

Draft Scoping Plan Comments
NYSERDA
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Re: Comments on the Climate Action Council Draft Scoping Plan, dated December 30, 2021

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Thanks to the New York Climate Action Council and all the work groups and contributors for the hard work done in putting together the Draft Scoping Plan (DSP). The DSP advances many valuable energy conservation, Greenhouse Gas (GHG) reduction and renewable energy actions that I strongly support, including:

- R&D for energy solutions and construction waste,
- Public outreach on building solutions and climate science,
- Reuse of existing buildings,
- Using state contracts and procurements to advance goals (eg. transportation p. 106, Smart Growth p. 119, construction, p. 146,),
- Business partnerships p. 114,
- Use of state regulatory authority such as building codes (p. 125),
- Workforce training programs (refrigerants, p. 147),
- Expanded financial support for energy transition (p. 131),
- Community scaled solutions (p. 135),
- Leveraging federal science and technology support (p. 144).

The scope of the effort by the Council reviewing options, and the breadth of recommendations to reduce GHGs, are impressive and I express my appreciation to everyone involved.

I have a long list of comments that could help improve the DSP. In the sense of a set of actions intended to eliminate GHG emissions, the DSP does not fully live up to the historic opportunity the Climate Leadership and Community Protection Act (CLCPA) offered to launch New York on a path matching the urgency of the climate crisis. Two of the four modeled implementation scenarios rely on unproven and dangerous carbon capture and storage. Even they only barely achieve the objective. The package of actions offered in the DSP *might* achieve legal mandates under the CLCPA, if they are fully implemented and all turn out to be effective. There is no room for error, underperformance, or evolution of policies and practices over time. Many of the recommendations are only modifications or adjustments of existing practices that ignore energy wasting habits in the public and private sectors. The Council and work groups seem to be constrained by unexpressed objectives to preserve current business practices and lifestyles, just powered with renewable energy. Preserving the status quo is unlikely to achieve the energy efficiency needed to address the climate emergency nor will it provide the socio-economic transition all segments of society need for climate equity. The DSP must open the door to energy accounting and include the social costs of the carbon economy to succeed.

My concern is compounded by observing that for one reason or another many elected officials at the federal and state level are reluctant, unable or opposed to actions that adequately respond to the gravity of accelerating global warming. They have not prioritized spending for climate change, they have not made it a mandatory consideration in other decisions, programs

and authorities, and they are reducing taxes and taking other measures to support fossil fuels. The possibility that in the very near future we will pass a point where it is no longer technically or financially possible to avoid widespread devastation from severe climate change does not seem to have penetrated Congress or the state legislature. This reflects ambivalence within the whole population over costs, despite widespread expectation that climate actions will be addressed. The lack of priority for climate change also follows the failure of the federal government to meet previous international agreements (Paris) or to enact the Build Back Better bill, and the failure of the state legislature to enact the Climate and Communities Investment Act or otherwise provide comprehensive funding, policies, and directions to agencies on climate and GHGs. Favorably New York State does participate in the Regional Greenhouse Gas Initiative, passed the CLCPA, and has incorporated climate considerations in some agency practices. However, with a state budget in excess of \$225 billion, most spending continues existing programs as is, while policies and spending to mitigate climate change are a small fraction. We urge the Climate Action Council and our elected representatives to recognize that in the lifetime of young people living today many programs funded in the state budget will no longer be practical, costs of adaptation will skyrocket, and much of the population will require other services or will be in jeopardy if we do not take sufficient action now.

The week of April 4th, 2022 the United Nations Intergovernmental Panel on Climate Change issued a report on mitigating impacts that recognizes broad lifestyle changes are necessary to avoid catastrophic climate change. These changes include how we get around, what we do, what we eat, how we farm and how we are housed. The upside is that the changes needed to avoid climate disaster will benefit us with better health, better fitness, better food and more active lifestyles. Such wholesale changes are not likely to be accepted as government mandates but must be willingly adopted by the whole population who recognize they will benefit. This is the scope of change that should be expressed in the DSP. The Climate Action Plan has an opportunity open the door to change by acknowledging the urgency of climate change and the causative factors, modifying public sector programs to recognize energy and GHG effects, and supporting behavioral change among our people and communities when they willingly choose to adopt healthier options. If we support, subsidize or prefer low or no GHG options, we will get good outcomes.

The following recommendations are intended to improve the DSP and support successful transition to a zero or if possible negative GHG future. We need negative GHGs because the level in the atmosphere must be reduced to stabilize the climate. These comments include observations on goals, additional strategies, conditions for monitoring the strategies, and allowance for future modifications as needed to meet the requirements of the CLCPA and to achieve a healthy and sustainable New York.

- Items starting with a bullet are recommended changes in the DSP.

General Comment on the DSP: Fundamental changes in behavior and the economy that are needed to achieve CLCPA Greenhouse Gas (GHG) targets are neither described nor explicitly supported under the proposed strategies. Society will change substantially with the passage of time, the emergence of new technologies, socio-political conditions and climate change impacts. Patterns of energy consumption previously allowed by low fossil fuel costs, subsidies for fossil fuels and shifting environmental impact burdens to the public will need to be revised to achieve GHG reduction targets and to address other environmental and social impacts. The DSP should acknowledge these facts explicitly.

Rather than acknowledge past public sector support for fossil fuels and neglected climate and environmental impacts, which require a fresh look at the social economy of fossil fuels, the Climate Action Council (Council) divided strategy development according to existing economic

sectors. This guaranteed those sectors would produce recommendations that ensure their interests and business culture would be maintained in any recommendations. The Council convened seven Advisory Panels: Agriculture and Forestry, Energy Efficiency and Housing, EITE Industries, Land Use and Local Government, Power Generation, Transportation, and Waste and the Joint Technical Work Group (JTWG). This structure ignores the fact that social patterns, economic interests and technologies are not permanent. Failure to allow for change limits the opportunity to envision a future with a different approach to energy, the environment and social equity. Better health, more efficient living patterns and better natural resources will be difficult to achieve on a pathway based on existing practices. Furthermore, the Council should not presume a 2050 end date for the DSP finalizes the adaptation process needed to achieve sustainable living. It is likely we will continue to modify our patterns of living and adjust to challenges in the future, provided we successfully manage to get through the present climate emergency. I do not suggest that government should be involved in social engineering. Rather, many existing government funding and regulatory programs contribute to excessive energy use through development sprawl, inefficient land use and failure to provide equal support to disadvantaged people in inner cities and rural main streets. This is true at federal, state and local levels. Because patterns of living change over time there are opportunities for government to support those changes that are more energy efficient, more equitable, produce fewer GHGs, and improve the environment. We cannot achieve a sustainable future by continuing existing practices modified only by electrification.

Our current auto-dependent circulation system was greatly magnified by construction of the interstate highway system, subsidized by direct government funding and policies. Equivalent changes in policies and funding could yield different, more efficient living and circulation patterns supporting healthier lifestyles with better environmental protection, more secure food production and more efficient service delivery. The structure of how the DSP was developed eliminated the opportunity for many of those ideas to be explored. It also reduced the flexibility of the DSP to allow for modification of strategies and changing priorities going forward. The committee structure limited recognition of the relationship between various lifestyles and associated energy consumption. For example, the report doesn't explore per capita energy consumption in rural, suburban and urban areas, how urban density, hamlets and large lot single family homes compare in energy use, or the role of local governments in managing energy consumption. The DSP ignores differences in energy consumption associated with development density, transportation and housing, as well as GHG emissions related to employment location, school and access to services. How does development density relate to energy consumption? What measures could best increase travel efficiency of different community types? What resources and responsibilities are needed for communities to achieve zero GHGs? As a result the report doesn't address whether different strategies should be employed in different geographic areas, which activities create disproportionate energy demands, or the role of state infrastructure spending in energy consumption and GHGs.

Perhaps most significantly, the role of public spending in creating lifestyles that increase energy consumption is unexpressed. Public subsidies, lack of protection of waterbodies and lack of conservation of high productivity agricultural and natural resource areas lead to highly diffuse development patterns that maximize energy consumption. Existing subsidies for roads, water, storm water, sanitary sewer and utility extension encourage the spread of development to previously undeveloped areas. Forests and agricultural lands turn into single family homes with federal, state and local subsidies providing financing that enables it. Industrial parks located miles from public transportation drive up highway demand, vehicle miles and land consumption. Food that used to be produced locally must be imported. Transportation planning considers this sprawl "growth", justifying public subsidies. But the impacts to climate, health and natural resources are not adequately counted, and they all suffer. Impending climate change disaster makes these practices obsolete.

Alternative economic patterns might yield higher energy efficiencies but that critical aspect of our energy system isn't addressed in the DSP. The report seems to assume that human behavior and business practices will remain unchanged and that preferences for cars and suburban or large lot rural living are infinite. Past public funding to extend and maintain infrastructure and services to suburban and rural areas, and the continuing role of public support is unaddressed, as are banking practices. Local governments approve and promote development assuming that state and federal sources will provide infrastructure, education and support for services while neglecting climate and environmental impacts. Public decisions about where to place amenities and noxious uses are strong determinants in personal location decisions. Will New York State begin to take responsibility for its spending role in the climate crisis? The effect of public support for development and associated energy consumption cannot be overstated. The recommendations simply fail to recognize these crucial factors in GHG emissions. The following recommendations should be incorporated into the report to address these fundamental shortcomings.

• What the New York Climate Change Strategies Should Do:

1. State explicitly that the objective of the DSP is to support an equitable, healthy and environmentally sustainable zero carbon future.
2. Acknowledge that mere electrification of existing uses and development practices will not achieve carbon neutrality in the long term.
3. State that New York State expects to continue population growth in the future, that economic activities and social patterns will change over time and that as a result of these conditions any state GHG strategy must comprehend patterns of energy use and the effects of public spending and policies.
4. Recognize that local governments are essential partners in eliminating GHGs. Support energy auditing/GHG emissions modeling to help communities achieve zero emissions over time. New York State cannot achieve zero emissions if every community thinks it is someone else's job. Reward best practices.
5. Give DSP strategies the flexibility to encourage greater or more rapid energy efficiencies and GHG reductions by:
 - A. Allowing options for additional or improved strategies to be adopted; and
 - B. Tracking the success of strategies with targets for modifying them.
6. Give DSP strategy actors the responsibility to monitor the GHG reduction progress due to their practices and obligations to address shortfalls or changing conditions over time.
7. Acknowledge that New York State has contributed significantly to excess atmospheric greenhouse gasses in the past and therefore negative GHG emissions through healthy sequestration is a desirable goal.
8. Recognize that conservation of biodiversity is as essential for a sustainable future as low GHG emissions, and can serve climate goals by sequestering carbon, reducing energy demands, and avoiding natural hazard damages.
9. Observe that it is well recognized that dispersed development entails higher energy consumption, contrary to efforts to reduce GHGs. Efficiencies are possible at the urban, village and rural hamlet levels.
10. Recognize that information on the energy demands associated with different types of development and current community energy audits are not readily available to planners, regulators and developers in New York State. Recommend that empirical information and performance models be developed to support planning and decision making.
11. Support academic investigations into the energy use of various types of development and infrastructure networks and the implications of extending development beyond existing areas without significant population growth. Make the information available to state agencies and local governments to be incorporated into planning, environmental approvals and funding decisions.

12. Recognize that many existing funding, grant and approval processes in New York State do not consider energy consumption and GHG implications, and recommend that the administering authorities incorporate criteria to take those factors into account.
13. Recognize that cost/benefit analyses for infrastructure development and water resources management don't normally account for energy consumption and GHGs of the associated development. Approval processes should take those into account with the objective of reducing then eliminating project, community and per capita GHG emissions. See energy, Benefit Cost Standards, p. 175.
14. Revise the State Environmental Quality Review Act to make it explicit that total energy consumption and GHG emissions related to the end use of an action, per capita energy consumption, and GHG emissions due to construction, operation and use shall be included in environmental reviews.

Some additional State capacities are available that should be exploited:

1. Lobbying for federal funding support for:
 1. Renewable energy and natural carbon sequestration research and development.
 2. Home owner and private sector renewable energy conversions.
 3. Education and job training for Low and Moderate Income (LMI) communities.
 4. Climate resilient disaster recovery.
 5. Natural resource protection and restoration for carbon storage.
 6. Distribution of federal transportation funding on a per-capita basis.
 7. Fossil energy regulatory improvements (elimination of fossil tax breaks, requirements to seal closed oil and gas wells, mandatory capture of methane, full cost of GHG effects in environmental assessments, etc.).
2. Allocate federal and state infrastructure resources on a per capita basis, particularly with respect to pedestrian, bicycle and transit modes.
3. Lobbying for better federal balance of state income tax outflows with in-state federal spending.
4. Research assignments and information consortiums with State universities and colleges on local government comprehensive planning for energy conservation and GHG elimination.
5. Land conservation for GHG sequestration/flood risk reduction/urban temperature reduction/infrastructure consolidation/water quality protection.
6. Set up state guidelines for community energy assessments as part of comprehensive planning.
7. Provide resources for energy audits for local governments, plus model performance information, demonstration renewable transition projects and employing local energy audits to support more efficient infrastructure systems.
8. Coordinate local/regional renewable energy upgrades with State economic development and environmental conservation and water quality programs.

Benefits of Adaptation and Resilience (p. 8) - Biodiversity is often neglected in public administration and it is a critical support for human health and well being. Conservation of biodiversity is essential for our economy but more fundamentally for our physical and mental health. It is equally important to GHG reduction. Simply put, we are part of our ecological community and when that community is unhealthy or diminished it has repercussions for us in many ways.

- The statement of Benefits in the Scoping Plan should explicitly state that among the intended benefits, conservation of biodiversity is an objective for the long term climate as well as health of the people of New York. This is within the scope of the DSP because climate change is one of the top causes of biodiversity loss.
- The DSP should support and work to coordinate with Section 203 of the White House Executive Order on Tackling the Climate Crisis at Home and Abroad, Jan. 27, 2021, which organized a federal Climate Change Task Force, one of whose missions is to: "... facilitate planning and implementation of key Federal actions to reduce climate

pollution; increase resilience to the impacts of climate change; protect public health; conserve our lands, waters, oceans, and biodiversity; deliver environmental justice; and spur well-paying union jobs and economic growth.”

- The DSP should express a goal for New York similar to Section 216 of that Executive Order, in which the Task Force is to receive a report from federal agencies recommending steps “...to achieve the goal of conserving at least 30 percent of our lands and waters by 2030.”

Conservation and GHG reduction: While climate change is an existential problem, conservation of natural resources and human welfare benefits of nature are equally pressing. Loss of ecological systems and spread of associated health impacts need to be addressed. To the extent possible, New York State should coordinate carbon sequestration strategies and environmental conservation objectives by:

- Coordinating high GHG sequestration opportunities with the Statewide Comprehensive Outdoor Recreation Plan. Modify the SCORP objectives to incorporate carbon sequestration. Growing out existing forests is an optimal strategy because older trees have been shown to sequester significantly more carbon than young ones.
- Expanding existing wetland protections to conserve existing wetlands, enable migration of wetlands with sea level rise, and reverse existing wetland impacts.
- Funding land acquisition for wetland and forest restoration.
- Consider tax abatement for farms in return for habitat conservation of wetlands, stream corridors, old woodlands and priority habitats.
- Support urban park expansion, continuous park corridors, urban trees and access to natural areas for urban populations. This strategy will benefit resident health, support economic development and mitigate climate impacts as well as sequestering carbon.

Expression of the DSP Objective (p. 27): While the Climate Leadership and Community Protection Act (CLCPA) calls for GHG emission reductions, it is clear that there are too many GHGs in the atmosphere already, so additions of any amount are harmful.

- Recognize that 350 parts per million carbon equivalent is a maximum for a safe livable climate and we have already exceeded that, so reductions in atmospheric greenhouse gasses are needed. While the CLCPA does not require the DSP to achieve state-wide zero or carbon-negative emissions, the DSP should state outright that the CLCPA objectives are an intermediate milestone that sets goals to get all of New York State on the pathway to overall zero GHG emissions.

Chapter 7, Just Transition

1. We strongly support programs aimed at disadvantaged communities and agree this content should remain toward the front end of the DSP recommendations. Unlocking the potential of these communities is one of the most significant contributions the State can make towards a better and more sustainable future for all.
 - We recommend the DSP state outright that support for low and if possible zero GHG living in Low and Moderate Income areas (LMI) are highly recommended to achieve climate stability and social equity. Among the most valuable recommendations are green education and workforce development, public outreach, weatherization and energy efficiency, renewable energy transition, natural resource access and environmental quality improvements, and elimination of fossil emissions from the power, industry and transportation sectors.
2. Page 49 states the CLCPA requires identification of power plants that may be closed. In order to achieve zero carbon emissions, and if possible negative emissions to address existing excess GHGs, it will be necessary to end all GHG producing power plants.

- The DSP should acknowledge these facts and promote recognition that fossil based power will be phased out in the future. The state should initiate dialog with the power industry on transitioning away from fossil-based power as soon as reliable and sufficient renewable sources are available. Job transformation will have to address that.
- Please recognize zero carbon power is a goal of the strategies.

Scenario Design, p. 69:

Scenario 1: Strategies that reduce methane emissions are critical since methane is a powerful GHG. A recent science paper documented methane emissions are 70% higher than previously reported. Incentives for heat pumps for heating and cooling are likely to be successful since they reduce user energy costs while also reducing GHG emissions. Government and non-profit entities cannot take advantage of tax credits for heat pumps since they pay no taxes. The federal American Independence in Manufacturing Act goals for reducing HFCs are an 85% reduction over the coming 15 years. That time frame is too long and the reduction target is insufficient. Suitable refrigerant alternatives are available, and in some countries they are used almost exclusively. The State should renew and enhance incentive programs to encourage consumers to convert gas heating to heat pumps.

- Reinforce the importance of methane reduction strategies in describing the Scenario.
- Investigate stricter regulations for HFCs.
- Promote incentive programs for transition to low-GWP equivalent alternatives.

Scenarios 2 and 3: These scenarios refer to “negative emissions technologies”. Carbon Capture and Storage (CCS) technologies from open air have significant performance issues and negative environmental consequences so they should not be relied upon to achieve DSP objectives. These technologies require excessive amounts of energy to operate, they produce toxic byproducts and the effluent must be pumped into underground storage sites. These processes will lead to leaks in transit, storage and injection. CO2 reduction in the surrounding area is harmful to plant life damaging the ecosystem. Leakage and groundwater contamination from captured carbon has not been addressed. An explosion of captured CO2 in Louisiana created an emergency response fiasco when neither resident nor emergency vehicles could operate in the low oxygen atmosphere. Experience with pipelines shows that leaks are certain to occur. Large scale open air CCS has not been shown to be commercially viable now or on the foreseeable horizon. as a result including CCS in the DSP renders the associated results wholly conjectural. CCS diverts needed resources from renewable energy development and sequestration. See writings of Dr. Charles Harvey of MIT. CCS should not be funded by New York State and it should not be included as an implementation option in the DSP. The U.S. government is subsidizing research on CCS with billions of dollars. If a safe and effective CCS technology emerges in the future, it can be employed in New York State to help achieve negative GHGs or at least net zero emissions.

- The DSP should oppose State support for CCS until the issues cited above are addressed.
- The DSP should acknowledge the federal government is pouring billions of dollars into research on CCS and if a successful technology is developed in the future it can be examined for feasibility in New York.
- DSP recommendations dependent on CCS should be withdrawn.

Scenario 2: Referring to this sentence: “...bioenergy derived from biogenic waste, agriculture and forest residues, and limited purpose grown biomass, as well as a critical role for green hydrogen for difficult-to- electrify applications.” Bioenergy from biogenic, agricultural or forest products and biomass as a means of greenhouse gas reduction is very problematic. It usually involves burning or incineration, generating greenhouse gasses both in the production of the fuel and in using it. Corn ethanol, for example, is less efficient than gasoline, which means

more of it needs to be burned to achieve the same work output. This eliminates the GHG savings from reduced gasoline use. Corn ethanol consumes considerable energy to produce, degrades agricultural land and natural resources, and causes other negative environmental impacts. Forests in the southeast are currently being devastated for wood pellets as a “renewable” fuel for export to Europe. Despite claims of greenhouse gas benefits from the processors production and use of wood pellets produces substantial GHGs and destroys natural habitat. It will take decades for those forests to regrow. We need existing forest growth to absorb carbon in the atmosphere now, not new GHGs generated by burning existing forest. Many waste products, such as municipal sewage, contain contaminants that are not neutralized in energy extraction or digestion. The residual byproduct may be a health danger with no safe disposal option. PFOAs from sewage sludge spread on agricultural lands are being investigated for health impacts. Technologies with ongoing environmental impacts should not be recommended in the DSP. How could we have an equitable and sustainable energy future if some areas are sacrificed to damage?

Using renewable energy sources to produce green hydrogen is one of the lowest GHG energy options available for mobile applications or off the grid. At least one green hydrogen producer is currently operating in New York. Minimal emissions associated with manufacturing equipment such as wind turbines and solar panels will need to be addressed. Continuing GHG emissions by using “bio-fuels” is contrary to a zero GHG plan.

- The DSP should state that the ultimate goal for climate safety is net zero or if possible negative carbon emissions.
- Net GHG emission estimates must include the full life cycle of the energy source, including collection, processing, energy production and waste disposal.
- The DSP should state that environmental impacts should be eliminated if possible, or minimized, in energy production, transmission and use.
- Recognize that existing growth forests store more carbon than regrowing new forests, and avoid forest consumption for biofuels.
- Green hydrogen is a highly favorable alternative with respect to GHG outputs and should be recommended.
- We cannot achieve net zero emissions if significant portions of the economy rely on GHG producing biofuels. If New York is going to employ such energy sources they must be carefully monitored and regulated. The DSP should make these statements.
- The DSP should observe that profit objectives cause business interests to make claims about GHG emissions that do not always match actual performance. The DSP and the public should be on guard against Greenwashing.

Scenario 2, p. 70, Low Carbon Fuels (LCF) - It is likely that the fuels described in this section do not constitute actual reductions in GHGs in the overall outcome of the product or service in which they are used, for the following reasons:

1. Areas that currently sequester carbon, such as forests or wetlands, could be converted to grow biofuels. This eliminates natural carbon storage and generates new carbon outputs through the land conversion and biofuel creation and use.
2. LCF price competition could cause fossil fuel alternatives to lower prices, stimulating increased use of fossil fuels.
3. Fuel expenditure in producing, transporting and consuming LCF offsets carbon savings.
4. Alternative uses for LCF feedstocks may produce greater GHG reduction, e.g. charcoal soil enhancement. The lower GHG outcome is not counted in LCF promotion.
5. LCF side effects such as pollution cause other health and environmental problems and/or additional energy consumption to clean up.

Incinerators must be avoided because emissions from combustion and post-combustion atmospheric chemical reactions are harmful and toxic. Byproducts of incineration are also toxic. Those impacts are not adequately regulated as shown by soil, water and air quality testing, and they cannot be eliminated. Environmental benefit claims for incinerators such as

reduced land use, reduced methane emissions, or lowered fossil fuel consumption are generally not supported by comprehensive investigation of the fuel collection/processing/emissions results. Claims for so-called low carbon concrete exaggerate GHG reductions because the energy density of burned waste is lower than fossil sources by weight, so more of the waste must be burned to produce the same amount of energy.

To address unrealistic claims for substitute biofuels, energy and environmental impacts associated with the full life cycle of fuel use should be reported. This includes production, extraction, transport, processing, consumption, by products, regulation and monitoring. Comparisons should be comprehensive for all energy sources. Simply substituting one form of GHG outputs for fossil fuel alternatives does not benefit our health or climate.

- The DSP should say that employment of LCF must carefully consider full life cycle effects, including production, delivery, consumption, waste, clean up, regulation and market impacts, to prove the fuel is safe and effective.
- The DSP should advocate a comprehensive approach to evaluating all fuels in terms of total GHG outputs, environmental and social effects.
- The DSP should require very low or negative GHG outputs from all fuels. By 2050 all fuels must have zero GHG emissions.
- The DSP should discourage incineration because it has strongly negative health and environmental impacts that have not been eliminated by technology.

Scenario 4, Beyond 85% Reduction: This scenario incorporates the objectives for net zero or carbon-negative outcomes mentioned in previous comments. It is well documented that so-called “carbon offsets” do not reflect actual carbon reductions but in many cases are sales of carbon that is already sequestered. We cannot achieve zero GHG emissions by selling existing carbon sinks because the carbon in those sinks is already assumed to be sequestered in climate models. The carbon stored in protected forests cannot be sold as credits because it is already accounted for in natural sequestration estimates. In effect, it is already sold. New, additional sequestration is needed to reduce GHGs.

- Reduction in Vehicle Miles Traveled (VMT) and methane abatement are viable pathways for GHG reductions and should be highly recommended.
- New York should investigate high speed rail and rail electrification to support increased growth, transportation related growth, and renewable energy in transportation.
- The DSP should set up stringent criteria for counting carbon sequestration credits. The DSP should explicitly state that sales of carbon credits based on pre-existing stored carbon like standing forests will not be counted in New York as a carbon offset credit. It will not reduce GHGs going forward and represents carbon that is already banked.
- The DSP should also explicitly state that new sequestration is necessary to reduce GHGs and that sequestration through improved environmental practices including pro-forestation, reforestation, wetland restoration, grassland restoration, floodplain restoration and improved soil carbon conservation are preferred options.
- The DSP should recognized that carbon storage through natural processes has the added benefits of conserving biodiversity and providing other environmental services such as flood storage capacity, mental and emotional health, air and water quality protection, protection of genetic diversity, etc.

Sector Strategies -

Chapter 11 Transportation

1. The Transportation sector begins by highlighting “economic growth” and the role of transportation in increasing it, along with expanded land use. It is surprising that NYSDOT finds that increased land use is a good thing while the population base is stable or decreasing, climate change is out of control and ecosystems collapse. The bias in existing practice is that all economic “growth” is assumed to be good, therefore more roads are seen as goods because they are associated with new construction, despite the many negative consequences to the climate, health, the environment and the transfer of economic activity from adjacent areas. In fact economic growth is a measure of the volume of activity, not whether the activities themselves are beneficial. Increased fuel consumption, increased waste, increased travel time, loss of human activity and interaction, destruction of natural resources, loss of agricultural land, conflict over competing land uses, loss of socially and environmentally important resources, increased public infrastructure and increased administrative costs are examples of detrimental effects related to “growth”. In the future human welfare will be defined in terms beneficial outcomes rather than growth and it is essential that New York State get in the habit of measuring human welfare and environmental quality rather than growth.
2. Efficient movement is a cornerstone of energy conservation, which is essential to reducing GHGs. Current infrastructure funding practices encourage conversion of undeveloped and agricultural land into development, which increases energy consumption. The population of New York has been fairly level but the amount of roads, infrastructure and energy service area continues to grow. This is costly and inefficient. We are unable to maintain existing infrastructure systems as demonstrated by continuing low or failing ratings such as by the American Society of Civil Engineers. State support for land development to “highest and best use” is based on real estate sales and does not count negative environmental and social consequences such as increased GHGs, depression of urban area development, loss of locally produced foods, food transportation, increased VMT, flood risk and per capita energy and service delivery costs. Dispersed rural development parasitizes existing service areas by requiring the extension of services from more compact networks. Disbursed housing is popular but it is only possible because it leverages state and federal funding and infrastructure and services from adjacent communities.
3. The practice of providing State Highway funding outside of Cities while requiring Cities to fund State Highway routes within city limits is contrary to efficiency. The State is on the wrong side of energy and land conservation in this matter. The State should help maintain connectivity, but State support should be proportional to the concentration of development in local land use decisions. Localities should not permit development of agriculture, forest, wetland or open space outside Village or hamlet boundaries. State Highways should minimize private driveways and funding should prioritize roads within corporate limits.
4. Consumer demand for single person vehicle use and low mileage vehicles is conditioned by public subsidies for fuels. These subsidies occur through direct tax avoidance by corporations for production of fossil fuels, public expenses for construction of fossil-related infrastructure like ports, permit preference for fossil infrastructure in environmental decisions, consumption of natural resources in producing and distributing fossil fuels and highway/road construction, industry abandonment of wells, and neglect of fossil impacts in health and climate damages. Fossil fuels are cheap because they are subsidized.

The DSP should:

- Recommend that transportation infrastructure, and all infrastructure, should be evaluated in terms of climate, social and natural resource impacts, as well as movement of goods and people. This should be required in project benefit analyses.
- Recognize up front that reduced trip length and time, and increased non-vehicle trips, are social benefits in terms of time and energy savings, reduced environmental impacts and health and climate. The overall effect of transportation investments must lower GHG emissions, aiming toward an zero GHG transportation system by 2050.

- Acknowledge the significant public subsidies and neglect of environmental impacts in extraction, distribution and use of fossil fuels for transportation. Recommend ending these subsidies and incorporate actual costs and impacts into fuel prices.
- Acknowledge that GHG reductions needed in the transportation sector cannot be met by switching to ZEV while continuing to expand development into open space and consuming ever greater amounts of land per capita. More efficient transportation is needed, not just electrification.
- Foster more efficient infrastructure systems focused on serving compact and safe communities by recommending that State funding for road and other infrastructure serving undeveloped or high hazard risk land be curtailed. Call for infrastructure agencies to revise their funding processes to redirect funding to existing developed areas or municipalities with zero GHG plans.
- Advocate significant reductions in per capita vehicle miles traveled, vehicle time spent in traffic, average trip length and per capita truck shipping. The transportation network must become more efficient and healthier.
- Recommend that State transportation and infrastructure investment concentrate on urbanized areas. Include town/village centers and hamlets as well as larger urban areas and verify equitable funding for rural counties. Transportation investments in previously undeveloped land should be curtailed. This could be addressed through legislation and/or revision of funding policies by NYSDOT, Metropolitan Planning Organizations and other infrastructure funding agencies.
- Recommend that State law be revised as necessary to constrain State highway funding for areas where local governments permit driveway access to the roadway outside City or Village limits. Such access is enabling sprawl and it is essential that road maintenance costs be absorbed by associated development in order for market efficiencies to support denser development. The State should not subsidize sprawl.
- Provide State highway funds for urbanized areas with State highways that are currently funded locally.
- Recognize that pedestrian, bike and transit transportation is a benefit for the whole State and prioritize those transportation options in allocation of funds.
- Lobby the U.S. Congress to allocate transportation funding on a per capita basis, with individual states determining what the priorities are for spending within their borders. Federal transportation agencies should coordinate inter-state investment for efficiency.
- Internalize per capita costs and GHG reduction targets, as well as health and environmental impacts, into highway funding decisions.
- Clean fuels, p. 118 - We support the emphasis on hydrogen produced using “green” technologies. To avoid manipulation of regulations the DSP should specify that “green” means hydrogen produced without GHG emissions. GHG emitting “biofuels” or “biogas” should not be classified as green hydrogen.
- Propose investigation of an alternative measure of economic progress for the state. The current measure of GDP counts many negative activities as “growth” and neglects many negative impacts from extending infrastructure into undeveloped land. Furthermore, GDP ignores the significant deficiencies of the economy with respect to economic and racial equity. SUNY Rockefeller College of Public Affairs and Policy may be best suited to undertake this.

Appendix A - Transportation

1. The recommended strategies are beneficial but they lack an evaluation of the overall effect of transportation policies and funding on classes of activities and associated energy consumption and GHGs. It is likely that changing the allocation of public transportation resources would have an equal or greater effect on energy conservation than electrification of vehicles. Transportation project evaluation typically doesn't account for greenhouse gas outputs associated with the uses supported by the infrastructure. For example, how much energy is consumed and GHGs produced in work commutes, school transportation, retail

commerce, product distribution, service delivery and recreation? Does a proposed project make the service area more efficient in terms of reducing VMT, reducing travel time, reducing per capita GHGs, or enabling non-vehicle trips? How is the density of development changing as a result of federal and state subsidies for road construction and how does that affect per capita energy consumption? How does the energy use per capita change when public funding is directed towards pedestrian, bicycle and transit access versus road construction? The state population has remained stable or declined in rural areas while the road networks continue to expand. Federal and State funding for infrastructure subsidizes this inefficiency. How could state infrastructure funding be modified to encourage more compact development? As a result of the failure to comprehend the relationship between transportation policies, funding and energy use it is difficult to determine the extent to which GHG emissions and other negative environmental impacts have been increased. Other funding strategies, land use planning, transportation policies, regulations or management efforts could result in more significant energy benefits than the strategies advanced by the Climate Council. Likewise is it not possible to determine the relative benefit to be derived from alternate transportation policies and funding. The most damaging effect of this failure to comprehend the relationship between transportation and energy is that it hinders the ability of the public sector to assist and participate in the transformation of New York to a sustainable future. The State lacks an understanding of the relationship between transportation and infrastructure policies and outcomes for energy, the environment and social equity.

2. Despite the shortcomings described above the Department of Transportation has obviously been looking for and supporting transportation efficiencies and equity. Many partners among other agencies and local governments are also implementing transportation efficiency measures. The state Smart Growth program is an example and several of the comments below are in conformance with the DSP recommendations on Smart Growth on page 114. With many efficiency efforts underway the State would benefit from a more comprehensive understanding of the implications of transportation investments for energy consumption. Such an approach would better support an overall state policy to eliminate GHGs than piecemeal recommendations based on assumptions that travel and location behavior is unrelated to transportation policy. Transportation policy should comprehend the overarching effects of the network and expansion impacts. We recommend the following modifications of the DSP.
 - Set a research agenda and provide resources to identify the energy intensity of transportation associated with activities like work, school, entertainment, distribution of goods, shopping, manufacturing and socializing. Report the results per capita, by region, by relative development density, and statewide. The create a means for communities to assess their aggregate transportation energy consumption based on comparable models. NYSDOT could provide funding, while planning and economics expertise could be assigned to a SUNY consortium.
 - Revise transportation project evaluation practices to include energy impacts and greenhouse gasses. Identify energy geographic transfers. NYSDOT, state MPOs.
 - Focus state transportation investments on those most likely to reduce overall energy consumption. NYS Legislature, NYSDOT.
 - Evaluate the effects of public investments in transportation on the environment and social welfare. Publish findings and recommendations so that local governments can evaluate development proposals and achieve overall community equity and energy goals. Research and publishing by SUNY. Distribution by NYSDOT and NYSDOS.
 - Allocate transportation funding to restore equity, health and environmental quality. Account for the disproportionate effects of transportation on environmental justice communities and rural areas and enable transportation networks to evolve over time. Direct state infrastructure funding improve efficiency with socially and environmentally

beneficial outcomes. Efficiency targets (GHGs per capita, spending per user, and community GHGs). NYSDEC Office for Climate Change in consultation with NYSDOT, policy and funding response by NYSDOT, MPOs.

- Track progress in transportation efficiency over time and highlight successes. NYSDOT, NY Smart Growth program, SUNY.
- The DSP should recommend capacity to modify recommendations and practices over time to address underperformance on GHG emissions and to account for social, environmental and technological change.

Chapter 12: Buildings

1. The DSP lacks specific information relating building types and energy consumption and does not set GHG reduction targets for building types or regions. Instead it relies on a list of actions affecting existing practices that may or may not achieve CLCPA GHG reduction targets. If CLCPA targets are missed the DSP provides no means to determine which building types or which regions are underperforming. The DSP observes there are over 6 million buildings in NY State but says conversion to zero emission systems is “straight forward”. (p. 127) The State needs to get the ball rolling by supporting the contractors needed to make the conversions as well incentives for owners to carry them out.
2. The DSP looks at building energy consumption across the whole state but doesn't evaluate regional or municipal differences or give much responsibility to Counties or local governments. Since New York is a home rule state there is an opportunity to engage municipalities to set zero carbon goals, work with the State programs, and help focus assistance to achieve the best GHG reductions and address equity and housing issues in Low-Moderate Income (LMI) areas. The Buildings chapter describes energy transformation for the whole state over time but the relative efficiency of existing buildings by type is limited to large buildings, mid-size apartment buildings and single family home codes. The rank of efficiency needs and discrimination of different needs among differing regions, communities or building types is not addressed. The DSP doesn't recognize that each community has it's own mix of building types, energy demands and GHG emissions. Many actions related to efficiency are required or facilitated at the local level. Efficiency of the building stock is not simply a matter of state codes for a few different building types but also a matter of how building types are distributed, how new or remodeled buildings are approved, where they are approved, how efficiently infrastructure networks serve development, and what exposures to natural hazards are present. Since efficiency is the twin partner with renewable energy in reducing GHGs it would be beneficial for programs, funding partners, local governments and planners to know the relative efficiencies of different building types, how they are distributed and the energy/GHG profile. That would enable local governments to identify programs most beneficial for their conditions and approve development that helps achieve zero GHGs. How will communities eliminate GHGs without knowing which buildings are generating them or which measures are best suited to their building types?
3. Page 121 includes a call for energy performance standards for large existing buildings. Why not have standards for all buildings? They can be phased in over time and/or facilitated with public programs.
4. The relative effectiveness of achieving zero carbon goals through remodeling existing buildings, infill construction, distributed energy systems or community solar is unknown and not an existing part of planning. Zero carbon goals should be a component of community planning and zoning. Development approvals should be conditioned in

conformance with zero carbon plans. Which buildings are most amenable to transition to zero carbon? Which buildings would provide the greatest carbon reduction in remodeling? Which buildings are likely to be replaced or upgraded over time through market factors? Which factors stimulate building energy transformation and will they achieve zero GHGs? What assistance do communities need to achieve zero carbon goals? What is the ability of owners in different geographic areas to achieve zero carbon? What programs or policies would support zero carbon transition in areas where LMI residents are unlikely to be able to afford it on their own?

5. Non-profit sector buildings cannot avail themselves of income tax related incentives to convert to zero carbon building systems. Other means of incentivizing transition are needed. NYSERDA has some programs addressing this but more support is needed. Religious buildings, food pantries, homeless shelters and schools are examples.

Recommendations:

- Set up a research consortium to study energy use in buildings with the aim of categorizing consumption by size and type. Answer these questions:
 1. How much energy is consumed per capita and per square foot for different building types? What is the energy consumption of single family homes, small/low rise apartment buildings, high rise apartment buildings, strip retail stores and old/new commercial office space? Should other building types be included? Warehouse, big box retail, mall retail, manufacturing, agricultural, etc.
 2. How are building types distributed within communities across the state? Are there typical building types/energy consumption patterns in certain regions, certain population range communities, or certain community densities? Differences in access to non-fossil energy?
 3. Produce reports with templates of energy efficiency by building type for use by the State and local governments to support GHG objectives. Encourage or require local governments to take GHGs into account in zoning, planning and construction approval processes.
- Determine the relative emphasis to be placed on energy efficiency and GHG reduction strategies for these building types. The practice of requiring zero emission retrofits with energy system replacements seems reasonable but owners may resist conversion without cost savings. Incentives may be needed to avoid continuing maintenance of old fossil based equipment. NYSERDA in consultation with NYSDEC Office of Climate Change.
- Determine what programs, funding or assistance are needed to achieve conversion of buildings to zero carbon output. NYSERDA in consultation with the NYSDEC Office for Climate Change.
- Recommend more support for non-profit sector buildings in the form of energy consultation assistance and funding support. NYSERDA.
- Because of the shortage of contractors available to provide energy system transition I strongly support the workforce development strategies beginning on p. 140.
- Support community energy audits as described above in comments on the Land Use sector. They would help local governments set priorities for achieving zero GHGs.
- Recommend public sector support to help achieve equity in the housing sector. NYSERDA, NYSDEC Office for Climate Change.
- Because of the incentives needed for transition of low to moderate income homes and non-profit sector buildings we strongly support economy-wide measures such as State policy mechanisms, cap-and-invest and carbon pricing as described in Chapter 17.
- Set up a building efficiency monitoring program and report results periodically. Recommend modification of regulations and support programs as needed to facilitate transition to zero

carbon building stock. SUNY in coordination with NYSERDA and NYSDEC Office for Climate Change.

- Recommend integration of community building assessments in local planning and zoning. Coordinate needed building transition with planning.
- We strongly support objectives to retain/refit existing buildings to conserve embodied carbon (p. 145).

Chapter 13: Electricity

Total electricity demand has remained relatively level since 2004 as shown in the graph on page 150. Given the investments in efficiency that have taken place, and the relatively stable state population, we infer that while we have saved some energy in building and appliance efficiency, we are consuming more electricity due to new demands. What these demands are and why efficiency measures have not significantly reduced overall demand should be investigated. Are there opportunities to reduce demand through behavioral change? Is there a relationship between increased per capita energy consumption and state or federal programs such as infrastructure funding? What needs to change so that increasing energy efficiency of homes, businesses and appliances is coupled with reduced per capita energy consumption?

We fully support the objective of retiring existing fossil-based plants (p. 154). However, we note that the virtual currency industry has restarted fossil fuel power plants for powering their own operations on site. These plants must be closed and no new plants can be opened if we are to eliminate GHGs. There are virtual currencies with very low energy requirements so there is no need for fossil fuel to provide this function. Allow low energy alternatives with renewable source energy to obtain any cryptocurrency benefits without the energy, noise and thermal pollution of proof-of-work. Closed fossil plants should be permanently excluded from new applications because that eliminates GHG gains from renewable energy.

Page 177 states nuclear energy is GHG emissions free. This is not true since construction of nuclear power plants, extraction, refinement and transportation of nuclear fuel, and storage of used nuclear fuel all require substantial energy. Please revise this text to include these costs. All energy sources should be compared on the basis of life cycle costs and impacts: extraction, transportation, consumption, effluent and waste. Environmental and social effects need to be included. Nuclear power may be necessary, but its overall impacts must be considered.

Page 178 raises an important topic in "Define emissions free". Several business initiatives have made claims to be using renewable or low-carbon fuels. In some cases burning waste has been described as recycling. This is greenwashing. GHG emitting processes should be distinguished from minimal GHGs associated with production of energy equipment like solar panels and wind generators. Full life cycle cost, GHG outputs and social and environmental impacts are fairly included when evaluating energy alternatives. The objective of the DSP is reduction then elimination of GHGs. DSP recommendations should avoid energy sources or other activities that produce GHGs.

Recommendations for the DSP:

- I support the Climate Justice Working Group proposed Utility customer bill of rights (p. 139).
- I support the DSP recommendation for Distributed Energy/Distributed Generation (p. 160). In addition to the network resilience provided we anticipate creation of beneficial local employment.
- Please revise the entry on nuclear energy on p. 177 that says it is carbon free. Electricity production from existing nuclear plants involves low GHG emissions, but plant construction,

fuel development and waste storage are not. The DSP should not be misleading about the potential energy implications of new or remodeled nuclear plants or spent fuel storage.

- Cryptocurrency mining should be restricted in NY unless conducted with very low energy consumption that can be met with onsite or nearby renewable sources. The DSP should recommend implementing a moratorium on fossil fuel energy for cryptocurrency immediately or as soon as legal obligations can be addressed. For the purpose of eliminating fossil fuel plants for virtual currency the DSP can identify options:
 1. Create new approval processes for fossil fuel consumption that prevent new or restarted power plants. Consider elimination of GHGs in permit processes. May require regulatory legislation. Also PSC/DPS coordination with NYSDEC permitting.
 2. Create a moratorium on fossil based power generation with the objective of applicants finding alternative renewable sources for projects. Possibly using existing NYSDEC permit authority or may require new legislation.
 3. Require removal of fuel supply lines from existing fossil plants when they are retired. Use existing NYSDEC decommissioning authority or new legislated authority.
 4. Provide a schedule to sunset fossil power plants that are outside the public grid. PSC/DPS. Tax or fine off grid GHG production until it is prohibitive.
 5. Incentivize conversion of existing virtual currency fossil uses to low energy alternatives. Use negative tax incentives on fossil emissions through legislation.
- I support the proposal to “Define emissions free” in order to distinguish minimal GHGs associated with production of wind, solar and geothermal energy equipment from continuing GHG omissions in energy production processes. The DSP definition should recognize commercial manipulation of terms like “renewable energy” and “carbon offsets” are greenwashing. The DSP should avoid energy sources or other activities that produce GHGs.

Chapter 15, Agriculture and Forestry

The sector focuses Agriculture and Forestry (A&F) recommendations on reducing GHG outputs and leaves some sequestration recommendations to the Land Use section. This could be an administrative shortcoming in that the A&F section speaks directly to the involved agencies, businesses and owners, who may not stay well informed of recommendations in the Land Use section. It is unlikely that external readers will easily access A&F recommendations in the Land Use section when the DSP has a dedicated A&F section. Some A&F sequestration actions are properly a matter of land use planning (land conservation, local land regulations, water resource management, natural hazard management) but many are specific to A&F activities, such as forestry, soil management, product marketing, and A&F programs and regulations.

Carbon sequestration is optimal through natural processes. Existing forests sequester more carbon than new or restored forests, therefore it is important to preserve existing forests. Clear cutting should not be allowed, and forestry should be regulated so that sequestration is maximized. The DSP is accurate in observing that forest products are essential, so forest management must provide those needs while also providing carbon sequestration.

Conservation funding and tax incentives to preserve forest and restore forests is promising but the DSP isn't specific on whether those programs are adequate or how much benefit could be obtained by expanding them. Urban trees sequester carbon and provide multiple health benefits for residents while consuming very little additional land area. Forest health should be maintained so they do not transition from carbon sink to carbon source. Selective burning in order to control flammable brush and avoid forest fires is necessary in the western U.S. and may be in New York as well. Much of this content should be in the Agriculture and Forestry section, chapter 15, for easier access by involved businesses, regulators and readers.

In a state with a stable or declining population clearing forestland for development is unconscionable. Such lands should be taxed in proportion to the ongoing lost GHG sequestration potential to minimize conversion.

Climatic conditions in agriculture and forestry are changing due to global warming already and change will increase in the future. A&F practices may need to change as a result. It is possible that some forested areas of New York will change into meadow/savannah due to climate change, and the GHG implications of this change should be investigated.

Global food production will suffer due to climate change and New York has an opportunity to help address shortages. Agricultural land converted to development is a loss both to the State and to regional, national and international food supplies and should be avoided. Existing real estate tax practices are a pressure to convert agricultural land. Federal and state subsidies for agricultural land conservation easements are negligible but could be a means of conserving productive land. Stream and river corridors and wetland capacity for habitat and flood storage is compromised by agricultural encroachment, but farm economics push the land into production. Production of corn-based ethanol for fuel results in a net increase in GHGs relative to fossil sources and ended. The world needs productive agricultural land for food, not fuel. Low till/no till agriculture practices combined with low fertilizer and pesticide use would provide substantial health benefits to humans and wildlife. Farmers are pressured into high yield practices by low commodity prices and many farmers do not receive fair compensation for the amount of effort needed to farm. Transportation of locally produced food is highly efficient in comparison with extra-national foods and should be promoted. Local food production tends to be better regulated than international sources and often is done organically, reducing negative health and environmental impacts.

The carbon bank proposed on page 206 ignores the fact that existing forest sequestration is already counted in global climate models. Selling carbon credits for those forests amounts to double counting the sequestration benefit. The concentration of GHGs in the atmosphere is already too high and selling credits for carbon already stored in forests to enable additional GHG emissions is contrary to necessary GHG reduction. In some cases forests sold for carbon credits have burned and there is no penalty on the carbon credit buyers for sequestration that doesn't actually exist. There is a strong incentive for existing forest owners to generate income through carbon offset payments, but that cannot be allowed to compromise state measures to sequester carbon. The question is, how much forest would be cut absent carbon offset payments? That is the amount that could be available for sale as a carbon offset. Such a market must be carefully regulated to avoid counting forests that would never be cut, forests that are compromised by fire or pests, and under performing forest sequestration.

It is not clear that the GHG benefits of wood structural products are as significant as described in pages beginning on 225. Since it is known that older trees have greater carbon storage than younger trees, when a mature tree is cut down it's GHG benefits are not replaced by a newly growing tree. Therefore, the carbon storage capacity of an existing tree is lost continuously into the future through the date it's natural death and decay would have occurred. Concrete has a very high GHG impact in it's production and placement, but once in place it lasts a long time with little GHG output. Furthermore, the lifespan of constructed buildings is limited, so the maintenance, deconstruction and end result of the building materials must be accounted for in any assessment of GHG effects. This section appears to be as much of a marketing campaign for wood products as a real claim of carbon storage benefits. Once again, the DSP must be on guard against greenwashing. This section should be revised to reflect that the full GHG effects of using wood products remains to be estimated and that the described benefits do not include lost carbon sequestration capacity of trees used as wood products.

Bioenergy products described on page 227 are contrary to the objectives stated in the CLCPA. Burning bio-sourced materials for fuel does not reduce GHGs and may in fact generate higher GHG outputs than fossil sources. While locally produced biomass fuel doesn't require long transportation distances like fossil fuel, it also generates less BTUs per volume than fossil fuel,

requiring more burning and higher GHG outputs per unit weight. More optimal uses for waste wood and agriculture products are soil building directly or as charcoal. These uses maximize carbon storage and improve agricultural soil productivity. The DSP language on using “waste” as a biofuel is likely to be extended by businesses to cover municipal solid waste and wastes from other sources, increasing GHG emissions. Incineration of waste creates atmospheric toxins that are harmful to health and should be avoided at any cost. This language opens another opportunity for greenwashing. The DSP is careless in not avoiding content that is harmful to health and increases GHG emissions. The biofuels section should be revised to seek beneficial uses for waste products that do not emit GHGs and do not harm the environment.

The recommendation that New York State should “activate” former agricultural and industrial “underused” lands for producing bio fuels (p. 228) reflects a colonial view of the environment that excludes humans as part of it. Forest lands, meadows, wetlands, and river and stream corridors are not “underused”, they are part of our environment and provide ecological services we are not counting. Humans underuse their imagination when they fail to recognize they are part of the ecosystem. Scientists and the Biden administration have called for setting aside 30% of the land for conservation. Creating new feedstocks for biofuels is contrary to eliminating GHGs, as required by the CLCPA. Business interests seeking State funding to subsidize creation of a biofuel industry should not be allowed to exploit the DSP through greenwashing. This is a very negative recommendation unless it is carefully limited in scope, allows for habitat protection, and results in zero or negative GHG outputs.

Billions of dollars have been spent in federal subsidies for Carbon Dioxide Removal (CDR) from the atmosphere, advocated on p. 231. There is no economically viable technology at this time, and the byproducts are toxic with not assured safe disposal option. The federal government continues to subsidize research in this area pushed by petroleum corporations who need it to justify the continuing use of fossil fuels. Because the technology hasn’t produced successful examples and the federal government is continuing to subsidize research, there is no justification in New York spending resources to pursue it. If New York research institutions want to continue this line of investigation they should obtain funding from the federal government. The most that can be said about New York’s interest at this time is that we should continue to stay informed of research by others, and in case some future technology is viable we should investigate the toxicity of byproducts and safe disposal option. This option is not useful for the DSP at this time and no GHG reduction estimates should rely on it.

Recommendations:

- I strongly support sequestration recommendations associated with specific agriculture and forestry practices. A culture of recognizing GHG sequestration should be developed.
- I am pleased to see R&D on soil sequestration is recommended in the DSP and applaud the State Department of Agriculture for supporting it.
- I support DSP recommendations on further research on A&F sequestration and recommend that that research be extended to sequestration in meadowlands and wetlands.
- Because some A&F sequestration actions are related to land use, confirm that content related to A&F activities is contained or referenced in the A&F section of the DSP, for ease of reference. Provide cross references to applicable content in the Land Use section as needed.
- Acknowledge that Forest and Agricultural Management should plan for warmer temperatures and other changing environmental conditions in the future. NYSDEC, NYS A&M.
- Confirm flexibility in the DSP recommendations for changing A&F practices in the future in response to climate change. Monitor and report GHG outputs and sequestration as a means of informing A&F practices and overall State GHG management.
- I strongly support the initiative to pay farmers for ecosystem services, p. 222. NY State should lobby for reform of federal Department of Agriculture funding so that stream and river corridors and wetlands are conserved.

- Investigate the long term GHG sequestration potential lost through conversion of forestland for development and recommend tax policy to recoup that cost. Consider a blanket state tax policy for land owners that would reward forest/tree conservation and penalize tree cutting.
- Revise the proposed forest carbon offset program so that only forests that would have actually been cut are available for credit, that sold credits actually reflect real GHG sequestration, and that financial compensation to the State for alternative sequestration is made in the event of underperformance due to pests, fire or any other reason.
- Revise the Biofuels section (p. 225 plus) to focus on alternative uses for waste that do not produce GHGs, consistent with the goals of the CLCPA. Do not enable waste incineration to be characterized as beneficial. That is contrary to the CLCPA and public health.
- The recommendation (p. 228) that NYSEDA develop a definition of “sustainable” bio feed stock that maximizes sequestration is inadequate. A carbon accounting gimmick cannot be the basis for defining “sustainable”. Instead NYSEDA should define “sustainable” as very low or zero GHG output, along with eliminating other negative health and environmental impacts. Sustainable can have no meaning other than a healthy, beneficial practice we can live with forever.
- Revise the section on “underused” lands to reflect that other uses may be more valuable than biofuels, including carbon sequestration, flood storage, natural habitat, air and water quality maintenance, recreation and human well being. Abandoned uses should be considered for redevelopment in developed areas where connected to existing infrastructure or environmental restoration or if suitable. Do not allow the DSP to be used to force biofuel development in places where other uses are more needed.
- Revise the section on Carbon Dioxide Removal from the atmosphere to state that research to date has failed to produce a safe and economically viable method but the federal government is paying for continuing research. The DSP should recommend monitoring federal research including safe disposal option for byproducts. It should not be recommended at this time.

Chapter 16, Waste

The web information available from NYS-DEC about waste is primarily oriented towards explaining regulations and compliance, with some information on gas recovery. The page on solid waste “Processing Facilities” provides a definition of facilities but does not provide an inventory of material quantities for each facility type. I could not find reports aggregated by region or for New York State by type of waste. Likewise information on quantities of Construction and Demolition (C&D) debris is not easily available. Additional waste streams include appliances, electronics, used tires, furnishings, carpeting and fabrics, toys, soils/ dredged material and tree and vegetation trimmings. It’s unclear how the summary information on waste in the DSP was gathered. Apparently the state has information somewhere but it’s not readily available to the public. Consumers also lack up to date information on which products are locally recyclable. Different waste haulers seem to have different recycling practices. Waste and C&D debris comprises numerous products that either have uses if reprocessed, or for which markets could be developed. Markets for waste products cannot be developed without quantity information. Are quantities available in New York adequate to generate markets, or are partnerships with other states needed? Are repair and reuse options viable options? New York needs ways to eliminate waste for energy savings and GHG reduction, but markets for waste products cannot be developed without making waste information available.

Page 241 reports that recycling food waste is less attractive in Western New York due to the low cost of landfill options. In order to eliminate GHGs it is necessary to eliminate organic materials in land fill. The cost of offsetting GHG emission reduction elsewhere should be incorporated in fees for any organic material buried in land fills. The fee for GHG emissions from burying organic material should be the cost of sequestering the amount of carbon needed

to offset GHG emissions at a landfill site. These emissions should be monitored and a price set for mitigating them, dedicated to a fund for sequestration.

On page 236 the DSP states "The GHG emissions reductions related to manufacturing with recycled materials in place of virgin are so substantial that the GHG emissions from transportation of materials for recycling are not a significant factor in the overall carbon footprint of recycling." Some plastics, cardboard, electronics and other wastes are shipped in containers overseas, often to Asia, reprocessed then shipped back to the U.S. It is a fair question to ask how the energy and GHG emissions with such shipping can be "not significant".

Page 237 refers to the state Solid Waste Management Act which includes a provision "Third, to recover, in an environmentally acceptable manner, energy from solid waste that cannot be economically and technically reused or recycled". This provision seems to include incineration which has been shown to produce toxic emissions. Somehow under state regulations these emissions have been determined to be "acceptable", but the DSP should highlight health impacts to both humans and the environment and recommend ending incineration of waste for energy generation.

Page 239 reports New York regulations aimed at reducing plastic bag waste. However, material recyclers and waste water treatment plants continue to report problems with plastic bags mixed in the waste stream. What opportunities remain to eliminate plastic bag waste to reduce environmental impacts, energy waste, and GHG emissions?

Page 239 also reports the food scraps law, limited to waste producers that average two tons or more of food waste per week and are within 25 miles of a processor. NYSDEC is also running a grant program to increase food donation and recycling. How is NYSDEC tracking food waste that falls outside the regulations? What are the quantities and sources of such waste? What other opportunities are available to eliminate food waste and thus avoid GHGs produced in landfills?

Page 244 reports that more than a third of the waste stream is paper and wood products that generate methane if buried in a landfill. These wastes have viable reuse options from consumer products to compost. Some papers are not recyclable due to chemical components, for example cash register receipts. Such products should be outlawed or reprocessed by manufacturers under an Extended Producer Responsibility (EPR) act.

The discussion of EPR fails to recognize that plastics and chemical manufacturers are working to control EPR legislation to maintain their production of harmful or toxic products. Incineration is included as a waste processing option in manufacturer preferred EPR in other states. The DSP should recognize that there are negative consequences if waste is not reduced first and then processed in a safe, non-GHG producing manner. Any new EPR legislation should specify that waste reduction is prioritized and recycling methods may not include processes that contaminate air, water or soil, or produce GHGs.

On page 245 the DSP has a recommendation for the state to investigate co-pollutants in waste water, but there is no larger discussion. It has been found that pharmaceuticals, chloro/fluoro carbons and other contaminants are contained in the biosolids yielded by wastewater processing, and these chemicals can be absorbed in food crops. A little more background and a better recommendation in the DSP are warranted.

Page 246 highlights problems in tracking emissions of high global warming potential (GWP) refrigerants. Cans of such refrigerants are advertised for over the counter sales for do it yourself repairs, including automobile air conditioning systems. These sales should be prohibited to assure used refrigerants are captured. Repair of auto air conditioning should be

reported to the state and quantities of captured refrigerant reported by type. The state Department of Motor Vehicles should monitor repair shops.

It makes sense to capture and use organic gasses produced by wastes as on page 250, but the object of the CLCPA is to eliminate GHGs, not find new sources of them. The DSP should acknowledge these gas waste byproducts and bio-gasses are GHG producing. Those emissions need to be tracked, offset by sequestration, and reduced or eliminated over time.

Recommendations:

- Review the information available on all waste products to determine what information is available, what's missing and whether there are reasonable means to fill information gaps. Create a framework for web access and publish summary information on wastes by type. Provide aggregated information by region. Track GHG production and elimination in processing waste. NYSDEC is best positioned to oversee this effort.
- Based on information on quantities and types of wastes, initiate a program aimed at marketing any products for which there are existing buyers, and developing new markets for products that currently lack buyers. Explore cooperative material processing and sales with other states. This is consistent with DSP recommendations beginning on page 249. ESD may be best suited for this.
- Please explain how the quotation on p. 236 that GHG emissions are insignificant is appropriate for material processed overseas. It would seem that engine emissions from overseas shipping are a significant GHG source. That would support development of recycling capacity in New York.
- I fully support the recommendations to enact regulations to reduce and then eliminate landfill and incineration of organic waste, with fees going to support reduction efforts.
- I support the other recommendations on waste reduction on pages 241 to 243. Funding for repair and reuse centers and expanded container deposit programs are being advocated locally in the Capital Region.
- Add batteries to the list of difficult to recycle materials NYSDEC should investigate on page 244. Modify the language to specify solutions are needed that eliminate GHGs and produce useful products.
- Expand the state investigation into waste water contaminants and reuse of the water and the extracted biosolids so that all contaminants that might jeopardize human health or the ecosystem are addressed. Reject introduction of contaminants into the food stream.
- Over the counter sales of high GWP refrigerants should be prohibited. Capture and destruction should be assured by state licensed and monitored technicians. Sales and use should be reported and monitored to ensure used refrigerants are captured. Repair of auto air conditioning should be reported to the state Department of Motor Vehicles who should monitor repair shops.
- Modify discussion of bio-gas p. 246 to recognize using it produces GHGs that need to be addressed. Modify recommendations p. 250 to add monitoring types and quantities of bio-gasses and add pursuit of options to reduce and eliminate those GHGs over time. Provide sequestration opportunities sufficient to offset GHG outputs. Recognize that every bit of GHG sequestration used to offset bio-gas is no available to offset other GHG emissions.

Chapter 19, Land Use

Sector Strategies are collected in chapters 11 through 16, 18 and 19. Land Use is relegated to last, chapter 19. Placing land use last exemplifies the DSP's failure to recognize that land use is the primary determining factor in energy consumption and thus in GHG generation. Land use determines how far goods have to be shipped, whether locally produced food and fiber

products are available and how far people have to travel for work, education, commerce and entertainment. Land use determines the relative efficiency of trade, infrastructure, utilities and service delivery. Land use is a significant factor in natural hazard damage and recovery costs which contribute to energy consumption and waste. Assuming that land use is random, market driven and not subject to DSP recommendations ignores the effect of public development subsidies, tax policy and infrastructure investments, as well as the authority and role of local governments. Successful transition to a sustainable future requires better land use for energy efficiency, biodiversity conservation, and carbon sequestration. That should be a primary finding of DSP recommendations. The largest opportunity to improve energy efficiency is through better land use. The largest opportunities to sequester carbon are through improved management of forests, wetlands, peatlands and agriculture. Land Use should have been the first sector to be evaluated for management strategies, with subsequent sections conditioned by land use recommendations and an expectation that more efficient land uses would be supported in the other sectors. Local governments must be encouraged to achieve net zero GHGs, enabled to comprehend the energy and GHG implications of their decisions, supported in planning and carrying out efficient development and energy measures, and rewarded for their efforts to achieve zero GHG emissions. New York State cannot achieve zero GHGs without the support and involvement of local governments.

Recommendations:

- The DSP should recommend that counties and local governments undertake community-wide energy audits with land use assessments to estimate total energy use, per capita energy use and distribution of energy consumption. Renewable or non—GHG producing sources and efficiency gains should be tracked. New York State should provide incentives and support to encourage these audits.
- Local energy audits should be non-judgmental. The point is not to compare one locality with another but rather to inform each locality on their energy use patterns and help identify which improvements offer the best efficiencies going forward.
- New York State should recognize that Low and Moderate Income (LMI) communities may not have the resources needed to model and monitor energy and GHGs. Therefore the State should support regional monitoring and energy/GHG modeling data to inform local planning and adaptation.
- Planning templates including assessment scopes, sample energy intensity of uses, typical building energy intensities, travel distance energy budgets, and infrastructure operation and maintenance energy requirements, should be provided by the State to facilitate local assessments.
- The State legislature should revise infrastructure funding programs with the aim of directing funds to cities, villages and hamlets where they will serve the most people most efficiently and help achieve net zero GHGs. Energy assessments for each project and the associated supported area should be required for State infrastructure funding.
- The State should develop policies to avoid investments in low efficiency development and high risk natural hazard areas.
- State building projects should be high efficiency, accessible with public transportation, and served exclusively by renewable energy, unless such features are not possible for a specific and essential project. Direct energy consumption of the project and energy consumption by users should be determined prior to project approval.
- Land Use recommendations for carbon sequestration should observe that Natural Climate Solutions have the greatest overall benefits and carbon sequestration potential. These measures include Pro-forestation, Reforestation, Forest conservation in Agriculture, Agricultural Soil Conservation, Wetlands/peatlands protection and restoration, River and Stream Floodway Conservation and other Land Conservation.
 1. Existing forests must be conserved.

2. Pro-forestation: Existing forests sequester more carbon than newly established or reforested areas, so forest conservation must be prioritized.
 3. Reforestation: Forests must be restored where feasible and compatible with other required human services for sequestration and other environmental services.
 4. Wetlands must be conserved and where feasible restored. Opportunities for wetland migration must be established to address sea level rise.
 5. River and stream corridors and adjacent floodplains must be conserved and restored.
 6. Peatlands must be conserved. Buried peatlands or marshes should be restored.
 7. Agricultural practices should be modified to conserve river and stream corridors and to encourage carbon-storing soil management (low-till or no-till plowing). U.S. Department of Agriculture funding should be modified to support agricultural land conservation.
- Reconfigure the Climate Smart Communities program to stimulate communities to achieve local GHG goals.
 1. Change the rating system to reward communities on the basis of per capita GHG reductions.
 2. Provide means for communities to estimate per capita GHGs and determine which types of actions are needed to reach GHG reduction goals.
 3. Provide models of GHG reduction activities and means for communities to estimate GHG reduction benefits of proposed actions.
 4. Provide support for LMI communities and neighborhoods to participate in energy saving and GHG reducing actions.
 - I support the DSP recommendation to strengthen the Smart Growth Infrastructure Act and avoid sprawl-inducing state infrastructure spending. Revise the language to eliminate fossil fuel supported development from Smart Growth. (p. 114) Incorporate Smart Growth considerations into all State supported infrastructure decisions, and promote Smart Growth in local government decision making.

Chapter 19, Land Use: Home Rule Authorities

New York is a “Home Rule” state, meaning localities have the responsibility for many land use planning and regulatory decisions. Yet localities lack information on their own local energy/GHG patterns. This includes aggregate and per capita energy consumption, balance of renewable/non-renewable energy, energy intensity of proposed uses, and opportunities for carbon sequestration. The draft recommendations fail to recognize the importance of local governments in land use decisions that create energy demand and add net GHG output or local options to promote renewable energy and carbon sequestration. We must have homes, jobs, education and opportunity, springing from our development patterns. The question of how to provide our needs most efficiently is central to reducing GHGs. The State cannot achieve zero emissions if local governments think it is someone else’s responsibility. Many local governments lack adequate resources to undertake energy audits, much less transition to renewable energy.

Recommendations:

- Set an objective for all communities to achieve zero emissions.
- Require local governments to consider energy efficiency, generation, distribution and carbon storage in local land use planning. Amend state comprehensive planning laws to support zero carbon action plans and energy/GHG assessments. Encourage communities to connect zero carbon plans to comprehensive plans, zoning and planning approvals. Legislation on comprehensive planning, support from NYSDOS.
- Create a framework and tools for local governments to audit community energy usage, both public and private sector, so that they can establish a benchmark by which to manage decisions affecting energy use and achieve net zero emissions. This role is suitable for NYSDOS in partnership with SUNY and NYSERDA.

- Provide funding for consultant support for local energy audits. Possibly funded through Regional Greenhouse Gas Initiative (RGGI) resources, or utility rate fees.
- At the state level provide generalized information on energy use intensity per capita by region, so that energy demand and the provision of renewable energy can be balanced with land use, renewable transition and public investments. This role may be suitable for NYSERDA, perhaps in partnership with NYISO and SUNY.
- At the state level, in cooperation with federal partners, provide information on the potential for carbon sequestration through various land use strategies such as restoring wetlands, pro-forestation, reforestation, and alternative agricultural practices. Make the information available for local land use planning and provide incentives for best practices. This role may be suited to the Department of Agriculture, perhaps in partnership with NYSDEC, NYSERDA and SUNY and federal NRCS, Dept. of Ag.
- At the state level provide descriptions of energy consumption by development type for local government use as a planning reference. Provide energy per capita and per square foot for detached single family homes, town homes, apartment buildings, strip retail, mall or 'big box' retail, schools, etc. This role may be suitable for NYSERDA.
- Incentivize renewable energy in development approvals. Solar hot water; solar, wind and geothermal energy; district geothermal; co-generation industrial processes, etc. Funds from the RGGI and/or proposed Environmental Bond Act may be appropriate.
- Investigate the energy consumption of new construction types versus reuse of existing buildings with and without weatherization. Provide information so decision makers can determine which upgrades would be most beneficial. Incorporate embedded energy savings in building reuse. This role may be suitable for NYSERDA, NYSDOS.
- Investigate the reprocessing of construction and demolition (C&D) waste and associated embedded energy loss. Determine the regional scale needed for recycling C&D waste throughout the state to provide adequate energy savings that would support investment in a processing facility. Incentivize building reuse for energy conservation. This role may be suitable for NYSDEC in partnership with NYSERDA.

Chapter 19, Land Use: Wetlands and other land conservation.

Discussion of land use as a means of sequestration, such as the wetlands discussion on p. 283, doesn't include social and environmental co-benefits such as habitat conservation, storm damage reduction, flood water storage, ground water filtration and storage, preservation of native gene stocks, conservation of waterways and recreation. While many of the recommendations are beneficial for conservation of forests and wetlands, including cooperative efforts with farms, the DSP largely neglects these co-benefits. I did not find reference to the benefits LMI communities can obtain through conservation of natural areas. Wetlands in particular are more difficult locations to build infrastructure, but they are attractive to developers because the prohibitive construction costs depress land prices. Developers know the public will be on the hook for costs related to water management, storm damage mitigation, emergency response and recover and inflated costs for other infrastructure. The state would save money, benefit social welfare and preserve ecological communities by preserving forests and wetlands. These benefits are in addition to the carbon sequestration of natural forests and wetlands.

Recommendation:

- Modify the discussion on sequestration in forests and wetlands to observe the other vital environmental services they provide, and advocate funding for strategic land acquisition and conservation easements to provide these services along with carbon sequestration.