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Board Secretary, Sherri L. Golden
Board of Public Utilities
Attn.: Docket Number QO24020126
Energy Master Plan Comments

Board of Public Utilities
44 South Clinton Avenue, 1st Floor
P.O. Box 350
Trenton, New Jersey 08625-0350

RE: DEP DOCKET NO. QO24020126

Dear Ms. Golden:

On behalf of the New Jersey Business & Industry Association, the most influential state business association, please accept our comments on the planned update to the 2019 draft Energy Master Plan.

NJBIA is in a unique position when it comes to energy policy. As the largest business association in the state, our members include some of the state's largest employers as well as your Main Street mom and pop businesses. Significantly for these comments, we represent all interests in this policy debate. Our members include most of the energy utilities who supply our residents and businesses with both natural gas and electricity. We also have as members the major businesses engaged in all aspects of renewable energy, from wind developers and transmission providers to solar companies and installers. Many of the businesses driving the "green economy" are our members.

Significantly, we also represent the businesses that pay for all that energy, either as major users in the manufacturing sphere or in the normal course of operating a business. We also represent oil and gasoline refineries, the owners of truck fleets that rely on diesel, the retailers who sell their goods, and the installers of both electric and natural gas boilers, among many others.

Energy policy, obviously, is extremely important to NJBIA's members. We look at our role as business advocates, not so much as that of balancing all the various interests, but of seeking the best, most practical solutions to achieve our policy goals, both economic and societal. We are not deniers of climate change, nor are we ideological in our approach. We try to be factual and pragmatic in our policy recommendations. Hopefully those values are reflected in our comments below.

There are six foundational principles we believe the EMP must be predicated upon. They will be detailed below, but are:

1) Decarbonization efforts should be practical and human centered;
2) Affordability and reliability must be predicates for all policies;
3) We must emphasize technological advances and consider the role of nuclear power;
4) Sound planning needs to be done before actions are taken;
5) Renewables should continue to be an emphasis of our energy policies; and
6) Energy security in the form of diverse energy options should be a basis for our policy outcomes.

There are two hard truths about climate and decarbonization policies. One, energy, primarily through fossil fuels, is essential to our economy and our way of life and, two, substantially eliminating fossil fuels based on current technologies is far too harmful to our modern society. If it were easy, it would have been done by now, or we would be much further along in this effort. It is not, as some would say, "just a matter of will." There are real and substantial impediments to our decarbonization goals that must be overcome before they are achieved. Also true, is that we do need to significantly decarbonize. The only questions are how, when, and at what cost?

So, decarbonization is hard, if not impossible with today's technology, but yet, it must be done. So, what do we do? I want to emphasize three points:

1. Fossil-based fuels are essential to our modern economy and we cannot just stop using them. It is far more complex than that. We must acknowledge that complexity.
2. Policies that set firm, unrealistic or unachievable deadlines to decarbonize do more harm than good because they result in the implementation of policies that are too costly, result in an unreliable energy supply, and may result in the failure to pursue better technologies and options.
3. Finally, we will provide some specific policy criteria that must be addressed if we are to both protect our standard of living and significantly reduce the amount of carbon we use.

Before I discuss those issues, I want to discuss the state of climate science. Last year in its Sixth Annual Assessment Report on Climate Change, the International Panel on Climate Change (IPCC) narrowed the range of potential impacts from all studied emission scenarios and said that the most extreme emission scenario (RCP 8.5), which I will discuss in a bit more detail, is unlikely to happen given current trends in emissions and energy usage. The narrowing of the impacts means that the worst results that some have predicted are not going to happen no matter the emission scenarios. This is good news; our global emissions policies are working to curb greenhouse gases and the impacts will be less than previously predicted. The most likely emission scenarios are likely to result in a temperature increase in the 2-to-2.5-degree Celsius range, with 1.2 degrees already accounted for over the last century. Again, good news.

The impacts of climate change that we are seeing are a mixed bag, but not as bad as some make it seem. Heatwaves (although only a two or three degree increase from expected temperature levels) have been detected, as has heavier precipitation, ecological and agricultural drought, and fire weather. What we are not seeing, beyond the range of expected natural variability, is increases in flooding, meteorological droughts, hydrological drought, tropical cyclones, winter storms, thunderstorms, tornadoes, hail, lightning, or extreme winds. I will note that the IPCC did find increases in peak flows in certain parts of the world, including the northeast of the United States, but they did not attribute that to anthropogenic climate change.

Important to New Jersey is that there has been no increase in landed hurricanes and there is no pattern of any increase for the last century. Even Rutgers, in its Report of the 2019 Science and Technical Advisory

Panel, found there to be no increase in the frequency of tropical storms, although there were minor increases in intensity and rainfall.

Also encouraging is the history of our adaptation to changes in climate over the last century. We have learned that a prosperous society can develop the means to protect itself from natural disasters. Over the last 100 years there has been over a 90% decrease worldwide in deaths due to natural disasters and a 99.7% percent decline since its peak in 1931. At the same time, agricultural production has dramatically increased, and production is expected to continue to increase. The Federal Reserve Bank of New York has stated that it does not believe that extreme weather due to climate change will pose any threats to banks over the next 30 years. In fact, the New York Fed stated: "For policymakers, our findings suggest that potential transition risk from climate change warrants more attention than physical disaster risk." Even under projected climate change scenarios, the IPCC has stated that GDP would not be impacted by more than a few points from projected significant increases in the global economy that will occur despite climate change. We can adapt.

New studies have also indicated that sea level rise will not be nearly as serious at the turn of the century as some predicted only a few years ago. The IPCC in AR6 stated that the West Antarctic icesheet is not predicted to collapse, and we will thus not experience 5 feet of sea level rise by the turn of the century. One could easily argue that pandemics, war, disease, and poverty are far greater threats to humanity and should engender an equal, if not greater, public policy response.

There has been an over emphasis on climate change being an immediate, existential threat necessitating urgent, and often economically detrimental policy responses. This narrative has been driven by the fact that climate scientists, for various reasons, have focused on only four emission scenarios for the purposes of modeling, which is the primary method used to predict the future impact of climate change. These scenarios do not necessarily represent the most likely outcomes but were chosen for reasons related to modeling needs. The most extreme scenario, representative concentration pathway 8.5 (RCP 8.5), was previously, and misleadingly, labeled as "business as usual" (BAU) even though it was never patterned on likely emissions or trends. The IPCC no longer refers to it as BAU and, as previously mentioned, it is considered unlikely. For instance, for RCP 8.5 to happen, the world would need to abandon all efforts to reduce carbon emissions and build over 30,000 new coal fired plants. Population would have to explode beyond projections, and we would have to burn more coal than supply allows. This is unrealistic.

I mention these scenarios only to make the BPU aware, as policymakers, that you must be cognizant of what scenarios are being used when you are told certain impacts will happen. Facts matter, science matters, and we need to set policies based on realistic outcomes. But as I also said, the threats from climate change are real and serious, although not as severe as some initially predicted. And just because catastrophic impacts may not happen this century, we owe a debt to the future to be responsible and not leave future generations a world with challenges that we can help solve today. Thus, decarbonization is not a matter of if, but when and how.

But solving the issue of carbon and climate is not easy. Energy, in all its various forms and uses, constitutes the fundamental building block of the modern economy. Having reliable, abundant, and affordable energy to run our factories, heat and cool our homes, and power our transportation sector has transformed our economy from an animal-powered agrarian economy to the most advanced economic system known to man. It has provided us with the power to create millions of jobs, elevate people out of poverty, and provide a standard of living never before accomplished in human history. It generates tax

revenues that support the services needed by our residents. We take our energy system for granted; we merely flip a switch, and the lights turn on, we turn the ignition, and our cars power up, and we turn on the furnace and our homes and offices are heated. Since we stopped using whale blubber and trees as our primary sources of energy, our world has relied on cheap, abundant sources of fossil fuels, be it oil or natural gas. Fossil fuels have been the energy source that has powered our economy. I would venture to say that more people have risen from poverty due to the use of fossil fuels than for any other reason.

Extreme poverty around the world has also dropped to historic lows. In fact, the big success of the last generation was that the world made rapid progress against the very worst poverty. The number of people in extreme poverty has fallen from nearly 1.9 billion in 1990 to about 650 million in 2018 even as the world's population grew from around 2 billion at the start of the twentieth century to 8 billion today. This happened as economic growth reached more and more parts of the world, and that economic growth was fueled primarily from fossil fuels. I think it is also obvious to say that by taking people out of poverty, especially extreme poverty, we are saving many, many lives. If our goal is to help lift people from poverty and save lives, if we favor policies that benefit humankind, we need to recognize the role that energy, and fossil fuels, play.

We continue to need fossil fuels today and will for many years to come. If the answer was so obvious and the solution was merely to stop their use, then we should stop today. It isn't and we can't. This Legislature or Congress has not banned fossil fuel use because the fact of the matter is there in no current realistic alternative available at the scale we need.

No large, complex electrical supply system in the world currently relies on the intermittent energy sources of wind and solar for more than 30% of its power. There is a good reason for that. Intermittent power is unreliable and at levels above 25% becomes problematic from a reliability perspective and costly as a power source.

New Jersey currently obtains just over 6% of its in-state energy for electric generation from renewables. Solar power provides most of this energy, as wind energy is largely still in development although we expect this industry to ramp up in the very near future. Thus, 94% of the electrical energy produced in New Jersey is from non-renewal sources with over 50% coming from natural gas and over 40% from nuclear. That means to achieve a carbon-free electric generation system we would have to shift natural gas to wind and solar over the next 30 years. Unless we can prolong our nuclear power plants well beyond 2050, and we are encouraged by recent proposals to do so, we would need to convert an additional 35% to 40%. These numbers do not account for the increase in electricity that will occur as a result of economic growth, data centers, and electrification policies.

Heating is also dominated by carbon-based sources with over 75% of homes and businesses reliant on natural gas for heat and another 10% using oil. This significant investment in infrastructure cannot simply be turned off in favor of electric boilers and furnaces. There are issues of cost, effectiveness, practicality, and the potential need to double or triple our electricity resources to meet this new demand.

Assuming these policies were even physically possible, the cost would be untenable. Using data developed by the Consumer Energy Alliance, the cost of all renewables in New Jersey would be about $115 billion (similar numbers are derived from national data and assumptions developed by Wood Mackenzie when extrapolated to New Jersey). This amounts to $12,900 per person, or $40,000 per state

household. This does not account for the cost of heating conversions, not to mention transportation issues.

We do recognize that the federal Inflation Reduction Act and the infrastructure bill will provide significant monies to the state for energy transition. Some of this money, appropriately, will support the growth of new technologies. But this money will not cover most costs and may not be available in the future. We should ensure that it is spent wisely, and that consumers' pocketbooks are protected.

Cost, however, may be the least of the problems with achieving a 100% renewable grid or anything remotely close. Evidence has shown that attaining a 25% market penetration for intermittent energy sources can be done relatively easy, "[b]eyond that point, operational and cost complexities progressively multiply in large part due to the intermittent nature of renewables." (Deep Decarbonization requires deep pockets, Wood MacKenzie, June 2019)

The German electricity grid, which relies more heavily on intermittent energy sources than any other major economy, has come close to blackouts and significant blackouts are expected to occur in the next few years. Worse, despite electricity prices that are more than 45% above the European average, Germany has not come close to realizing its carbon reduction goals and has been importing more of its energy. In fact, its energy policies have resulted in increased coal production and the burning of wood pellets as a fuel source. Another consequence of Germany's energy policies is deindustrialization. Major industries have collapsed and moved elsewhere. This is a horrible result for the German economy and people and moving industry from one country to another does not lessen carbon emissions. The German path of unintended consequences should not be our path.

The largest problem for RE100 is the intermittent nature of wind and solar itself. While this issue is generally understood, when applied to a large, complex power system, there is a need to ensure generation and demand alignment on a second-by-second basis. Experience in other systems with over 20% penetration of wind and solar has shown hourly power generations of between zero and 101%.

These power variances, in the absence of battery storage (which currently does not exist at sufficient power capacities, is cost prohibitive and technologically impossible to meet demands beyond a few hours) result in overbuilding systems by 100% or more. This creates a hugely underutilized system when power is not being generated or unneeded and creates excess generation when in operation.

At higher levels of penetration, challenges associated with intermittent power sources increase nonlinearly. These challenges can be better managed at levels significantly less than RE100. Transmission costs are one of these challenges. Even at RE50, there may be a need to increase long-distance, high-voltage transmission lines from 56% to 105%. Depending on the location of the energy sources, these numbers could increase. (Jenkins et al., "Getting to Zero Carbon Emissions in the Electric Power Sector," Joule 2018). Siting and NIMBY considerations should not be ignored and may represent significant obstacles to building this infrastructure.

The increased costs associated with higher levels of intermittent sources of renewable power will not be offset by the increasingly lower costs of producing energy from these sources. Any decreases in total power generation costs from wind and solar, the levelized cost of energy (LCOE), are significantly outweighed by the enhanced costs associated with incorporating intermittent renewable sources into the energy mix.

These costs include not only the cost of building and operating the generation facilities, but also capacity payments, transmission and distribution upgrades, redundant supply, backup power, and other costs. In fact, there appears to be an inverse relationship between a decrease in the LCOE of wind and solar and an increase in cost to the ratepayer. (Wood MacKenzie)

It is also very unlikely for current battery technology, based on lithium, to advance enough to solve this problem. Costs will come down and storage capacity will likely increase, but not to the breakthrough extent needed to make reliance on battery technology warranted. (Mills, "The 'New Energy Economy': an Exercise in Magical Thinking")

There are pathways to a net-zero approach, as shown by the group at Princeton University who produced the Net-Zero America report and is conducting ongoing research. This report assumes an investment of $2.5 trillion additionally for energy system upgrades over the next decade as well as substantial interstate transmission of renewable resources. It also assumes certain technological and societal changes. In reality, this approach is not practical or desirable.

We can certainly have policy debates over how best to obtain a clean-energy or net-zero energy system by 2035 or 2050, but I think that is the wrong question. We now have much better scientific information about timescales and potential harm from climate change as presented by the IPCC in the past summer's AR6 report. We know that the extreme emission scenarios are improbable, if not impossible, and we know that the impacts from all scenarios are not as great, in this century, then we initially thought when we set our goals and statutory mandates. We should capitalize on this scientific information.

Our recommendation for the BPU when it updates its EMP is to pursue an aggressive decarbonization policy, but to do so in a manner that avoids unacceptable impacts and in a timescale that makes sense technologically and that is aligned with the latest science. We should not set artificial deadlines for actions because such deadlines often result in policies that ignore the tenets of affordability and reliability and may have unintended consequences. We see that in Germany today as it is increasing its use of coal, in California where another season of brownouts is expected, and in this country, generally, as the average price of gasoline in states like California is now $5 a gallon.

Trying to push policies with artificial deadlines has caused this Administration to pursue an all-electrification policy and to seek to abandon natural gas as an energy source despite cost, impact to the grid, and questionable effectiveness. For instance, converting a modern fuel-efficient natural gas boiler to an electric one would actually increase carbon emissions because of the carbon footprint of the PJM grid. An all-electrification policy has resulted in a mandate to electrify heavy duty trucks before the technology is capable of handling heavy loads and is commercially available at affordable prices, and before the grid and infrastructure has the capacity to handle the loads. An all-electrification policy has caused us to adopt the California Advanced Clean Car II regulation that ignores the will of consumers, the impact on residents, and the practicality of implementation. We need a more holistic, practical response to our decarbonization needs.

We must ensure that energy, in all its forms, remains affordable for both residents and businesses. We need to ensure our electrical grid is reliable and not subject to periodic blackouts or brownouts. Affordability and reliability need to be the guardrails of our decarbonization and energy policies.

We recommend that New Jersey's energy policy be founded on six foundational principles:

- Decarbonization – Policies should strive to reduce carbon emissions as much and as quickly as practicable based on the best interests of the people living in this state and our economic needs. However, no decarbonization policy should be put in place until a full economic impact assessment, including a ratepayer analysis, is conducted. The economic impact analysis must also study the total costs to residents of these policies. Our policies should emphasize what we can readily achieve now in an affordable and reliable manner and delay other efforts until the technology or other cost-containment measures allow for such adoption.

- Affordability and Reliability - Affordability means that low-income or average residents, as well as businesses, can afford to use the energy needed considering the other costs of living and doing business in New Jersey. While climate advocates, and the Energy Master Plan, will often use the term "least cost," this does not denote affordability as "least cost" is in relation to other considered options. Reliability is essential for the functioning of an energy system and, thus, our economy and quality of life. Both affordability and reliability have been central tenets of New Jersey's energy policies in the past but have recently been ignored for decarbonization policies. And in looking at cost and benefits, we should not use unsound policies such as the "total cost of carbon" that are based on erroneous assumptions and are crafted with an end result in mind.

- Emphasis on Technology - Technological advances should be pursued as a key component of the state Energy Master Plan. While intermittent sources of energy need to be part of our energy future, renewables alone cannot replace carbon sources of fuel and still meet the goals of affordability and reliability. We will need new technologies, some of which may not even be known yet, in order to meet net-zero emissions goals. Technologies such as hydrogen, next generation or modular nuclear, renewable natural gas (RNG), wave energy, fusion, geothermal, microgrids, smart metering, energy efficiency, carbon capture, low carbon fuel standards, and others should be fully vetted and discussed in the Energy Master Plan. Everything should be on the table.

  I want to specifically reference next generation nuclear, be it modular or from some other advanced technology. The Energy Master Plan assumes our nuclear fleet will be operational through 2050, but it makes no provision or assumptions beyond that. This is unacceptable from a planning perspective. Much of the rest of the world is rediscovering carbon-free, nuclear energy. We need to engage in a serious policy discussion about its efficacy.

- Sound Planning - No major changes in energy sources should be mandated until affordable and reliable alternatives are readily available to replace those sources, and the infrastructure is in place or planned to be in place when those sources are activated. The promotion of current electrification policy initiatives has not considered the needs of increased electrical generation and the transmission systems necessary to support them. We have been putting the cart before the horse. In fact, there are currently hundreds of solar projects that are ready to be built but which have been put on hold due to the lack of distribution lines to connect to the grid. The infrastructure challenge is also an issue for transportation electrification problems and will only be exacerbated by the need for data centers, economic growth, and other electrification policies. PJM has already sounded the alarm that we are retiring fossil fuel power sources faster than

replacement power is being brought online. If this trend continues, grid reliability could be at stake.

- Emphasis on Clean Energy Sources - We should continue to pursue established clean energy options, including wind, solar, and nuclear power. New Jersey already has substantial sources of clean energy, and more is rapidly coming on board. Our three remaining nuclear power plants provide roughly 40% of electric generation in the state. Our solar industry supplies another 6% and is growing. Our offshore wind industry has already been approved for 5200 MW with a total goal of 11,000 MW. Numerous proposals have already been submitted for the transmission projects to build out the offshore wind generation. Together, the continuation and expansion of these sources of power represent a substantial sum of our total electricity energy needs, although we recognize that those needs may significantly grow in the future depending on state and federal electrification policies. These industries should be supported, eliminating unnecessary regulatory burdens and establishing the process for their development in a cost and time effective manner. We need to solve our transmission and congestion problems if these industries are to reach their full potential.

- Energy Security - Multiple energy options should be available to ensure security and the continuous availability of energy in varied forms, in sufficient quantities, and at affordable prices. It has been a tenet of energy policy, until recently, that an energy system provides for a range of energy options and sources so that consumers are protected from sharp price increases and disruption should one energy market be disrupted. We are seeing this play out in real time in Europe, which stopped fracking for natural gas and began to close nuclear power plants only to become dependent on natural gas from Russia. New Jersey's energy consumption policies should embrace an "all of the above" approach to protect against market disruptions.

In addition, beyond efforts to mitigate climate change by reducing carbon emissions, we recognize that extreme weather events have and always will be part of living in a coastal state. We also recognize, as we have stated above, that sea levels are rising, rainfall is getting more intense, and heatwaves are increasing. Therefore, we should emphasize resiliency efforts. We favor the use of sound science to predict future climate impacts and the protection of our citizens and infrastructure rather than a general policy of retreat which has not been given a sound public airing.

Our policy recommendations are not rooted in artificial deadlines for actions. Rather, they are based on what is in the best overall interest of the citizens of New Jersey. We fully agree on the need to deeply decarbonize our economy and to achieve a net-zero, or lower, carbon policy but we believe science shows we do not have to rush to take actions that may preclude the use of more effective technologies. Many of the comments we made in the planning and drafting of the 2019 EMP are applicable today. We now have the benefit of evaluating how many of the policies put into place have worked and the lessons learned. We also have the benefit of updated science, evolving technologies, and the experiences of other states and nations who have led decarbonization efforts.

NJBIA remains supportive of the goals of the EMP to meet the 80% carbon reduction mandates of the Global Warming Response Act. We are generally supportive of Governor Murphy's goal of 100% clean energy by 2050, defined as 100% carbon neutral or net zero carbon emissions from the electric generation sector. However, we note that neither Executive Order 315 (Murphy) nor the Global Warming Response

Act are legally binding and enforceable mandates to take any particular action. They are primarily aspirational and setting decarbonization goals for the state. It is good to have aspirations so long as we do not try to achieve them to our detriment.

We believe there are two paths that can be taken in the updated EMP and ultimately in its implementation. One is prohibitively costly, will put our energy supplies at risk, and is not reasonably achievable. The other is based on considerations of cost, availability of resources, and realism. This pragmatic approach does not overemphasize intermittent sources of renewable energy, such as wind and solar. It allows for low carbon sources of power. It recognizes the continued need for natural gas and other forms of fossil fuels. And it is flexible and adaptable.

We want to ensure that the updated EMP learns the lessons of the last five years and adjusts accordingly. We do want to acknowledge the policy decisions implemented in the last five years that have been successful and put on the right path.

The goal of developing 11,000 megawatts of offshore wind power, while aggressive, has proven to be a motivation for action. New Jersey's new wind port and manufacturing capacity development will allow us to be a regional, if not national, leader in job creation in the wind industry. While there have been challenges in standing up a new industry in a period of changing economic conditions, we appear to be on the right track with sound companies securing awards to develop wind farms off our coast. Together with innovative policies for transmission facilities, New Jersey is well positioned to lead the nation in energy production from offshore wind.

Our solar industry also is on the right track having transitioned from its initial phases to a program that recognizes both the need for certainty and economic opportunity while putting in place constraints that will protect ratepayers. Policies that advance utility scale solar as well as incentives for brownfield and warehouse development will continue to drive expansion of this resource.

We believe the EMP should consider the successful pursuit of a clean energy economy to mean one that achieves deep decarbonization of our energy sector in a manner that results in affordable, reliable, and abundant energy supplies. Our goals must be reasonably achievable. They need to be implemented with the support of the public and business sector, not implemented despite their objections. If the updated EMP does not contain policies which are supported by the public and business community, it will fail, and so will the efforts to address our carbon reduction efforts in a meaningful way.

100% Clean Energy: There are many ways to meet the 100% clean energy goals sought by the EMP, as well as the carbon reduction goals of Global Warming Response Act. Some have argued for a rigid policy involving a moratorium on natural gas facilities and hookups, a ban on all carbon fuels, and an electrical grid based solely on wind and solar resources. That strategy would fail because it is neither affordable nor feasible. It should be rejected.

A more realistic approach would be to allow firm generation from both nuclear and natural gas resources. It should be flexible to allow for consideration of various technologies, some currently available, some not, such as carbon capture, low carbon fuels, next generation nuclear, mitigation, offsets, energy efficiency, and new technologies or strategies perhaps not yet foreseen.

A Strategy with the Greatest Chance of Success: For all the reasons described above, the EMP should reject a requirement for all electricity to be produced from intermittent renewable energy sources.

Rather, NJBIA believes that our carbon reduction goals can more likely be met, at affordable prices and in a reliable and feasible manner, if we limit intermittent renewable energy sources to a more manageable number, perhaps RE50, and provide the rest of the electric generation through firm sources such as nuclear power and natural gas. The best strategy is one that keeps all options on the table and is flexible enough to move in the right direction as technologies evolve or do not and as new facts and considerations are made known.

We need to allow for low carbon alternatives to reduce our carbon output, as well as techniques such as carbon capture, mitigation, offsets, next generation nuclear, energy efficiency, and evolving and yet unknown technologies. We must not make policy decisions today, such as gas infrastructure or hookup bans, that lock us into a defined path. The best path goes in multiple directions. Rigid thinking will surely lead to poor decisions and ill-fated outcomes. Allowing for more options to solve our energy generation issues will result in a statistically greater chance of being successful in achieving our goals.

We should have both short-term, implementable action items and longer-term aspirational goals. As the EMP is updated every three years, changes to strategies should be made based on current circumstances.

Building Electrification: Twenty-nine percent of our greenhouse gases come from the building sector with approximately 14% from residential buildings, 10% from commercial, and 4% from industrial. While this sector needs to be addressed to meet our carbon reduction goals, the requirement that all buildings be electrified by 2050 ignores feasibility, cost, and public support. This is especially true to the extent the EMP is seeking retrofits of existing buildings to require the installation of electric heat pumps.

Over 75% of our buildings are heated by natural gas, with another 10% heated with oil or propane. Converting this building stock to electric heat pumps, as proposed by the EMP, would be a herculean effort and may not even be possible from a workforce and equipment perspective, even in a 30-year horizon. It also ignores other options for heating buildings that maintain the billions of dollars of existing infrastructure. Development of renewable natural gas, hydrogen and other low carbon, or net carbon options are more practical, cost effective, and likely to be accepted by the public and business community. The bottom line is that a building electrical mandate is costly, impractical, and likely to fail while a flexible approach may achieve early emission reductions and offers long-term net reductions.

There are also other options that should be explored such as geothermal and geo-exchange that is being successfully implemented at Princeton University. In the industrial sector, carbon capture may be an option for certain facilities as that technology advances. As with all energy policies, a top down, proscriptive approach should be rejected in favor of allowing technological development, experimentation, flexibility and options. The EMP should provide technical assistance and education to advance pragmatic decarbonization strategies.

Aside from these practical issues, electrification of the building sector will significantly increase the amount of electricity needed. Some estimates are that generation may need to increase by 100% or more. And unlike electrification of the transportation sector, discussed below, electrification of buildings cannot be ameliorated by load balancing. Because of the need to heat buildings throughout the day, New Jersey will become a winter peaking state. This will cause generation and transmission issues which will also increase costs to consumers.

The bottom line on building electrification is to allow flexibility and not to lock citizens or businesses into a particular technology or fuel choice. Technology will evolve, efficiency efforts can be enhanced, and consumers can be better educated. By some estimates, we can achieve 80% reduction in carbon emissions by focusing on emissions, not fuel choices. This applies to the building sector as well.

Transportation: Forty-two percent of the greenhouse gas emissions in New Jersey are attributable to the transportation sector. This includes cars and light duty trucks, as well as mid- and heavy-duty vehicles, off-road vehicles and the ports. NJBIA is largely supportive of decarbonizing the transportation sector.

Because the EMP had identified electrification of transportation as the sole policy for decarbonization, and because the emphasis on meeting artificial deadlines was driving policy, the Department of Environmental Protection adopted two far reaching regulations – the Advanced Clean Truck rule and the Advanced Clean Car II rule. Both rules mandate the adoption of zero emission vehicles (under current standards, this means EVs or limited battery powered hybrid vehicles). Both rules are costly. Both rules are impractical. Both rules should be replaced.

The ACT rule mandates that all heavy-duty trucks be zero emission by 2035. This mandate was adopted despite the fact that these vehicles are often cost prohibitive, need extensive and expensive charging systems, will need their own power supply, and, in the case of heavier duty trucks, do not currently exist. These trucks often do not meet the needs of businesses due to charging times and distances traveled. The Department should repeal this rule and allow the market and technology to develop.

Similarly, ACC II would mandate the sale of electric vehicles at rates beyond the capacity of the market to handle. When the rule takes effect in 2027, 43% of new car sales must be EVs. We are currently at 11% and there is no indication that sales will accelerate. In fact, EVs are piling up on dealer lots. Early adopters have largely bought EVs and others are rejecting them. Consumers are concerned about cost and practicality. They are concerned about range and the ability to charge their vehicle. There will be a wide range of people who will not be able to afford these vehicles, even with subsidies, making those in economic distress even more disadvantaged. The Department should repeal this mandate and allow the market to develop organically.

We also do not support large subsidies of vehicle charging infrastructure that are paid for by electricity ratepayers. We do not support use of the Societal Benefit Charge to subsidize the purchase of vehicles. We do, however, support current efforts by the BPU and the Department of Environmental Protection to determine the need for a public subsidy of additional vehicle charging stations, the types of charging that is necessary, and reasonable methods to pay for it. But subsidies, for both charging stations and vehicles, cannot be a long-term answer. The market must be allowed to drive down costs for both. The public cannot be expected to continually subsidize these markets, especially vehicles, given their tremendous cost. In fact, given the current market penetration of electric vehicles, it can be argued that the technology has not been proven and it no longer needs to be subsidized. Subsidies for charging stations should only be allowed where there is a need that cannot be supplied by the market.

While electric vehicles may very well be the wave of the future, they are not the only alternative to gasoline and diesel-powered internal combustion engines (ICE). The EMP should be supportive of that and not cut off other fuels such as hydrogen in fuel cell vehicles or low carbon fuels, such as compressed natural gas or renewable gas or diesel, especially in mid- or heavy-duty trucks and equipment.

Distributed Energy and Transmission Upgrades: The provisions in the draft EMP on distributed energy and transmission raise more questions than answers. They foresee a transformation of the energy sector but do not explain how that will happen, how the system would operate, who would pay, how much it will cost, and how it would work in a regional electric grid system. While it is useful to envision a radically different energy future, significantly more research, technological change, and stakeholdering needs to be done before we can even decide if some of these changes are even a good idea.

Conclusion: NJBIA is appreciative of the visionary aspects of the draft EMP, but we are concerned about the reality of ensuring affordable, abundant, and reliable energy. We are concerned that our economy continues to function, that businesses and their jobs remain in the State, and that residents can afford their electric bills. We recommend that the Administration use this EMP update process to implement short-term policies that are achievable and cost-effective now, and revisit more aspirational policies at the next EMP update as more information is gathered, conversations had, and facts become known.

As we seek a clean energy economy, and a reduction in carbon output, we must ensure that all our energy supplies for all our needs remain affordable, abundant, and reliable.

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