turbines are run at base load operation mode and not as peak-load capacity in a stop-and-go mode. The latter is likely how these turbines will be operated by the high CO₂ prices and the market if not by stricter environmental policies and climate targets. If the gas plants are built to enable the integration of renewables, then their efficiency should be looked at that way, ie. ramping up and down flexibly. Currently the only stated selection criteria in the RRP is who would offer the maximum capacity for the proposed budget.

- 6. What would it take to switch to hydrogen by the end of 2029?**

The RRP states that the turbines will be switched fully to hydrogen by the end of 2029. If the gas projects are to remain in the future energy plans of Bulgaria, a switch to cleaner fuels, such as renewable

hydrogen should be enabled. Yet, current state of the art technology [only allows to blend hydrogen but not a full switch](#).² If not, then this promise could only be fulfilled with additional investment and it is far from certain that this switch will happen.

If the gas projects are to remain in the future energy plans of Bulgaria we strongly recommend that the above listed factors are taken into consideration and the selection criteria are further specified, preferably with the help of the European Commission and in line with a holistic concept for the development of the green hydrogen around Europe.

7. The public bill is even higher when the cost of the connecting infrastructure is added: What assumptions of gas capacity are behind the gas pipeline design?

The cost of the new gas power generation capacity supported through the RRP is around 770 m EUR. 255 m (33%) of which are requested to come from the RRF. But to this number we have to add the request for additional infrastructure which is predominantly expected to be funded through the RRF.

A gas pipeline with a length of 125 km will connect the Energy Complex of Maritsa East and the major gas-infrastructure in the country. The cost of this pipeline as requested in the RRP is EUR 185 m of which EUR 168.55 m are coming from the RRF and only EUR 16.5m are own contribution from the gas infrastructure operator of Bulgartransgas. As the pipeline will be funded predominantly through public subsidy and the cost has to be seen as part of the final public bill. This pipeline is designed to provide access for any of the existing coal plants if they request a connection and this is a clear waste of public funds and development of infrastructure “just in case”. It also makes it clear that this project wouldn’t have been viable if only or predominantly private finance had been used which makes it even more unnecessary.

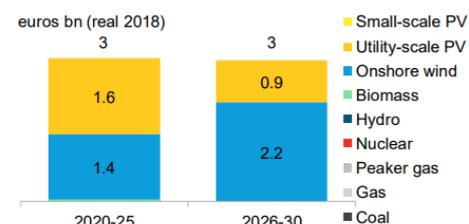
8. What is the cheapest option for coal replacement for the energy system of Bulgaria?

Another modeling that has been made recently – Bloomberg NEF scenarios states that “The share of combined-cycle gas in installed capacity decreases slightly, from 5% of the mix in 2018 to 4% by 2030, as some older units retire. The 7.7 GW of new renewables capacity is enough to allow 3.2GW of coal and lignite retirements, without the need for additional gas or reliance on interconnectors” - not sure how that maps onto the coal retirement schedule with Maritsa East?

The two graphs below also show that the “gas transition” is short-lived (up to 2025 roughly which is why the new gas capacity would come only at the earliest considering the time to design, manufacture and install it) and no new investment in gas happening.

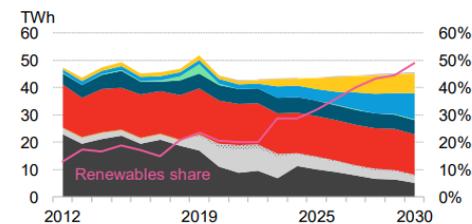
“New gas capacity is not added in the mix Bulgaria’s NECP lays out. The NECP scenario’s remaining coal capacity, plus new renewables and the existing nuclear fleet, mean it does not need to add new CCGTs as demand growth is muted due to Covid-19. As the least-cost scenario shows, no new gas capacity is necessary if higher amounts of renewables are built.

Figure 45: New investment in capacity



Source: BloombergNEF

Figure 46: Generation mix and renewables share



Source: BloombergNEF

9. Is this investment the best way to secure employment in the region?

The biggest obstacle standing in the way of the coal-phase out in Bulgaria has been the employment in the coal-dependent regions. A gas power plant is almost fully automated and needs only a fraction of the workforce of a coal power plant. Considering a plant like Maritsa East 2 that might be the most reasonable choice to retire on economic grounds, but it is the trickiest choice when it comes to employment as it accommodates 2400 workers and roughly the same number of miners. Switching to gas will decimate the number of the workers in the plant and will fully eliminate the mining jobs, in total this could be up to 5000 jobs until 2025. The proposal lacks detail on how the gas power plant could help to secure future proof employment and compare this with alternative options, such as renewable energy or energy efficiency.

10. What governance arrangements are put in place for transparent and open procurement?

In 2019 the former Bulgarian government had to subsidize the CO2 allowances of the plant with the amount of 150 m EUR. [The accumulating debt that was a burden for Bulgarian Energy Holding was then transformed into capital in March 2020](#) although this practice qualifies as illegal state aid in the EU³. A recent report drafted by the Bulgarian Centre for Green Economy and published by Za Zemiata - shows that the supply of limestone for the desulfurization of the plant exhaust has been contracted without a public tender and delivered by road from a career 150 km distance from the plant while in the range of just 50 km around Maritsa East 2 there are a dozen other limestone careers. This history inevitably raises the question how similar practices would be prevented in the future.

11. How does the energy security concept need to evolve in the light of improved regional cooperation?

The CEE region and Greece are currently working on improving the regional power markets and connectivity. [It is crucial and cheaper for the CEE countries to have energy systems that balance each other instead of aiming to remain self-sufficient energy islands.](#)⁴ The countries are establishing trust and systems to balance their grids together with their neighbours and these plans are in an ever more advanced stage. Eventually, this can save costs and increase competitiveness by reducing overcapacities. By 2025 when the new gas turbines would be online the regional markets will be already at a different level compared to now. We do not see these dynamics adequately reflected in the RRP of Bulgaria.

The European Commission should demand a concerted strategic assessment and eventual development of the planned and existing gas capacities in the ENTIRE region so that these projects can be kept to the absolute necessary minimum. This threshold is lower if the countries balance each other. We recommend that the European Commission assist the countries with their own, integrated analysis and check if any gas capacity will be needed at all considering how regional markets and infrastructure are expected to have developed by 2025 when the new capacity in Bulgaria is expected to be commissioned. Cross-regional and cross-border cooperation, moving on with key infrastructure upgrades and the implementation of RED II should be the top priority as these solutions will come at hand when the new gas capacity is realistically expected (and will already be outdated or blocking the right and more competitive solutions).

12. What other options to deal with winter and summer peaks of the power demand have been considered?

There are two seasonal peaks in energy demand in Bulgaria that are a reason for concern for the government – the hottest part of the summer and the coldest part of the winter. These are both relatively

short periods of extreme cold or heat for the climate of Bulgaria. The temperature amplitudes can be quite severe several times per year thus bringing the energy system close to the limits of the current capacity. In both cases the issue is mostly related to the increased need for heating and cooling (mostly the building stock). The summer peak can be mitigated with renewables, as there is plenty of sunshine, especially if combined with building and cooling efficiency. It is more challenging to cope with the winter peak although it has been modeled that even if all coal-capacity closes there is enough energy in the region that can balance the grid⁶. The need for new fossil fuel capacity should be tested against the ability of investments into regional cooperation, energy efficiency and efficient and clean domestic cooling/heating to attenuate peaks.

Considering that two coal plants Maritsa East 1 AES Galabovo and Contour Global Maritsa East 3 are able to be ramped up and down to a certain extent, considering that TPP Varna was switched from coal to gas recently, that many of the district heating plants are already gas CHP and that the country disposes of large pump hydro storage Chaira (850+ MW) and all this provides some flexibility already, it is further necessary that the gas plans are reassessed. The alternative of keeping some of the coal units through the transition as a guarantor for the winter peak balance could prove more economic for a few years than building a brand new gas capacity. These are additional arguments proving that the decision to allow the construction of such capacity should not happen without a more strategic and technology neutral assessment of options towards delivering energy security.

13. How does this investment project fit into an overall strategy to decarbonise the energy system?

Significant amount of financial support is available to Bulgaria through Just Transition Fund, alongside NextGenerationEU funding. While some steps are undertaken to develop strategies for the low-carbon transition of specific regions, at present Bulgaria lacks an overall energy system decarbonisation strategy. In this context it is more appropriate to invest in building the necessary institutional, governance and technical capacity to develop strategic understanding of long-term energy system transition options and how individual technologies may fit within them. The NRRP includes a proposal for the creation of the Energy Transition Commission for the development of a Roadmap to Climate Neutrality. It can serve as an evidence base for better informed policy choices, limiting long-term costs and setting the basis for sustainable long-term trajectory for energy industry development (e.g. channeling funding in low-carbon innovation, industry and skills). If possible, we encourage the European Commission to agree with the government of Bulgaria to allow some time for further modeling and assessment before the gas capacities are approved as the evidence points that the current plans lack a holistic energy framework.

Further recommendations:

1. Instead of pushing for the the conversion of existing capacities to gas-fired power, Bulgaria should **develop comprehensive evidence-based analysis and capacity to develop a long term decarbonisation strategy** for the electricity and wider energy sectors. Two steps are necessary for this: 2. Develop in-house analytical capabilities with the Ministry of Energy and an Independent Advisory Body, similar to the UK's Committee on Climate Change. Exchanging best practice, and receiving significant technical support for this from EU institutions will be critical to make sure the institutional arrangements are transparent, evidence-based and serve in the best interest of Bulgarian citizens and businesses. It may well be the case that a gas fired power plant may be needed for extreme circumstances to cover peak electricity demand, however, pushing for investment of the size and urgency being proposed (1.5 GW, completion by 2026) is completely unjustified and non-substantiated. 3. Assess the potential of all electricity generation technologies within the country, including their micro-and macro-economic potential, including job creation, export industries, supply chain development, regional economic potential. Bulgaria has close to no O&G industry, while it has demonstrated significant RES industry potential. It is unclear how switching from coal to gas for a significant amount of electricity generation would be beneficial from an economic or political perspective in the context of rising ETS prices and gas import dependencies.

We urge the EC to review not only Bulgaria's plan for turbines but to check and align all regional plans for gas capacity that are involving public funds – including the Modernisation fund. There has to be full mapping of what is needed in the MS adding the capacities developed with private funds. With the renewables providing energy so cheap in the recent years it is economic suicide to bet on expensive and polluting energy sources. It has become a matter of maintaining competitiveness for the countries from CEE.

On The Bright Side

For a positive and encouraging ending of this position we would like to praise the efforts and the improvement of the RRP from the first to this 4th version of the plan. We are happy to see number of very needed projects and reforms that will pave the way to faster decarbonisation of Bulgaria and improved sustainability:

1. Building Renovation with the inclusion of proper financial instruments is considered
2. 1.7 GW of new RES and battery capacity will be supported
3. Tenders for capacity will be introduced allowing for cost efficient and market based RES capacity to be developed
4. A 12 fold increase in the measure to support small scale solar application for individual households
5. An end date for the use of coal is set to “No later than 2038” which we hope through the efforts of the envisaged Commission for Climate Neutrality to be brought even sooner.
6. A Commission to develop a Roadmap toward climate neutrality that will deliver scenarios that are evidence based, will include external capacity and will be properly facilitated balancing between the expert work in silos but also sharing the work in progress and collecting feedback from a multi-stakeholder body - the existing Green Deal Council which also the government promised to expand and include even more stakeholders to. The promise is that the climate neutrality scenarios will be developed and delivered to allow the next government to take a decision and deliver the decision in time for the review of the NECPs that are due by July 2023
7. Energy Market Liberalisation by 2025 - very needed and requires a proper planning and implementation
8. A reform, developing Energy poverty definition, to better protect Bulgarian citizens in the light of Energy Market Liberalisation and energy price spikes
9. A special State-Owned Enterprise to deal with the remaining assets of the coal industry
10. The street lighting project that now includes more own contribution by the municipalities thus will make them more responsible when spending these funds
11. The digitalisation and flexibility of the TSO network which is key for the further development of clean capacities

There are still a few missed opportunities through this plan, namely:

1. Regional energy cooperation and market integration could have been more in the focus of the reforms - especially in the light of the deficits and gaps under the power market reform published in January 2021. Some of these deficits have been tackled, other just scratch the surface but mainly regional cooperation remains in the back-stage
2. The Rail-ways investments are a study case for missed opportunities - lacking integration with the rail-road information system that allows higher speeds on the rail at improved safety. The envisaged PV projects at rail-station is a fantastic idea but could have been developed like the ESCO initiative and on a market-base. As a state-owned company the rail infrastructure and the Passenger rail company BDZ could have pledged to produce 100 RES electricity like their bigger brother DB in Germany or even their Romanian counterpart that pledged to have 100 RES in the energy they use by 2030.

3. All projects related to improvement of the building stock of universities, hospitals and courts could have included the integration of on-side RES capacity.
4. In the talks for inclusion of new RES projects in the RRP a offshore wind capacity in the Black Sea was discussed, but it remained unclear why it didn't make it to the final RRP version, especially in the light of Romanian progress on the topic.

We hope that when the European Commission evaluates the Bulgarian recovery plan, it will take into account our recommendations.

Yours sincerely :

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