May 30, 2014

Mr. John Rhodes
Chair, Energy Planning Board
NYSERDA
17 Columbus Circle
Albany, New York 12203-6399

Re: Comments on 2014 Draft Energy Plan, Request for Amendments to the Plan, and Request for Evidentiary Hearing

Dear Mr. Rhodes and Members of the New York State Energy Planning Board:

The following constitutes the comments of Otsego 2000, Inc. and additional signatory organizations listed below on the 2014 Draft New York State Energy Plan (the "Plan"). These comments are supplemental to the letter submitted on behalf of Otsego 2000 and others by Albert K. Butzel, Esq. on March 6, 2014.

The draft Energy Plan is a "plan" in name only. The value of Article 6-104 of New York Energy Law is that it creates a mechanism for integrating the provision of energy across all sectors with statewide environmental, economic, and societal goals – including necessary action to tackle the critical problem of climate change. However the draft fails to do this; instead it perpetuates dependency on fossil fuels by forecasting continued reliance on coal, major expansion of natural gas, and almost no growth in renewables. Moreover, the draft Plan lacks meaningful steps or measurable benchmarks necessary to meet greenhouse gas reduction goals.

The following comments discuss major deficiencies in the Plan that require an extension of the public comment period and provision for additional public hearings, withdrawal of the current draft, and significant amendments as described herein. We also request an Evidentiary Hearing pursuant to Sections 6-106 (2)(d) of the Energy Law. The Energy Law provides that: "Evidentiary hearings may be held, at the discretion of the board, in response to a written request by an interested person or persons seeking to provide evidentiary material or data subsequent to the issuance of a draft plan..." (Id.) We believe that an Evidentiary Hearing to address crucial errors and omissions of the Plan is clearly within the discretion of the Board and should be scheduled.

As the Energy Planning Board is aware, Article 6 of New York Energy Law requires that the State Energy Plan serve as the basis for future policy and decision-making regarding energy production and supply. Furthermore, this will be the first Plan adopted since passage of Article 6 of the Energy Law in 2009, so it is essential that a sound foundation for future action be established. In its present form, the draft Plan fails to provide this necessary foundation.

METHODOLOGY ERRORS

1. The Plan Perpetuates Dependency On Fossil Fuels By Deferring To Baseline Forecasts.

The draft NYS Energy Plan asserts "Objective analysis of the potential impacts of any policies or actions must begin with projections of what is expected *in the absence* of those policies or actions." (Draft Energy Plan, Vol. 2-End Use Energy, p.11.) While this may be an acceptable starting point, it is not an appropriate end point. Baseline forecasts are useful in planning only when compared to projections that reflect the ***implementation*** of policies or actions. An effective plan should set a course that diverges from trends as necessary to reach an identified goal, and include benchmarks to measure progress toward that goal. Without this, baseline forecasts are nothing more than trajectories that serve to reinforce the status quo.

The draft Energy Plan fails in this regard, and thus is not a "plan" at all. Volume 1 contains a set of general initiatives, but lacks specific action steps necessary for implementation or measurable targets with which to gauge the efficacy of the proposed initiatives. This is followed by Volume 2, which contains details about existing programs, forecasts of future energy use and capacity, and a partial assessment of impacts. Fundamentally, however, the draft Plan fails to integrate the initiatives of Volume 1 with information in Volume 2 to create a path for achieving measurable goals. It is also unclear whether many of the forecasts and predictions in Volume 2 are projections of outcomes likely to unfold in the absence of initiatives outlined in Volume 1, or whether they reflect some level of policy implementation. Aside from these forecasts, the Plan fails to specify the ***intended*** composition of New York's future energy portfolio, so it is unclear how or if results of adopting the Plan will differ from the forecasts presented.

In the absence of specific targets for energy generation, particularly from renewables, the baseline forecasts provided in Volume 2 are likely to become a *fait accompli* —a self-fulfilling prophesy of increased dependency on fossil fuels precisely at a time in history when a rapid shift away from fossil fuels is necessary to avoid the worst impacts of climate change. This is of particular concern because Section 6-104(5)(b) of the Energy Law states that future agency decisions shall be "reasonably consistent" with "forecasts" contained in the Plan. Clearly, if the only forecasts in the Plan are those indicating business as usual, the Energy plan will fail to achieve its essential purpose.

These defects in the draft Plan are illustrated in Table 3 of Volume 2-Sources, titled *"New York State Electricity System Generation Mix (GWh) – Reference Case"*. (Id., Vol. 2-Sources p.59.)

Table 3 | New York State Electricity System Generation Mix (GWh) – Reference Case

SOURCE	2012	2020	2030
Natural Gas - Combined Cycle	40,100	51,174	66,747
Natural Gas - Combustion Turbine	1,105	1,951	3,126
Natural Gas - Steam	8,942	3,607	3,517
Oil - Steam	1,217	502	502
Coal	5,819	7,740	8,864
Nuclear	41,255	42,622	42,622
Hydro	26,730	27,830	27,750
Renewable	5,823	10,140	10,196
Other	1,863	1,887	1,887
Imports	32,442	26,194	22,523
Pumped Storage (losses)	(1,638)	(2,473)	(2,352)
SYSTEM ELECTRICITY REQUIREMENT	**163,659**	**171,176**	**185,383**

(Source: draft Energy Plan, Volume 2-Sources, p. 59.)

As shown, the Reference Case model forecasts major growth in power generation from fossil fuels, particularly natural gas, with an additional 26,647 GWh from combined cycle gas generation by 2030.[1] Meanwhile the model predicts an increase of only 4,373 GWh from renewables after 2012, and virtually no growth in renewable power generation beyond 2020.[2] Most concerning, as a percentage of total power generation, the model predicts essentially no increase in the amount of electricity from renewables (water, wind, and solar) compared to other sources. In fact, based on the forecasts in Table 3, the percentage of power generation derived from all renewable sources (including hydropower) remains flat at 20% in both 2012 and 2030. Excluding hydropower, the Reference Case predicts that renewables will provide a disappointing 10,196 GWh of power, meeting just 5% of New York's electricity needs in 2030.

[1] A significant discrepancy exists between the draft Energy Plan and *NYS Greenhouse Gas Inventory and Forecast*, cited below at fn.6, regarding the past usage of coal. Table 3 in Volume 2-Sources of the draft Plan shows power generation from coal rising from 5819 GWh in 2012 to 8864 GWh in 2030, and text on page 59 attributes this to greater projected running time. However the table on page 38 of the *NYS Greenhouse Gas Inventory and Forecast* shows power generation from coal dropping from 9426 GWh in 2010 to 8864 GWh in 2030.

[2] A similar dismal forecast for renewables can be seen in Table 8B titled *"New York State Primary Energy Use by Fuel in TBtu – Forecast"* on page 22 of the draft Plan, Volume 2-End Use Energy.

This contrasts sharply with the stated enthusiasm for renewables touted in Volume 1 of the Plan. It also contrasts sharply with estimates of potential power generation from renewables contained in the Plan. (Table 13; draft Energy Plan, Vol. 2-Sources, p. 180.)

Table 13 | Preliminary New York Renewable Energy Bounded Technical Potential Electricity Generation (GWh)

RESOURCE	IN-STATE GWh GENERATION (2011)	PERCENT OF STATEWIDE ELECTRICITY REQUIREMENT (2011)	PROJECTED IN-STATE GWh POTENTIAL (2020)	PERCENT OF PROJECTED STATEWIDE ELECTRICITY REQUIREMENT (2020)	PROJECTED IN-STATE GWh POTENTIAL (2030)	PERCENT OF PROJECTED STATEWIDE ELECTRICITY REQUIREMENT (2030)
Hydro	27,634	17%	27,858	16%	37,395	20%
Bioenergy	945	0.6%	2,473	1.4%	5,418	2.9%
Wind	2,828	2%	9,844	5.7%	32,906	18%
Solar	7	0.00%	18,919	11%	54,316	29%
TOTAL	**31,413**	**19%**	**59,094**	**34%**	**130,035**	**69%**

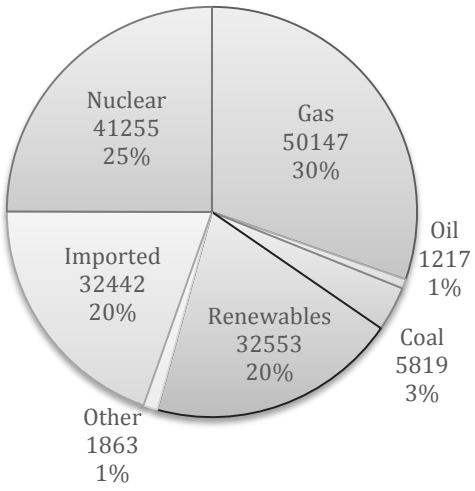
(Source: draft Energy Plan, Volume 2-Sources, p. 180.)

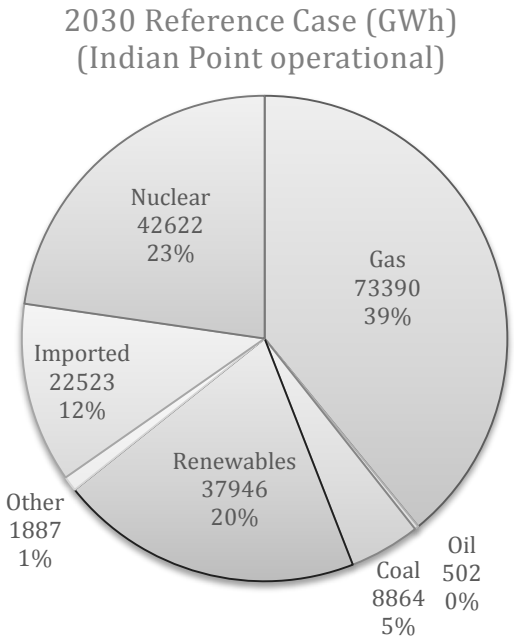
Based on analysis contained in the *Energy Efficiency and Renewable Energy Potential Study of NYS*[3] prepared by Optimal Energy Inc., the above findings indicate that it would be possible for wind and solar in New York to produce 32,906 GWh and 54,319 GWh of power, respectively, by 2030 to meet 18% and 29% of the State's electricity needs. According to the Study, if hydropower and bioenergy are included, renewables could actually account for a third of electrical power generation by 2020 and over two thirds by 2030 (Id., Vol. 1-Study Overview, p.32.)

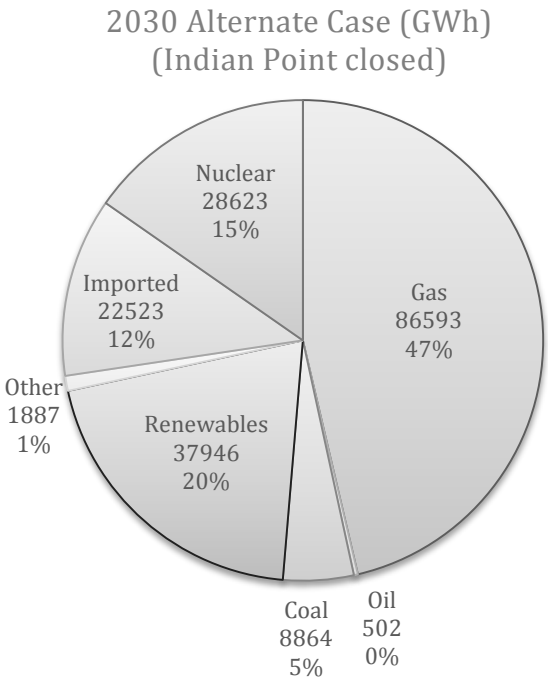
Nevertheless, both the Study and draft Energy Plan appear to dismiss the bulk of this potential – especially from wind and solar. (See Section 12, below.) Accounting for projected demand, the Reference Case depicted in Table 3 suggests that New York State will be even more dependent on fossil fuels in the future than today. This problem will be further exacerbated if the Indian Point nuclear reactor is decommissioned because, as presently written, the draft Plan assumes in its Alternate Case model that lost nuclear capacity would be replaced with power generation from natural gas. (Draft Energy Plan, Vol. 2-Sources, pp. 61-62.) In this Alternative Case, a total of 80,950 GWh would be generated from combined-cycle gas by 2030, more than twice the electricity generated with combined-cycle gas today. (The pie charts on the following page depict the relative allocation of electricity generation from various sources based on these Reference Case and Alternate Case models as presented in the draft Plan.)

[3] *Energy Efficiency and Renewable Energy Potential Study of NYS*, Optimal Energy Inc. for NYSERDA, Final Report, Report Number 14-19, April 2014. http://www.nyserda.ny.gov/Energy-Data-and-Prices-Planning-and-Policy/Energy-Prices-Data-and-Reports/EA-Reports-and-Studies/EERE-Potential-Studies.aspx

Electrical Power Generation for New York based on Reference Case Model and Alternate Case Model forecasts in the draft NYS Energy Plan







Source:
draft Energy Plan, Volume 2-Sources
Reference case model (Table 3)
and Alternate case model (pp. 59-62)

Notes:
Gas = CC + CT + Steam
Hydro included with renewables
(Pumped storage losses not included)

These forecasts of stagnant growth in renewables and increased dependency on fossil fuels are grim predictions for the future. Nevertheless, since the draft Plan fails to set any specific targets for the penetration of renewables, it is not apparent that conditions in 2030 will be substantially different from what these baseline forecasts predict.

In addition, the draft Plan fails to identify the mix of energy sources needed to meet the State's goal of reducing total greenhouse gas emissions 80% below 1990 levels by 2050. The Plan predicts that in the absence of any new programs, emissions measured as carbon dioxide equivalents (CO2e) will drop by 9% during this time. (Draft Energy Plan, Vol. 2-Impacts and Consideration, p. 14.)[4] We believe this is overly optimistic, based on errors and omissions in the Plan. (See Sections 2 and 3, below.) However even if assumed to be accurate, this value dramatically illustrates the massive disconnect between forecasts in the Plan and necessary action. Achieving the State's ambitious 80% reduction goal will require a major commitment to replacing existing fossil fuel plants with renewable power generation, yet no such strategy for this has been put forth. Indeed the exact opposite has occurred. Instead of identifying projects and facility conversions needed to make the necessary shift to renewables, the Plan encourages the expanded use of fossil fuels, particularly natural gas, which is a significant driver of climate change.

Planning requires determining necessary actions, establishing measurable targets, and developing a schedule for implementation. Rather than passively accommodating the allocation of energy sources predicted in the aforementioned models, the draft Energy Plan should be amended to proactively chart a course for the future built on renewable energy. The draft Plan should also be amended to clearly distinguish between baseline forecasts and projections based on the implementation of initiatives. Further, initiatives pertaining to renewables and energy efficiency should be revised to establish robust tangible targets that recognize the environmental, economic, and societal consequences of inaction. Those targets should identify the intended contribution of energy from various sources over time, specifically providing for an increase in the percentage and total amount of energy from renewables and a reduction in the percentage and total amount of energy derived from fossil fuels.

With respect to power generation, the Plan should be amended to set a goal of meeting half the State's electricity demand with renewable energy within the next decade (50% by 2025), identify facility and infrastructure improvements necessary to achieve this, and lay out a path for transitioning completely away from fossil fuels by mid-century.

[4] See also *NYS Greenhouse Gas Inventory and Forecast,* cited below at fn. 6, p. S-12.

2. The Plan Lacks Credible Benchmarks To Reduce Total Greenhouse Gas Emissions, Including Methane.

Executive Order 24 adopted in 2009 requires that New York State reduce greenhouse gas emissions from ***all*** sources to 80% below 1990 levels by 2050:

> It shall be a goal of the State of New York to reduce current greenhouse gas emissions from all sources within the State eighty percent below levels emitted in the year nineteen hundred ninety by the year two-thousand fifty. (Executive Order 24; 2009.)

It must be emphasized that this goal affects all sources of energy, including power generation, transportation and heating fuel. Moreover, the goal pertains to all greenhouse gas emissions, not just those produced during combustion. Emissions resulting from venting or leakage – namely methane – must also be addressed.

While the draft Plan acknowledges this impressive goal, it sets forth no credible strategy for accomplishing it. Instead of squarely addressing the 80% total greenhouse gas reduction goal, the Plan obfuscates the issue, offering up what appears to be a substitute interim target that considers only one greenhouse gas--carbon dioxide. Specifically, the draft Plan asserts that New York State will be put on a "pathway" to achieve an 80% reduction in total carbon emissions from 1990 levels by 2050, if it achieves a 50% reduction in carbon dioxide emissions by 2030 (from a 2010 baseline):

> Working through innovative public-private partnerships, investments in clean energy strategies will help New York to reduce the intensity of its carbon emissions from the energy sector by 50 percent by 2030 (**measured in CO_2 emissions per Gross State Product from 2010 baseline**), putting New York on a pathway to achieve an 80 percent reduction in total emissions by 2050. (Draft Energy Plan, Volume 1, p. 28-29; emphasis added.)

No analysis has been provided to show how this interim target relates to the required 80% total greenhouse gas reduction goal or serves as a benchmark for it. Moreover, by measuring only carbon dioxide emissions until 2030--the same period of time during which the document forecasts widespread expansion of natural gas—the Plan will allow much more ***methane*** (CH_4) to be released to the atmosphere, greatly exacerbating climate impacts in the near-term. By measuring emissions relative to Gross State Product, the Plan also fails to track the actual amount of greenhouse gases released.

According to the latest assessment (2013) of the Intergovernmental Panel on Climate Change (IPCC), methane is 34 times more potent as a greenhouse gas than carbon dioxide over one

hundred years, and 86 times more potent over twenty years.[5] Further, the IPCC now states that at the decadal scale following release, total emissions of methane globally equal or exceed the total emissions of carbon dioxide as a driver of global warming. Considering that the Earth is approaching temperature thresholds beyond which the most severe impacts of climate change cannot be avoided, these near-term impacts must not be ignored.

Although the draft Plan acknowledges the severe threat of climate change, it fails to apply the best science to address it. The *NYS Greenhouse Gas Inventory and Forecast*[6], which the Plan relies on, uses an outdated factor of 25 for the carbon dioxide equivalency of methane over a one hundred year timeframe.[7] (Id., Appendix A.) Moreover, the Plan completely ignores the critical issue of cumulative methane emissions over the next twenty years, when scientists agree immediate action must be taken.

These fundamental defects are pervasive and result in the miscalculation of current greenhouse gas inventories and future forecasts. In addition, the Plan's exclusion of methane in setting an interim greenhouse gas reduction target directly conflicts with New York Energy Law, specifically Section 6-104(v) which requires consideration of all "projected greenhouse gas emissions" and makes no provision to limit consideration solely to carbon dioxide.

The Plan should be amended to remove the erroneous carbon dioxide benchmark and instead provide a credible schedule—**including a set of specific targets at regular intervals**—for reducing ***total*** greenhouse gas emissions to achieve the 2050 goal set forth in 2009 Executive Order 24 using the most current IPCC data. This should be coupled with actions relating to renewables and efficiency improvement that are specifically designed to meet those targets. Finally, the Plan should make greenhouse gas reduction targets a State priority and clearly establish the 2050 goal as the basis for all future energy decisions.

3. The Plan Presumes Falsely That Natural Gas Is A "Clean" Source Of Energy.

The draft Plan improperly describes natural gas as a "clean" source of energy. This clouds the entire document and renders many of the initiatives in Volume 1 dubious and potentially harmful.

Methane emissions produced throughout the full-cycle of extraction, processing, distribution, and use prevent natural gas from being considered a "clean" fuel. The International Energy Agency found that a large natural gas boom—even with improvements in place to reduce leakage—would eventually lead to greenhouse gas concentrations of 650 parts per million and a

[5] *IPCC Warns Methane Traps Much More Heat than We Thought*, Joe Romm, CleanTechnica. http://cleantechnica.com/2013/10/04/ipcc-warns-methane-traps-much-heat-thought/

[6] *New York State Greenhouse Gas Inventory and Forecast: Inventory 1990-2011 and Forecast 2012-2030*, NYSERDA, Final Report, April 2014. http://www.nyserda.ny.gov/-/media/Files/EDPPP/Energy-Prices/Energy-Statistics/greenhouse-gas-inventory.pdf

[7] This is based on the IPCC 2007 Fourth Assessment Report and does not reflect most current 2013 data from IPCC.

global temperature rise of 3.5 degrees Celsius, far exceeding the 2 degree Celsius limit which the Plan concedes is critical to avoid the most severe effects of climate change.[8] Further, a recent quantitative study of methane emissions (Miller, Wofsy, Michalak, et al.), found that current inventories by the Environmental Protection Agency (EPA) and the Emissions Database for Global Atmospheric Research (EDGAR) underestimate methane emissions nationally by a factor of 1.5 and 1.7 respectively.[9] The same study determined that regional methane emissions from extraction and processing might actually be five times worse than EDGAR estimates. These data are included in an even more recent study (Brandt et al.), which found that national-scale methane emissions are about 5.4 +/- 1.8% of production.[10] Even the low end of this range supports the results of independent analyses, which show that the climate-damaging effects of shale gas development exceed coal when twenty-year timeframes are appropriately considered (Howarth, Santoro, Ingraffea).[11] Thus switching to natural gas is likely to advance rather than retard global warming. A detailed review of these findings appears in the recent report, *A Bridge to Nowhere: Methane Emissions and the Greenhouse Gas Footprint of Natural Gas,* by Robert W. Howarth.[12]

Disturbingly, the draft Plan ignores this information and focuses mostly on carbon dioxide emissions produced during end-use combustion, admitting that emissions produced during extraction (such as flaring, venting, and leaks) are not even considered. (Draft Energy Plan, Vol. 2-Impacts and Considerations, p.31.)[13] With respect to methane, the *NYS Greenhouse Gas Inventory and Forecast, cited above, at fn. 6,* admits that emissions from both production and processing are ignored because of the "limited production and processing that occurs in the state." (Id., p. 16.) Although high volume hydraulic fracturing is not currently permitted in New

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[8] *Golden Rules for a Golden Age of Natural Gas—World Energy Outlook Special Report on Unconventional Gas,* International Energy Agency, WEO-2012, November 2012. http://www.iea.org/publications/freepublications/publication/name,27408,en.html

[9] *Anthropogenic Emissions of Methane in the United States,* Scot M. Miller, Steven C. Wofsy, Anna M. Michalak, Eric A. Kort, Arlyn E. Andrews, Sebastien C. Biraude, Edward J. Dlugokencky, Janusz Eluszkiewicz, Marc L. Fischer, Greet Janssens-Maenhout, Ben R. Miller, John B. Miller, Stephen A. Montzka, Thomas Nehrkorn, Colm Sweeney; October 2013. http://www.pnas.org/content/early/2013/11/20/1314392110.abstract ; full text can also be found at http://calgem.lbl.gov/Miller-2013-PNAS-US-CH4-Emissions-9J5D3GH72.pdf

[10] *Methane Leaks from North American Natural Gas Systems,* A. R. Brandt, G. A. Heath, E. A. Kort, F. O'Sullivan, G. Pétron, S. M. Jordaan, P. Tans, J. Wilcox, A. M. Gopstein, D. Arent, S. Wofsy, N. J. Brown, R. Bradley, G. D. Stucky, D. Eardley, and R. Harris; Science, Vol. 343, no. 6172, February 14, 2014, pp. 733-735, DOI*:* 10.1126/science.1247045. http://www.sciencemag.org/content/343/6172/733.summary

[11] *Methane and the Greenhouse-Gas Footprint of Natural Gas from Shale Formations,* Robert W. Howarth, Renee Santoro, Anthony Ingraffea; April 2011. http://download.springer.com/static/pdf/5/art%253A10.1007%252Fs10584-011-0061-5.pdf?auth66=1401254617_c2b8418bc2e3dfffa23b5ea2d6a0f4a5&ext=.pdf
Venting and Leaking of Methane from Shale Gas Development: Response to Cathles et al., Robert W. Howarth, Renee Santoro, Anthony Ingraffea; January 2012. http://www.eeb.cornell.edu/howarth/publications/Howarthetal2012_Final.pdf

[12] *A Bridge to Nowhere: Methane Emissions and the Greenhouse Gas Footprint of Natural Gas,* Robert W. Howarth, *Energy Science & Engineering,* April 2014. http://onlinelibrary.wiley.com/doi/10.1002/ese3.35/pdf

[13] Additionally, the *Energy Efficiency and Renewable Energy Potential Study of NYS* expressly provides that its analysis considered only emissions from the "end-use consumption of fuels" and that "upstream impacts of extraction, refinement, and transportation of primary fuels" were not included. (Id., Vol. 3., p. 3-20.)

York, conventional gas extraction produces about 40 Bcf of natural gas annually and contributes to methane leakage that should be counted. Moreover, since the Plan does not commit to a ban on high-volume hydraulic fracturing, potential future emissions could be much higher.

In addition to these "upstream" emissions, the Plan's assessment of methane leakage from "downstream" activities, such as transmission, storage, and distribution is flawed. As explained in the *NYS Greenhouse Gas Inventory and Forecast*, estimates of methane leakage for New York were obtained by a crude scaling of EPA published estimates for the entire United States by the ratio of gas consumption in New York to the nation. However EPA inventory data significantly underestimates actual leakage.[14] Furthermore, scaling volumes by relative consumption could only be valid if leakage rates across the country are representative of New York. It is well known that New York has some of the oldest gas distribution networks in the nation. Therefore leakage rates for the State could be much higher than the national average.[15]

Another issue that prevents natural gas from being considered "clean" is the use of Liquefied Natural Gas (LNG) and Compressed Natural Gas (CNG). In addition to generating emissions from flaring, venting, and leaks, LNG and CNG facilities have extremely large carbon footprints due to the vast amount of energy required to operate them, which result in major carbon dioxide emissions. For example, it has been estimated that the proposed Cove Point LNG liquefaction and export terminal in Maryland would alone generate emissions comparable to those of an entire electrical power plant.[16] In addition, these facilities produce significant quantities of Volatile Organic Compounds (VOC's) and other hazardous chemicals.[17] Due to overall efficiency losses involved in processing, liquefaction, transport, and regasification, the full-cycle carbon impacts of using LNG as a source of energy are much greater than conventional natural gas.

Significantly, the New York Department of Environment Conservation (NYSDEC) is presently considering regulations that will have the effect of lifting a prohibition on LNG facilities that has been in place for forty years. No effort appears to have been made to forecast the greenhouse gas impacts of these new facilities. In addition, the proposed regulations are inconsistent with New York law, fail to address environmental concerns, and put the public at risk. To this point, we hereby incorporate by reference, as though fully set forth herein, the *Supplemental Comments on*

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[14] This discrepancy between EPA estimates and current data is mentioned in a footnote on page 16 of the *NYS Greenhouse Gas Inventory and Forecast*, cited above at fn. 6, however the conclusions of the report have not been revised.

[15] The forecasts for methane leakage contained in the *NYS Greenhouse Gas Inventory and Forecast, cited above at fn.6,* are based on mid-Atlantic region Annual Energy Outlook projections for gas consumption scaled to New York. They do not reflect the detailed analysis of a particular state energy portfolio. (Id., p.18.)

[16] *Democrats Face Tricky Balancing Act as Export Debate Grows Louder,* Hannah Northey, E&E, January 15, 2014. http://www.eenews.net/stories/1059992926

[17] For example, see: *Pollution Fears Aired Over Curtis Island LNG Plant Approval*, Emille Gramenz, Australian Broadcasting Corp, October 8, 2013. http://www.abc.net.au/news/2013-10-08/pollution-fears-aired-over-curtis-island-lng-plant-approval/5008422

Proposed Regulations for LNG facilities, submitted by Otsego 2000, Inc. to the NYSDEC on December 4, 2013.[18]

Finally, the Plan must concede that natural gas cannot be described as "clean" once the environmental and human health impacts associated with gas extraction through horizontal high-volume hydraulic fracturing are considered. These include, but are not limited to air and water contamination, harm to natural resources, discharge of fracking waste, earthquakes, and radon exposure. (See Sections 7, 8, and 9, below.) With respect to the risks of fracking in New York State, we hereby incorporate by reference, as though fully set forth herein, *Comments on the Revised Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Program: Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Resources*, submitted by Zarin & Steinmetz for Otsego 2000, Inc. to the NYSDEC, dated January 10, 2012.[19]

Clearly, the draft Plan's premise of "clean" natural gas is riddled with omissions, errors, and miscalculations. Of greatest concern, however, is that this sets the stage for future bad decisions regarding energy policy and the composition of New York's energy portfolio. In light of these flaws, the Plan's assertion that total greenhouse gas emissions will drop by 9% from 1990 levels in the absence of policy improvements lacks credibility. This renders the 80% reduction target unachievable unless New York State adopts far bolder action to affect a dramatic shift from fossil fuels to renewables and improve energy efficiency.

The draft Energy Plan should be amended to equate "clean energy" with renewables rather than natural gas. Furthermore the Plan should use the most accurate data on emission rates and comprehensively evaluate all emissions over the full-cycle of natural gas use, including production, processing, transmission, storage, and distribution. In developing policies and programs, the Plan should comprehensively consider all environmental and human health impacts of natural gas and its infrastructure.

4. The Plan Obfuscates On The Potential Of Fracking In New York.

The draft Energy Plan contains confusing and contradictory language about the future of natural gas production and high-volume horizontal fracturing in New York. The subsection of the Plan titled "New York Production Forecast" begins with a statement that gas production in New York

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[18] *Supplemental Comments on Proposed Regulations for LNG facilities*, Otsego 2000, Inc., December 4, 2013. http://www.otsego2000.org/wp-content/uploads/2014/05/Otsego-2000-Comments-on-Proposed-LNG-Regs-with-Signatories.pdf

[19] *Comments on the Revised Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Program: Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Resources*, Zarin & Steinmetz for Otsego 2000, Inc., January 10, 2012. http://www.otsego2000.org/wp-content/uploads/resources/Otsego2000%20DSGEIS%202011%20comments.pdf

State is expected to decrease due to a decline in reserves within the Trenton-Black River region and a lack of new wells being drilled. (Draft Energy Plan, Vol. 2-Sources, p. 88.) However this is followed by text and a graph forecasting a ramping up of production over the next twenty years, ***tripling*** to more than 115 billion cubic feet by 2035. The Plan goes on to state that this forecast is "conservative" suggesting that natural gas production volumes in New York could be higher if "production and permitting difficulties" related to horizontal drilling and hydraulic fracking are minimized. (Id.)

This parsing of language offers zero insight with respect to the future, thus making planning impossible. No indication has been given as to what regulatory framework would support the forecast depicted, what is meant by "permitting difficulties," or what volumes could be expected if actions were taken to overcome them. The forecast depicts production ramping up though 2035, which also leads to the question of what volumes of production could be experienced beyond this timeframe. Moreover, no information has been provided on the number of wells and related infrastructure (for example pipelines, gathering lines, compressor stations, staging areas and access roads) that would be necessary to generate these projected volumes. It is not possible to assess the impacts of gas development without this information, and indeed no consideration has been given to such impacts within the "Impacts and Considerations" chapter of the Plan.

There is no place for fracking in New York's future, nor is it possible for greenhouse gas reduction goals to be met if fracking is permitted. Rather than obfuscating on the issue, forecasts should be amended to clearly indicate that fracking in New York is not part of the proposed Plan. The Energy Plan should also candidly admit that relying on natural gas contributes to fracking in neighboring states. The Plan must consider the environmental, human health, and climate impacts of relying on gas produced through the dangerous practice of hydraulic fracturing, wherever it occurs.

5. The Plan Erroneously Ignores Fracking Impacts Beyond New York's Borders.

Although the draft Plan does not expressly state whether high-volume fracking will be allowed in New York, it clearly promotes a "frack your neighbor" policy that places increasing dependence on natural gas imported from Pennsylvania and elsewhere.[20] Unconscionably, this expanded use of fracked gas is touted without consideration of the adverse impacts of extraction.

As explained in Section 3, above, the draft Plan fails to consider in its estimate of greenhouse gas impacts any production and processing emissions, even those generated within New York. Significantly, as disclosed in the *NYS Greenhouse Gas Inventory and Forecast*, cited above at fn. 6, the rationale for this is because of "limited production and processing that occurs in the state."

[20] The draft Plan concedes that even today "Approximately 97% of the natural gas supply required to meet the demands of New York natural gas customers is from natural gas supply production regions in other states." (Draft Energy Plan; Vol. 2-Sources, p. 83.)

(Id., p. 16.) Furthermore, the Plan's supporting document, the *Energy Efficiency and Renewable Energy Potential Study of NYS*, cited above at fn. 3, expressly provides that its analysis considers only emissions from the "end-use consumption of fuels" and that "upstream impacts of extraction, refinement, and transportation of primary fuels are not included." (Id., Vol. 3., p. 3-20.)

These are troubling admissions in light of the Plan's expressed concern about climate change. However it is equally troubling that this dismisses the real-world impacts of fracking and related infrastructure involved in delivering natural gas from ***outside*** New York to in-state consumers. The effects of climate change clearly do not end at state boundaries. The fact that damaging emissions are released to the atmosphere before gas arrives in New York can be no consolation. Turning a blind eye to emissions occurring out of state that are the result of NYS energy policy makes a mockery of greenhouse gas reduction targets. Unless such impacts are taken into account, greenhouse gas reduction goals are not credible and the Plan will be unable to achieve its purpose as set forth in NYS Energy Law.

This neglect of out-of-state impacts is not limited to climate change. Natural gas extraction and its related infrastructure threaten communities with a plethora of adverse economic, environmental, and human health impacts. (See Sections 6 through 10, below.) Such impacts will only be made worse by the draft NYS Energy Plan's exuberance for greater dependency on fracked gas imported from neighboring states.

It is unconscionable to move forward with a "frack your neighbor" policy that promotes the expanded use of natural gas by New Yorkers, while ignoring the negative consequences occurring out of state that are the direct result of that use. The draft Plan should be amended to account for the greenhouse gas impacts of increased dependency on imported fuels and the cumulative economic, environmental, and human health effects of shale gas extraction both within New York State and beyond its borders.

IMPACTS AND COSTS NOT CONSIDERED

6. Price Volatility Of Natural Gas Has Been Ignored.

The draft Energy Plan fails to recognize the inherent price volatility of natural gas and as such threatens ratepayers, including both residents and businesses, with higher prices – perhaps significantly higher – in the future. Specifically, the Plan forecasts that the price of natural gas will remain stable below $5 per thousand cubic feet through 2025. (Draft Energy Plan, Vol. 2-

Sources, p. 66.) However the price of gas has already exceeded this level since release of the draft Plan.[21]

Significantly, prices can be expected to rise substantially if the United States becomes a major exporter of natural gas. This is because New York consumers and electricity producers would have to compete on the global market with countries that are accustomed to paying as much as five times more for gas than Americans. The draft Plan actually concedes that this is an issue. However it summarily dismisses the concern, stating only that "LNG may be exported from the continental U.S. to Asia or Europe. This could cause price volatility in the future and must be monitored." (Draft Energy Plan, Vol. 2-Sources, p. 80.) Recent political efforts to adopt legislation to streamline approval of export terminals for shipping domestic gas reserves overseas indicates that this is an issue which must be more than simply "monitored." Recognizing that major exports could be approved, the impact of higher gas prices upon New York ratepayers, including residents and businesses, must be fully evaluated now.[22]

The draft Plan also states erroneously that projected low prices "reflect continued industry success in tapping the nation's extensive shale gas resource." (Draft Energy Plan, Vol. 2-Sources, p. 66 and p.124.) However this fails to acknowledge the growing body of evidence that estimates of recoverable reserves have been grossly overstated, that production fall-off rates for shale gas wells have been unexpectedly high, and that the many environmental and health risks of extraction could result in diminished gas production.[23] According to the USGS, approximately 84 Tcf of natural gas may be technically recoverable from the Marcellus, much less than prior claims touted by industry.[24] Commercially recoverable volumes will be less still. Furthermore, the Plan ignores the likelihood that increasing domestic demand for natural gas will create upward pressure on gas prices, a situation made worse by the Plan's promotion of its use.

Despite ample indicators that natural gas prices will inevitably rise, the draft Plan irresponsibly advocates programs and incentives that encourage ratepayers to switch to natural gas from other

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[21] On March 3, 2014 the Henry Hub spot price of natural gas reached $7.09 per million Btu, which translates to approximately $7.25 per thousand cubic feet. (According to the EIA, there is approximately 1023 BTU of energy per cubic foot of natural gas.)[21]

[22] Regarding LNG exports, see also: *Why US Fracking Companies are Licking Their Lips Over Ukraine,* Naomi Klein, The Guardian, April 10, 2014. http://www.theguardian.com/commentisfree/2014/apr/10/us-fracking-companies-climate-change-crisis-shock-doctrine

[23] *Resource Assessment of Potentially Producible Natural Gas Volumes From the Marcellus Shale,* State of New York, A. Berman and L. Pittinger, Labyrinth Consulting Services, Inc. for the League of Women Voters of New York State, April 10, 2014. http://www.lwvny.org/advocacy/natural-resources/hydrofracking/2014/Marcellus-Resource-Assessment-NY_0414pdf.pdf ; see also http://www.postcarbon.org/blog-post/2187917-the-eia-is-seriously-exaggerating-shale

[24] *Assessment of Undiscovered Oil and Gas Resources of the Devonian Marcellus Shale of the Appalachian Basin Province-2011,* USGS Fact Sheet 2011-3092, August 2011. http://pubs.usgs.gov/fs/2011/3092/
In addition, the volume of 489 Tcf mentioned in the draft Plan incorrectly refers to "economically recoverable" gas. (Draft Plan, Vol. 2-Sources, p.84.) This number corresponds to a 2009 estimate of "technically recoverable" gas by Engelder, which is also higher than more current estimates by the USGS and EIA. The sentence correctly acknowledges, however, that the fraction of commercially recoverable gas in New York is unknown.

fuels—such as for home heating and cooking. In so doing, the Plan lures New York consumers into switching to natural gas only to be squeezed later. This is unacceptable. The fact is that uncertainty resulting from the price volatility of natural gas (and other fossil fuels) makes long-term planning difficult. This sharply contrasts with the price security offered by renewables since the "fuel" costs of wind, water, and sunlight are zero.

It is extremely risky for New York's Energy Plan to encourage the expanded use of natural gas considering the inherent uncertainty of domestic supplies, intensifying plans for the export of reserves overseas, and the likelihood of escalating prices in the future. The Plan should be amended to fully evaluate the impact of price instability and higher prices upon ratepayers, including both residents and businesses, and curtail its promotion of natural gas.

7. Economic and Societal Impacts Of Reliance On Natural Gas Have Been Ignored.

The economic costs of climate change and pollution from fossil fuels are staggering. It has been estimated that air pollution driven by fossil fuels costs the State of New York approximately $33 billion annually, resulting in 4,000 premature deaths each year. [25] Likewise climate change will cost the United States $271 billion annually by the year 2050. (Id.) This figure includes damage caused by severe storms and increased costs to the energy sector, but it does not include costs associated with increased illness and death, which will drive total costs much higher. (Id.)

While the draft Plan includes a sobering assessment of sea level rise, extreme weather-related disasters, and other impacts of global warming (Draft Energy Plan, Vol. 2-Impacts and Considerations, pp. 15-24), it fails to translate these critical warning signs into meaningful action that will wean New York off of fossil fuels. As an economic leader in the world, New York can and must demonstrate leadership in addressing the climate crisis. One of four metrics by which the Plan purports to measure progress is "Robust Economic Activity". (Draft Energy Plan, Vol. 1, p. 29.) Clearly, however, "robust economic activity" is not possible in the midst of climate catastrophe.

Nor is "robust economic activity" possible in communities saddled with the adverse impacts of gas extraction and related infrastructure. These effects can be severe as rural communities are transformed into industrial areas crisscrossed by pipelines, compressor stations, processing plants, and storage facilities – or worse, into a vast network of gas wells, flow-back ponds, impoundments, and gathering lines in areas where fracking occurs. These operations are incompatible with sustainable agriculture, organic farming, wineries and breweries, tourism, outdoor recreation like hunting and fishing, and other pursuits, which depend on an unspoiled

[25] *Examining the Feasibility of Converting New York State's All-Purpose Energy Infrastructure to One Using Wind, Water, and Sunlight,* Mark Z. Jacobson, Robert W. Howarth, Mark A. Delucchi, Stan R. Scobie, Jannette M. Barth, Michael J. Dvorak, Megan Klevze, Hind Katkhuda, Brian Miranda, Navid A. Chowdhury, Rick Jones, Larsen Plano, Anthony R. Ingraffea, February 2013.
http://www.stanford.edu/group/efmh/jacobson/Articles/I/NewYorkWWSEnPolicy.pdf

landscape or clean air and water. The costs to impacted communities are manifest in lost jobs, and in diminished property values, economic potential, tax revenue, and quality of life.

In or near areas where shale gas extraction occurs, communities are also burdened with increased demands on police, firefighters, first responders, and hospitals. In addition there are increased costs to the State and municipal governments for damage to roads and bridges because of heavy truck traffic, higher crime rates, water and air contamination, and the degradation of public health. Pipelines also require permanent easements—often forced upon landowners by eminent domain—which devalue land, prohibit future building, and hinder economic development. None of the above factors are considered in the draft Plan, which aggressively promotes the expanded use of natural gas and infrastructure required to support it.

In addition, claims of job creation by the gas industry have been greatly exaggerated. The fact is that the most recent independent economic report by the Multi-State Shale Research Collaborative found that Marcellus Shale drilling has had "little overall" positive impact on the state economy of any state studied, that "the industry and its boosters have used inappropriate employment numbers, including equating new hires with new jobs and using ancillary job figures that largely have nothing to do with drilling", and that "industry-funded studies…have substantially overstated the total jobs impact of the shale industry."[26] Further, instead of using local labor, drilling and fracking activities, and the construction of major infrastructure such as transmission pipelines, are usually performed by skilled workers brought in from other states. Finally, the draft Plan fails to consider the negative economic consequences of the regional long-term bust that frequently occurs following the temporary short-term boom associated with gas development and other extractive industries.

By contrast, it has been demonstrated that renewable energy will create far more jobs than fossil fuels. Research on the subject from the University of California at Berkeley determined that "all non-fossil fuel technologies (renewable energy, energy efficiency, low carbon) create more jobs per unit of energy than coal and natural gas."[27] Further, a report published by the University of Massachusetts found that for every million dollars spent on energy production in the United States, the oil and gas industry creates only 3.7 direct and indirect jobs, while similar investments in wind and solar energy production create 9.5 and 9.8 jobs, respectively.[28] If New York were to

[26] *Exaggerating the Employment Impacts of Shale Drilling: How and Why*, Multi-State Shale Research Collaborative, November 2013. https://pennbpc.org/sites/pennbpc.org/files/MSSRC-Employment-Impact-11-21-2013.pdf

[27] *Putting Renewables and Energy Efficiency to Work: How Many Jobs Can the Clean Energy Industry Generate in the U.S.?*, M. Wei, S. Padadia, D. Kannen, Energy Policy 38 (2010) pp. 919-931. https://pennbpc.org/sites/pennbpc.org/files/MSSRC-Employment-Impact-11-21-2013.pdf

[28] *The Economic Benefits of Investing in Clean Energy*, R. Pollin, J. Heintz, and H. Garrett-Peltier; Political Economy Research Institute, University of Massachusetts, Amherst, 2009. http://www.peri.umass.edu/fileadmin/pdf/other_publication_types/green_economics/economic_benefits/economic_benefits.PDF

switch entirely to renewable energy, it has been estimated that 4.5 million construction jobs could be created and 58,000 permanent jobs thereafter at energy facilities alone.[29]

Finally, it is important to recognize that with respect to the "economic potential" of renewable energy, none of these relevant factors associated with the economic benefits of renewables, or by comparison the negative economic and societal costs of increased dependency on natural gas, were considered in the draft Energy Plan or the report titled *Energy Efficiency and Renewable Energy Potential of NYS* by Optimal Energy, Inc. With respect to economic impacts, we incorporate by reference as though fully set forth herein, the *Comments on the 2014 Draft New York State Energy Plan*, prepared by Jannette M. Barth, Ph.D., Economist, Pepacton Institute LLC, submitted on March 21, 2014, and her supplemental comments submitted May 2014.

Clearly New York would benefit far more from the production of renewable energy than shale gas. Instead of promoting investments in fossil fuels, the draft Energy Plan should be amended to aggressively support and incentivize investments in renewable energy that promise good jobs for New Yorkers and lasting economic benefits.

8. Public Health Impacts Of Expanded Natural Gas Use Have Been Ignored.

Significantly, the draft Energy Plan states: "It is likely that electricity prices do not currently reflect the full cost to society of related carbon emissions," and notes that "the State still has a role to assure that societal goals are addressed in electricity and other energy markets." (Draft Energy Plan, Vol. 2-Sources, p.45.) However, the Plan then ignores these considerations by proposing a strategy that creates greater dependence on natural gas without considering the "full cost to society".[30] Likewise, the Plan states that environmental justice communities "bear the burdens of higher rates of asthma, diabetes, cardiovascular disease, and childhood lead poisoning," (Draft Energy Plan, Vol. 1, p.14), but then ignores the risks to people living in areas exposed to the impacts of gas production or gas-related infrastructure.

Numerous studies have documented the negative health impacts of exposure to air and water contamination from fracking, including chronic illness, cancer, miscarriages, birth defects, and impaired development. Even people not directly subjected to fracking are impacted by gas infrastructure, including compressor stations and processing plants that produce emissions, effluent, and noise, by toxic wastewater and radioactive cuttings brought into their communities, by toxic brine spread on roads, and by radon gas. These are all public health impacts that must be considered. With respect to this, we hereby incorporate by reference, as though fully set forth

[29] *Examining the Feasibility of Converting New York State's All-Purpose Energy Infrastructure to One Using Wind, Water, and Sunlight,* Jacobson, et al., February 2013. http://www.stanford.edu/group/efmh/jacobson/Articles/I/NewYorkWWSEnPolicy.pdf

[30] The *Energy Efficiency and Renewable Potential Study of NYS,* cited above at fn. 3, admits that "environmental externalities i.e. the economic values of reducing pollutants" are societal costs that are not monetized and are therefore not counted. (Id. p.1-14.)

herein, the *Comments on the New York State Energy Plan*, prepared by Larysa Dyrszka, MD for Concerned Health Professionals of NY, dated April 19, 2014.

Whether such impacts occur in New York or in neighboring states that supply natural gas to New York, they must not be ignored. It is not appropriate to move forward with a policy that promotes the expanded use of natural gas while ignoring harm to people occurring out of state that is the direct consequence of that use. Nor is it acceptable to move forward with a Plan to dramatically expand New York's dependency on natural gas while deferring the analysis of consequences to a Health Review that is not yet complete by the NYS Department of Health. The Plan should be amended to evaluate all direct, indirect, and cumulative health impacts resulting from increased dependency on fracked gas and its infrastructure.

9. Ecological Impacts Of Natural Gas Extraction And Infrastructure Have Not Been Considered.

The draft Energy Plan ignores the extensive negative impacts to wildlife and functional ecosystems caused by natural gas production and infrastructure. Although the Plan singles out hydropower and wind turbines for discussion of wildlife impacts, it says nothing about the effects on wildlife, habitat, and large-landscape ecology of drilling and fracking operations, infrastructure for the processing and distribution of gas, industrial facilities for production and storage, or import/export terminals which can be extensive. For example, in September 2013, a flare stack at the Canaport LNG regasification plant in Saint John, Canada, was responsible for the death of 7,500 migratory birds in just one evening.[31]

Similarly, the Plan describes the capacity of major proposed pipeline projects, however it fails to estimate the extent and impact of those pipelines, related infrastructure for processing and storage, and the future distribution network to be served. For example, the proposed *Constitution Pipeline*, intended to deliver fracked gas from Pennsylvania to the Northeast and potentially for export, would entail the construction of a 124-mile gas line through steep terrain of the Southern Tier and northern Catskill region, impacting sensitive forested habitat, fragile ridgelines, significant wetlands, and 277 water bodies along its route. Rather than utilizing existing easements or transportation corridors, the project currently proposed would blast through and forever fragment a contiguous ecosystem of statewide significance.[32] Likewise, the Plan makes no mention of the inadequate process by which the NYS Public Service Commission approves

[31] *7,500 Song Birds Killed at Canaport Gas Plant in Saint John,* CBS News, September 18, 2013. http://www.cbc.ca/news/canada/new-brunswick/7-500-songbirds-killed-at-canaport-gas-plant-in-saint-john-1.1857615.

[32] *Comments on Draft Environmental Impact Statement for Constitution Pipeline and Wright Interconnect Projects, Docket Nos. CP13-499-000, CP13-502-000, PF12-9,* B. Lee, Earthjustice, April 7, 2014. http://earthjustice.org/sites/default/files/files/CommentsonConstitutionDEIS_4.7.14.pdf ; see also *Comments by Otsego 2000 on the Constitution Pipeline: FERC Docket Nos. CP 13-499-000 and CP 13-502-000, UACE Docket No. NAN-2=12-00449-UBR,* Otsego 2000, April 4, 2014. http://www.otsego2000.org/wp-content/uploads/2012/08/FERC-DEIS-Comments-FINAL-4-3-141.pdf

small and midsize pipelines without attention to ecological impacts or measurable avoidance criteria.

Moreover, the draft Plan entirely ignores the massive ecological impacts of shale gas extraction. These impacts include the site-specific harm to wildlife from gas rigs, flare stacks, and toxic pits for flow-back fluid. They also include the resulting extensive grid pattern of wells, pads, gathering lines, compressor stations, and access roads that, if fracking is permitted, would proliferate across the land, permanently scarring the viewsheds of New York State, fragmenting wildlife populations and destroying ecosystem connectivity. Well pads are typically spaced every square mile and infill wells could also be permitted, so the potential for widespread adverse impacts is profound. Loss of functional habitat, fragmentation, negative edge effects, invasive species, impacts to wildlife populations, and harm to plant and animal species as a result of air, water, or soil contamination are all impacts that can be expected where fracking takes place. According to the environmental research institute, Hudsonia, in the Marcellus region "impacts could be as great as those of the historic deforestation of the eastern states that took place in the 1700s and early 1800s."[33]

Species acutely vulnerable are those with small geographic ranges overlapping the Marcellus and Utica shale regions.[34] Also of particular concern are impacts to interior forests, which are essential to sustaining wildlife populations and maintaining biodiversity. To this point, the New York Chapter of The Nature Conservancy produced a report in 2011 which analyzed the potential impacts of fracking in Tioga County, New York titled *An Assessment of Potential Impacts of High Volume Hydraulic Fracturing on Forest Resources*, and included a build-out analysis of low, medium, and high development scenarios.[35] An analysis similar to this should be conducted for all areas vulnerable to fracking.

The Energy Plan should be amended to address all direct, indirect and cumulative ecological impacts of natural gas infrastructure, and unless fracking is expressly prohibited in the Plan, a full build-out analysis of gas well production and related infrastructure that may be anticipated in New York should be performed.

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[33] *Fracking and Biodiversity: Unaddressed Issues in the New York Debate*, Erik Kiviat and Karen Schneller-McDonald, New from Hudsonia, Volume 25, Numbers 1 & 2, Fall 2011. http://hudsonia.org/wp-content/uploads/2012/01/nfh-Fracking-biodiversity-best.pdf

[34] *Hydraulic Fracturing Threats to Species with Restricted Geographic Ranges in the Eastern United States*, J. Gillen and Erik Kiviat, *Environmental Practices*, August, 2012 (doi:10.10170S1466046612000361). http://hudsonia.org/wp-content/uploads/2013/03/GillenKiviatFracking.pdf

[35] *An Assessment of Potential Impacts of High Volume Hydraulic Fracturing on Forest Resources*, Cara Lee, et al, The Nature Conservancy; December 2011. Also useful to understanding the large scale landscape consequences of shale gas extraction is the USGS report: *Landscape Consequences of Natural Gas Extraction in Bradford and Washington Counties, Pennsylvania, 2004-2010*, E.T. Sionecker, et al, Open-File Report 2012-1154.

10. Public Safety And Terrorism Dangers Of Natural Gas Have Not Been Addressed.

The draft Energy Plan ignores the significant threat that the expansion of natural gas infrastructure would impose on the safety of New Yorkers and the extent to which this expansion invites terrorist attack. Neither of these issues is discussed in the section of the Plan titled "Vulnerability of the Energy System." (Draft Energy Plan, Volume 2-Impacts and Considerations.)

Pipelines, compressor stations, and distribution systems are vulnerable to fire and explosion caused by malfunction, human error, or intentional sabotage. Leakage of natural gas distribution lines has led to catastrophic explosions. This is especially true with respect to aging gas infrastructure in New York State. Most recently, on March 12, 2014 a natural gas explosion in New York City destroyed two buildings, killed eight people, and injured many more.[36] Furthermore, gathering lines used to collect gas from production wells fall outside of federal jurisdiction and in practice are essentially unregulated. These gathering systems also pose public safety and security risks. A proliferation of natural gas infrastructure would expose New Yorkers to greater safety hazards, which the draft Plan fails to acknowledge or analyze. The accessibility and connectivity of gas distribution systems also render gas infrastructure particularly vulnerable to sabotage and an attractive target for terrorism. (See also comments titled, *The Potential for Physical and Cyber-Attacks against the Proposed Constitution Pipeline and the Subsequent Impacts on Populations and Eco-Systems,* submitted by The Center for Sustainable Rural Communities to the Federal Energy Regulatory Commission on March 15, 2014.[37])

Industrial storage and processing facilities for LNG, CNG, and hydrocarbon liquids extracted from gas also pose a growing public danger. In 1973, a horrific explosion at an LNG facility on Staten Island killed forty people and led to a prohibition on new LNG facilities.[38] However the NYS Department of Environmental Conservation is now considering the permitting of new LNG facilities, which could include both truck refueling stations and major industrial operations for the production, storage, regasification, and export of many millions or billions of gallons of LNG. If released to the atmosphere, LNG rapidly expands to 600 times its liquid volume and creates an asphyxiating and explosive vapor cloud that can endanger large populations. Significantly, a 2008 Congressional report titled *Liquefied Natural Gas Infrastructure Security* found that "LNG infrastructure is inherently hazardous and it is potentially attractive to

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[36] *As Crews Search for Survivors, They Discover Only More Victims*, Marc Santora and William K. Rashbaum, New York Times, March 13, 2014. http://www.nytimes.com/2014/03/14/nyregion/east-harlem-building-collapse.html?_r=0

[37] *RE: Docket Nos. CP13-499 and CP13-502, NAN-2012-00449-UBR--Comment: The Potential for Physical and Cyber-Attacks against the Proposed Constitution Pipeline and the Subsequent Impacts on Populations and Eco-Systems,* The Center for Sustainable Rural Communities, comments to FERC, March 15, 2014. http://ruralcommunities.org/wp-content/uploads/2014/04/FERC-Comments_Security_Final.pdf

[38] *40 Years Ago: Staten Island LNG Explosion Killed 40 Workers*, K. Paulsen, Staten Island Advance, February 10, 2013. http://www.silive.com/news/index.ssf/2013/02/40_years_ago_today_staten_isla.html

terrorists."[39] An LNG plant in Yemen, for example, has been the target of several Al Qaida attacks.[40] Nevertheless, the threat posed by LNG to public safety and security is completely ignored in the draft Plan.

Considering the State's tragic experience with LNG, and the fact that New York was the target of the largest terrorist attack in world history, it is unconscionable that the serious issues of public safety and security relating to natural gas infrastructure have been ignored. This major deficiency must be corrected. Instead of promoting natural gas, which will unnecessarily threaten the safety and security of New Yorkers, the Plan should support aggressive investments in renewable energy.

REQUIRED CHANGES TO ENERGY POLICY

11. Initiatives Supporting Expanded Use Of Natural Gas Must Be Withdrawn.

Much of the draft Energy Plan is ambiguously written in support of "clean energy." Therefore, it is possible that many of its initiatives and programs could be misdirected toward counter-productive activities, such as encouraging the use of natural gas and subsidizing the development of gas infrastructure. For example, Initiative 4 in Volume 1 describes the creation of a Green Bank to help finance "clean energy" projects. This could be very beneficial if used to advance renewable energy, such as properly sited wind and solar farms. However, providing financial assistance or government loans to support gas-fired power plants, gas production, related infrastructure, or other investments in fossil fuel would be extremely harmful, exacerbating climate change and undermining the very purpose of a Green Bank.

Furthermore, several initiatives in the Plan *explicitly* promote the use of natural gas, and the acceleration and expansion of natural gas infrastructure. For example Initiatives 6, 8, and 9 in Volume 1 of the Plan call for the acceleration of infrastructure for energy transmission and distribution, including specifically natural gas infrastructure. (Draft Energy Plan, Vol.1, pp. 40-43.) Ambiguously, the Plan refers to "public-private partnerships that further transmission system investment." (Id.) Thus it is possible that such initiatives may involve the outlay of public money to benefit gas industry objectives for the development of pipelines and distribution systems for natural gas. Inappropriately, the draft Plan calls for more gas transmissions projects inside and outside of the State to make both "indigenous New York production" and supplies outside of New York available. (Draft Energy Plan, Vol. 2-Sources, p. 89.) These are actions that

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[39] *Liquefied Natural Gas (LNG) Infrastructure Security: Issues for Congress*, P.W. Parfomak, CRS Report for Congress, May 13, 2008, https://www.hsdl.org/?view&did=486464

[40] *Al Qaida Renews Attacks on Yemen Gas Sites,* World Tribune, June 3, 2013. http://www.worldtribune.com/2013/06/03/al-qaida-renews-attacks-on-yemen-gas-sites/ ; see also *Yemen LNG Pipeline Blown Up Amid Clashes with Al Qaeda Fighters, Albawaba* News, May 14, 2012. http://www.albawaba.com/news/yemen-lbg-pipeline-blown-amid-clashes-al-qaeda-fighters-425050

will create entrenched dependency on another fossil fuel, exacerbate climate change, and hinder the much-needed transition to renewables.

As the Plan admits, New York suffers from aging and dangerous natural gas infrastructure. However, the public would be far better served by replacing such systems with alternatives to natural gas. It should be noted that Initiative 9 vaguely refers to "pursuing strategies to reduce natural gas leakage" by requiring that utilities repair leaks of "significant" magnitude and limiting methane emissions at compressor stations on intrastate pipelines. Yet the Plan fails to set forth measurable benchmarks for leakage reduction and lacks any specific requirements for monitoring and repairs. The inherent and pervasive problems of methane emissions caused by venting and leakage from natural gas systems cannot be easily solved.

Initiative 9 also promotes the conversion of oil heaters to natural gas for space heating. (Draft Energy Plan, Vol. 1, p. 43.) This is another counter-productive policy that represents a misdirection of public funds. New York should end subsidies for natural gas heating systems, and instead enhance programs and incentives specifically for solar, geothermal, and efficient electrified heating and heat pumps. Many of these technologies are already competitive in terms of price and energy efficiency when compared to natural gas, and would lead New York in the correct direction in terms of infrastructure.

Transportation goals of the draft Plan are also vague and counter-productive with respect to natural gas. Initiative 12 promotes "vehicle diversity" and praises the New York Clean Fleets Initiative. (Draft Energy Plan, Vol. 1, p. 46.) However this program provides public money for vehicles that run on LNG or CNG. This contradicts science demonstrating that natural gas is even more damaging as a greenhouse gas than traditional fuels, including diesel, because of methane leaks within the supply chain.[41] Emissions also occur at CNG and LNG facilities from leaks and during refueling. LNG stations are particularly harmful because gas from storage tanks are routinely vented to the atmosphere ("boiled-off") as liquefied methane evaporates, and because accumulated gas within vehicle tanks must be vented prior to refueling. The draft report fails to address these serious issues or even mention requirements that could be enacted to recapture escaping gas.

Rather than encouraging more vehicles that burn fossil fuels, the Plan should establish specific targets to advance electric and hydrogen fuel-cell technology. In 2013 Governor Cuomo signed a Memorandum of Understanding with eight states to put 3.3 million zero-emission vehicles on the road by 2025. Disappointingly, however, the draft Plan fails to discuss this important agreement or provide any indication of how New York will contribute to meeting this ambitious twelve-

[41] *Methane Leaks from North American Natural Gas Systems,* Brandt et al.**,** *Science,* Vol. 343, no. 6172, February 14, 2014: pp. 733-735, DOI*:* 10.1126/science.1247045. http://www.sciencemag.org/content/343/6172/733.summary

year goal. The Plan should be revised to include meaningful policies and measurable targets to implement this agreement.

In addition to gas-fired power plants and infrastructure discussed above, other forms of natural gas infrastructure that unfortunately may be promoted by the Plan include massive processing facilities for natural gas, such as CNG facilities, facilities for the liquefaction, storage, or regasification of LNG, and terminals for the import or export of LNG. As previously discussed, the environmental impacts of these massive industrial facilities, which are major contributors of greenhouse gas and pollution, have been ignored.

The draft Energy Plan should be amended to more clearly describe the type of projects that may be supported by its initiatives. Specifically, natural gas projects must not be advanced under the guise of "clean energy." Policies and programs that promote or incentivize the use of natural gas and the expansion of gas-related infrastructure, including transmission, storage, and distribution, should be removed from the Plan. Further, policies and programs that subsidize conversion to natural gas, such as for home heating and transportation, should be eliminated, which will also save taxpayers money. Instead of encouraging New York's continued dependency on fossil fuels, the Plan should embrace truly innovate policies and programs that promote efficiency and renewable energy produced here in New York. This is the only pathway to sustained energy independence.

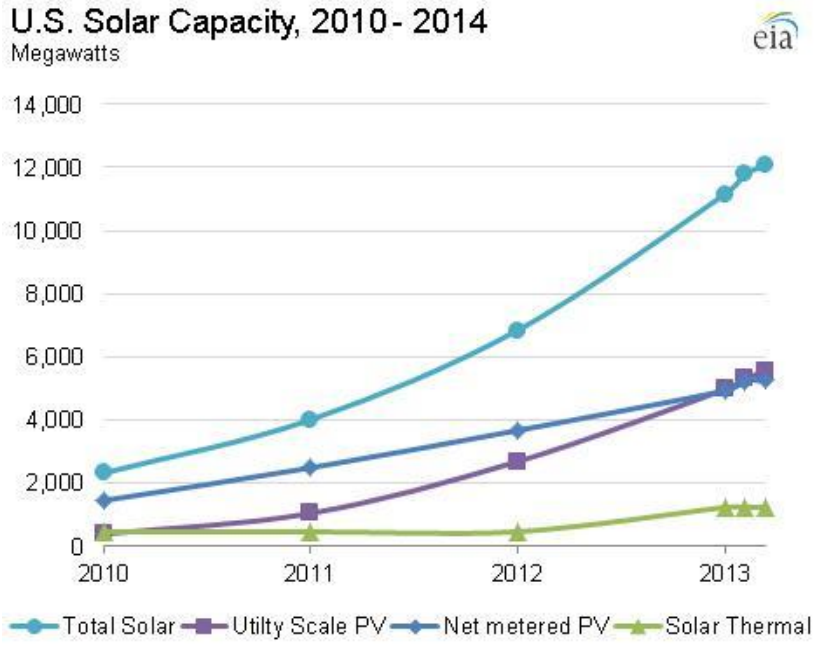
12. A Strong Renewable Energy Program Must Be Adopted To End New York's Dependency On Fossil Fuels.

In recent years significant advances have occurred in renewable technology, which offer tremendous opportunities for energy independence, job creation, and greenhouse gas reduction, provided that New York develops an aggressive strategy for pursuing them. According to the Energy Information Administration (EIA), solar capacity in the United States grew by 418% between 2010 and February 2014, such that solar now accounts for 1.13% of total U.S. electricity generation capacity. Significantly, the agency confirms that "…U.S. solar capacity has moved quickly from a relatively small contributor to the nation's total electric capacity into one of comparative significance….solar capacity is quite clearly up and coming."[42] Further, utility-scale solar capacity doubled in 2013 and is expected to grow by another 56% between year-end 2013 and 2015.[43] Similarly, the EIA estimates that wind power, which has grown tenfold since

[42] *Solar-Electric Generating Capacity Increases Drastically in the Last Four Years,* Glenn McGrath, EIA, Electricity Monthly Update, April 22, 2014. http://www.eia.gov/electricity/monthly/update/ ; see also *Global Solar Dominance In Sight As Science Trumps Fossil Fuels,* Ambrose Evans-Pritchard, The Telegraph, April 9, 2014. http://www.telegraph.co.uk/finance/comment/ambroseevans_pritchard/10755598/Global-solar-dominance-in-sight-as-science-trumps-fossil-fuels.html

[43] *Renewables and CO_2 Emissions,* EIA, May 6, 2014. http://www.eia.gov/forecasts/steo/report/renew_co2.cfm

2005, is predicted to expand an additional 9% in 2014 and 15.5% in 2015. By 2015 wind power is projected to contribute 4.5% of total electricity generation in the U.S.



Source: EIA-826, EIA-861, EIA-860, Electric Power Monthly

Despite these encouraging trends, however, the draft Plan fails to put forth a robust renewable energy program. Initiative 5 in Volume 1 of the Plan vaguely refers to a "state commitment" for continuing New York's Renewable Portfolio Standard (RPS) program through 2025, yet no targets are identified.[44] Although the Plan describes various programs and past efforts, it lays out no strategy for moving forward, and as previously discussed, accepts at face value a Reference Case model for electric power generation that assumes essentially no growth in renewable energy after 2020. It is also disappointing that the authors of the draft Plan chose to develop an Alternate Case model for retiring the nuclear reactor at Indian Point and replacing its capacity with additional natural gas generation in excess of the Reference Case, yet did not put forth a model for replacing that capacity with renewables.

It is abundantly clear that a far more serious commitment to renewables is needed to combat climate change and steer New York toward a sustainable future. It is disingenuous to put forth a Plan that claims to support aggressive greenhouse gas reduction goals while offering only short-term, vague commitments to renewable programs and continuing to pursue a future of increased dependency on fossil fuels. Achieving a significant reduction in greenhouse gas across all sectors

[44] In fact the current RPS program is projected to miss its existing 2015 target. (Draft Energy Plan, Vol. 2-Sources, p. 207, Table 15.)

will require phasing out the root source of those emissions—fossil fuels—and converting the majority of energy production in New York to renewables.

Instead of pursuing necessary bold steps to wean New York off of fossil fuels, however, the draft Plan relies on questionable analysis in the *Energy Efficiency and Renewable Potential Study of NYS* prepared by Optimal Energy, Inc., cited above at fn. 3, (the "Optimal Energy Study") to justify taking little action. Putting forth an analysis of concentric limitations markedly different from the Plan's treatment of other energy sources, the study first limits the potential for renewables by a filter deemed ***bounded technical potential*** and then by a filter described as ***economic potential***.

Although the ***bounded technical potential*** of renewables identified by Optimal Energy is impressive, we believe it still underestimates what is possible.[45] Moreover, the study's assessment of ***economic potential*** considers only marketplace costs. This ignores the extensive set of costs to society of continued dependency on fossil fuels relating to climate, the environment, and human health, or the tremendous job-creating benefits of renewables. (See Sections 2, 3, 7, 8, and 9, above.) Significantly, the Optimal Energy Study admits that it completely dismisses "environmental externalities, i.e. the economic value of reducing pollutants whose societal costs are not monetized in market prices." (Optimal Energy Study, Vol. 1. Study Overview, p. 14.) Based on this very limited interpretation of cost, and assuming no changes in existing programs and policies, the study concludes than only 30% of the state's electricity needs can be met with renewables by 2030. This is merely 10% better than today.

It should be apparent that since the Optimal Energy Study of ***economic potential*** assumes no changes in public policy, considers only marketplace costs, and ignores consequences, it is not really an assessment of "potential" at all, but merely another baseline forecast--no different from those contained elsewhere in the Plan. Furthermore, using such findings as policy targets would merely create a feedback loop that reinforces the status quo, resulting in failure to attain that which is possible--and necessary--for the common good. Clearly, if such a *laissez faire* outcome were the intent, there would be little need for studies or planning at all. Notably, the Optimal Energy Study acknowledges that its estimates could be surpassed with the development of innovative policies. (Optimal Energy Study, Summary, p. 6.) It is in this context, that its dubious findings of "potential" must be viewed.

In addition to the above, we believe the Optimal Energy Study contains other flaws and questionable assumptions. Regarding these issues, we hereby incorporate by reference as though fully set forth herein, the *Supplemental Comments on the 2014 Draft New York State Energy*

[45] For example, applying outdated technology, the report assumes a wind turbine height of 80 meters instead of 100 meters, and chooses exclusion zones that are prohibitively large. The 2013 report, *Examining the Feasibility of Converting New York State's All-Purpose Energy Infrastructure to One Using Wind, Water, and Sunlight* (Mark Z. Jacobson, et al.), provides a contemporary evaluation using state-of-the-art wind turbines for both onshore and offshore wind.

Plan, prepared by Jannette M. Barth, Ph.D., Economist, Pepacton Institute LLC, submitted in May 2014.

Important new research, which the draft Plan ignores, is presented in the 2013 report titled *Examining the Feasibility of Converting New York State's All-Purpose Energy Infrastructure to One Using Wind, Water, and Sunlight* (Jacobson, et al.).[46] Written by a team of distinguished scientists and economists, the report lays out a strategy, including an analysis of policy improvements and facilities, for replacing the State's current energy portfolio, presently dominated by fossil fuels produced outside of New York, with one relying entirely on renewable energy generated in state. Moreover, the report established why phasing out fossil fuels – including natural gas – is essential to address impacts to society such as pollution, climate change, and human health. It also discusses the economic benefits of shifting to renewables from the standpoint of energy security, job creation, and price stability. These are all factors that the Optimal Energy Study fails to consider. We maintain that it is ultimately this type of analysis – coupled with deliberative action and specific projects – that will be necessary for the New York State Energy Plan to have value.

The draft Energy Plan should be amended to make the swift transition from fossil fuels to renewable energy a State priority. Furthermore, the societal costs of inaction and benefits of renewables should be considered in its analysis. The Plan should set a goal of meeting half of New York's electricity needs with renewables by 2025 (50% by 2025) and lay out a path for transitioning completely away from fossil fuels by mid-century. Interim targets should be established and a schedule for implementation should be developed involving the identification of specific projects, such as properly sited wind turbines (onshore and offshore), solar farms, and hydropower facilities. Programs and incentives for both utility and customer-sited renewable generation should be developed or enhanced to ensure that targets are met.

13. A Robust Energy Efficiency Program Must Be Established.

The draft Energy Plan only vaguely commits to improving policies for energy efficiency and again fails to establish measurable goals. Unfortunately, the New York "15 x 15" program of reducing electricity demand by 15% below 2015 forecasts is falling short of its target. Farther behind still is the State's former "45 x 15" goal of meeting 45% of its electricity needs with efficiency savings and renewable energy by 2015. To achieve meaningful results, programs much more robust than the existing Energy Efficiency Portfolio Standard (EEPS) will be needed. Yet the draft Plan only commits to continuing efficiency programs through 2020 and does not even discuss what new targets should be set. Similarly, although the Plan vaguely discusses building codes and appliance standards, it contains no substantive information about how they

[46] *Examining the Feasibility of Converting New York State's All-Purpose Energy Infrastructure to One Using Wind, Water, and Sunlight*, Mark Z. Jacobson, et al., February 2013. http://www.stanford.edu/group/efmh/jacobson/Articles/I/NewYorkWWSEnPolicy.pdf

will be improved or more aggressively enforced, and thus offers little hope for meaningful progress.

Based on findings in the Optimal Energy Study, above, the draft Plan acknowledges that the potential for efficiency savings relative to forecasted demand in 2030 could be 43% for electricity, 31% for natural gas, and 57% for petroleum. However the Plan subsequently concludes that the amount of efficiency savings that are actually "achievable" is only 20% for electricity, 12% for natural gas, and 20% for petroleum. (Draft Energy Plan, Vol. 2-End Use Energy, p. 57.)

It is important to recognize that ***achievable potential,*** as defined in the Optimal Energy Study, assumes current market conditions and existing programs. Furthermore, the study admits that savings could be greater if new policies for energy efficiency are developed. (Optimal Energy Study, Summary, p. 6.) Thus achievable potential should not be considered an upper limit on what is possible. In fact, it is a lower limit based on maintaining the status quo. Significantly, the Optimal Energy Study admits that the difference between the net benefit of attaining ***economic*** and ***achievable*** energy efficiency potential is over $70 billion to New Yorkers. (Id., Summary, Table S-2, p. 8.).[47] This ought to serve as a mandate for crafting new policies, programs, and code improvements that will realize these savings. However the Plan fails to do this.

The draft Plan should be amended to include specific targets for efficiency improvements and identify specific policies, programs, and code improvements that will be implemented to attain those targets. At a minimum, the Plan should set a goal of meeting 20% of forecasted energy demand through efficiency improvements by 2025.

14. Lost Nuclear Capacity Must Be Replaced With Renewable Energy, Not Fossil Fuels.

The Plan is inconsistent regarding the future of nuclear power in New York. On one hand the draft Plan promotes the continued use of nuclear energy. Yet on the other, it prepares for its demise by replacing lost capacity with fossil fuels.

Most of the forecasts in the Plan assume that all of the State's existing reactors will continue to operate well into the future, in fact predicting an increase in nuclear power generation from 41,255 GWh in 2012 to 42,622 GWh in 2020. This, however, fails to acknowledge the barriers to the continued use and development of nuclear power. The fact is that no new nuclear power plants are proposed in New York and the administration has opposed the relicensing of the Indian Point facility. Furthermore, the licenses for each of the other reactors in New York are set to expire before 2050, and it is possible that some may be decommissioned sooner.

[47] It should be noted that "economic potential" for energy efficiency is defined differently from "economic potential" for renewables in the Optimal Energy Study. "Economic potential" is a first tier filter for energy efficiency, but a second tier filter for renewables.

Since nuclear power produces virtually no emissions in the generation of electricity, a significant danger exists that lost nuclear energy capacity will be replaced with fossil fuels such as natural gas, which would result in a significant increase in both carbon dioxide and methane emissions. Indeed, the document appears to plan for this exact scenario in its "Alternate Case" model by relying on additional gas-fired power generation to replace capacity of the Indian Point reactor. (Draft Energy Plan, Vol. 2-Sources, pp. 61-62.) This would result in the doubling of combined-cycle natural gas power generation by 2030. However, the significant additional greenhouse gas impacts of doing so are not discussed in the Plan. Nor are the greenhouse gas impacts that would occur if other nuclear reactors in the State were replaced with addition fossil-fuel power generation.

Energy forecasts in the Plan should be revised as necessary to realistically account for the retirement schedule of nuclear reactors in the State. Most importantly, the Plan should be amended to specifically plan for the replacement of any lost nuclear capacity with renewable energy sources in order to maintain a net-zero increase in greenhouse gas emissions resulting from the closure of those facilities. The consequence of not doing so is that greenhouse gas emissions will skyrocket.

PROCEDURAL FLAWS

15. Key Documents Essential To Review Of The Plan Were Unreasonably Withheld.

On its face, the Plan as presented to the public for comment was deficient. It relied on two important documents that were not available to the public at the outset of the public comment period. These are the *NYS Greenhouse Gas Inventory and Forecast*, cited above at fn. 6, and the *Energy Efficiency and Renewable Energy Potential Study of NYS*, prepared by Optimal Energy, Inc., cited above at fn. 3. This material was essential to understanding the Plan. Failure to timely produce these documents prejudiced the public's ability to review and understand the Plan, rendering the public comment process, and the Plan itself, incomplete and premature.

By the time these documents were produced on April 25, just three business days before the scheduled close of the public comment period on April 30, many members of the public had already submitted their comments without benefit of the withheld documents. Moreover, the documents were not available at the time of the public hearings. In light of these circumstances, an extension of time of 30 days was not sufficient to remedy the prejudice to the public. An extension of time of at least an additional 60 days should be granted and additional public hearings should be scheduled to give the public a full opportunity to comment on the Plan.

CONCLUSION

In the interest of compliance with the Energy Law and fostering a sustainable energy future for New York, based on the comments provided above and those already in the record, we request that the Planning Board withdraw the current draft Plan, amend the Plan as set forth above, and grant our request for an Evidentiary Hearing to address the matters presented. We also ask that the public comment period be extended and additional public hearings be scheduled. Thank you for your attention and consideration.

Respectfully submitted,

Nicole A. Dillingham, Esq.
Board President

Keith W. Schue
Environmental Stewardship Committee, Member

Attachment: List of Additional Signatories

LIST OF ADDITIONAL SIGNATORIES TO OTSEGO 2000 COMMENTS ON THE DRAFT NYS ENERGY PLAN

Advocates for Cherry Valley
Lynn Marsh, Co-Director
Cherry Valley, NY

Advocates for Morris
Maureen Dill, Coordinator
Morris, NY

Advocates for Springfield
Harry Levine, President
Springfield, NY

Butternut Valley Alliance
Bob Eklund, Coordinator
New Lisbon, NY

Catskill Citizens for Safe Energy
Jill Weiner, Board of Directors
Fremont Center, NY

Catskill Mountainkeeper
Wes Gillingham, Program Director
Youngsville, NY

Center for Sustainable Rural Communities
Robert Nied, Director
Richmondville, NY

Citizens Energy and Economic Council of Delaware County
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Franklin, NY

Citizens' Environmental Coalition
Barbara Warren, Executive Director
Albany, NY

Citizens for Water
Joe Levine, Director
New York, NY

Community Environmental Defense Council, Inc.
Helen and David Slottje
Ithaca, NY

Concerned Burlington Neighbors
Suzy Winkler, Co-Founder
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Concerned Citizens of Otego
Stuart Anderson
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Judy Pierpont
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First Unitarian Society of Ithaca, Social Justice Council
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Joe Hoff, Chairman
Keuka Park, NY

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Stop the Minisink Compressor Station
Pramilla Malick, Founder-Director
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Stop The Pipeline (STP)
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Sullivan Area Citizens for Responsible Energy (SACRED)
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Adrian Kuzminski, Moderator
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