

**Power Generation Advisory Panel Meeting
February 12, 2021
Meeting Notes**

Attendees

John Rhodes
Corinne DiDomenico
Betta Broad
Bill Acker
Emilie Nelson
Jenn Schneider
John Reese
Kit Kennedy
Laurie Wheelock
Lisa Dix
Shyam Mehta
Stephan Roundtree
Annel Hernandez
Cecilio Aponte III
Rory Christian

Not in Attendance
Darren Suarez

Introduction

The panel reviewed four of the drafted recommendations followed by a detailed discussion on each.

Enabling initiative – Initiative #1: Components of the strategy (Slide 8)

Kit Kennedy: The recommendations look directionally correct. With more time, we can drill down and get more specific for actions needed in each. The other big picture point that we have to talk about more is to have date targets and that require strong action. We need to call these out in the most efficient way. We need some more cross panel discussions with the EE&H.

John Reese: I want to capture the flavor of our conversations in the subgroup. There is a broad consensus for reaching 70 x 2030 and it is all about execution. To reach the 2040 goals are harder because of the technology. We have to cast a board net for that technology to get to the goal.

Emilie Nelson: Agree with John, the background is very useful. There are other studies that show the need for dispatchable assets for reliability, especially in the winter peaking season.

Lisa Dix: I think these are in the right direction and we need to get more specific, especially to the point Emilie made on how we build the grid and the system, and for those technologies that already exist. What is missing is how do the fossil fuel assets get taken off the grid. What is the plan that doesn't allow for new gas plants? We need to get to the work of developing the new technology and working with local transmission in the next 5 years. I think the conversation about the last 5-10% is a distraction. I don't want us to forget about the dirty assets and we need to set high standards for how hit our targets.

Stephan Roundtree: I just want to add that we need make this plan focused on existing tech and ways to get it done. Our plan needs to be something we can execute now and 10 years is not a long as it seems. We need to build a plan from the tools we have and what know we can do.

Annel Hernandez: We need to focus on existing technology and getting to 2030. The 2030 goal is the key focus and should be prioritized, and ensure that we don't allow for new fossil fuel assets to come online. We also have to think how we can support local community projects, the workforce and the renewables.

Laurie Wheelock: As we are making these recommendations, we shouldn't get siloed. We should also be paying attention to other advisory panels and their ideas.

Bill Acker: We can strengthen the point (Aggressive deployment of current renewable energy and storage technologies.) for 2030. The 2040 points are a much longer piece. The first point (Detailed, holistic, modeling within a zero-emissions world to identify needed technologies.) is very important. We have real gaps to get to that. We need to cover other technologies that could support the middle range. I want to make sure people understand that point.

John Reese: That last 5-10% requires about 50% of the MW in the ground, such as RNG. What will fill the gap? We need to start putting steel in the ground well in advance of 2040. We agree that 2030 is about execution. We can put value on doing the technology piece now so that by 2040, those technologies will be commercially ready and installed.

Kit Kennedy: I want to circle back to the point about more specific about these recommendations. We can put them into sub-buckets: more funding, NYSERDA's RFP, transmission needs, interconnection costs for renewables, clean DERs, community solar and other forms of community projects, how can deployment benefit communities and disadvantaged communities, and reexamine our targets of 70 x 2030 to see if they are strong enough.

John Rhodes: The plan is to have our panel to do good work. If it means to make the recommendations better or more specific, we can do that. We need to make the process and recommendations work for us. Some things have started getting settled and we can continue to make improvements.

Lisa Dix: Can we merge subgroup meetings so that we have some kind of decision making process? Is there a year-to-year prioritization or how do we prioritize the recommendations?

John Rhodes: What if we tried to pull together an executive summary? We have a lot of ideas and the group can then prioritize them. Do people like that idea? (Enough hands to say we can try it.)

Betta Board: I still want a better understanding of how much we need to scale up Energy Efficiency downstate. Can we do more analysis with EE&H, for example with geo energy, especially downstate and with winter peaking? (John Rhodes: Don't know but we can try and find out to see if we can do more cross-panel conversations.)

Enabling initiative – Initiative #2: Components of the strategy (Slide 11)

Lisa Dix: In the subgroups, is there discussion to removing barriers to clean energy from the NYISO?

Emilie Nelson: Yes, there is lot of conversation to support ancillary markets. For the wholesale market, there is more conversation to be had. For the barriers, there has been good conversation around mitigation and compensation. If you have more questions about receiving fair value, I would have to hear more.

Lisa Dix: Is there room for a recommendation for more interaction with the NYISO forum? It seems that the clean energy people are outnumbered in those forums? There needs to be an office of Clean Energy

Advocacy at these meetings so there is a voice in the room that can advocate for this and the equity goals of the state. (John Rhode: Thank you, we can continue that conversation at another point.)

Kit Kennedy: We have a new FERC, and it's an exciting point in time. There is more we can do to tie into their ideas. Regarding the "Market should be flexible", we should say that "Markets should be enablers and support clean energy policy and we should be shaping market policies to reach the CLCPA goals". WE can put the recommendations in some buckets: remove clean energy development barriers at NYISO and FERC, reform capacity markets, reform market rules to get to the goals. We can create a more organized way so that the state can interact with NYISO and FERC so state can get to our goals and help other stakeholders participate. The recommendations are in right direction and we need to fill in the gaps.

John Reese: This is the 1 point that will change the fastest because of the changes at FERC. The time to address the issue is now. To Lisa's point about representation, Annel Hernandez's organization has come to the table in that process. Representative in these issues have only grown over time so we shouldn't undervalue what has happened during these last 18 months.

Stephan Roundtree: I just want to highlight the market has failed certain people and when crafting the recommendations, we should recognize that, and the state has a role we can play to meet our social equity aspects. I am worried that just focusing on market solutions will not help as much as we think. The state has role to play in this to make sure equity happens.

Emilie Nelson: Within the NYISO process and in wholesale markets, the diversity of voices is important and welcome. The fabric has changed in time as the needs have changed. With regards to Point 2 (Continue assessing opportunities to improve accuracy and granularity of wholesale market energy price signals, including shortage pricing, congestion relief, and peak/off-peak pricing) a lot of good ideas have been made and we all need to be a part of the conversation.

Annel Hernandez: The money going to peakers to keep them online, we can't continue doing that if we don't provide incentives to LSRs.

Enabling initiative – Initiative #3: Components of the strategy (Slide 15)

Bill Acker: I'd like to state general support for what we have so far and our conversations in the subgroup. Our storage targets we need to be a lot higher. We can drill down more and get more specific on how we get to the targets. We have a good start here.

Lisa Dix: What is the process to make the goal 5GW storage? Can we create a central document of issues to make this happen and have topics like: barriers to remove, financing, getting to scale?

Kit: Idea of the storage docket is a good one. I think the recommendations are far along and these are getting more specific. Can we make them more specific and how can we get to that detail?

Enabling initiative – Initiative #4: Components of the strategy (Slide 18)

Bill Acker: I am also supportive of these and state team did a good job capturing them. To expand on this, NYS is at the forefront of this and we can benefit from this. This area is ripe for econ development in the state and the federal government is now recognizing this. As we think about this, we are in a position in leading the country and leveraging the federal government and bringing those industries and jobs here.

Bill Acker's answer to a question in the comments on the scale of storage: When we talk about storage on the grid, today is in on the scale of a few hours up to 4hrs. Long duration storage is in position to solve Topic #1.

Rory Christian: Many communities are affected by peakers and fossil fuel plants. As we move forward with these, I recommend that we start in the areas that are most affected.

Bill Acker: I just wanted point out that we haven't really put any timeframes on the recommendations. Maybe we can look these over again and put some timeframes on them as homework.

Lisa Dix: I agree with Bill that we need prioritize these and have timelines. Also, what recommendations have we talked about regarding gas phase out and how can we dig in more. It could be a problem if the state will permit and site new facilities and it will affect the curve. Can we have consensus on new gas plants?

Additional Initiatives Under Consideration (NOT Being Discussed Today) (Slide 6)

Extra time in meeting permitted a brief high-level discussion on the additional initiatives currently under consideration by the panel.

John Rhode: We can have a quick summary of some of these ideas.

Laurie Wheelock: We've talked a lot about the Access for Affordability and have identified Equity as an important topic in the PGAP. At a high level, we are looking for ways to assist disadvantaged communities, how to provide low income communities with access to tools especially for clean energy, and coordinate the state agencies so people can find the resources they need in a full wrap around service.

Emilie Nelson: Look forward further conversation about recommendations around the reliable for the future grid. We need to ensure safe and reliable service. A good conversation we've had was the need for a transition with reliability because if not, it puts the broader mandates at risk. We also talked about energy delivery, and how can we add value to the good work that is underway in the state. Can we amplified or add value? That is topic on the minds of many of us. Lisa framed the fossil fuel topic well and there is a lot of good discussion and agreement. The panel needs to have more discussion on this and this is just to provide some transparency.

Betta Board: For the siting and community benefits issues, we need to be smart about this and working with community and expanding community benefits to address some of the issues around local opposition, workforce development, financial incentives, community ownership, education and outreach, such as (NYSERDA's Wind Education Project a few years ago), region planning councils. We need to ramp up those ideas and get more creative and turn these into economic development/resilience hubs. We would like to have a join meeting with LG&LU panel. (Cecilio Aponte: I agree with Betta and would like to get more specific.)

Kit Kennedy: Transmissions ties into so many of these topics. We need to dive in more and don't think there is another advisory panel that deals with this.

Bill Acker: To add to Kit's comments on transmission, the last one this list is energy delivery. We do need to have good energy deliver options and transmission is a key part to that and it is important and needs to be fleshed out.

The Panel took a brief break prior to the 3:00pm Public Input Session

Public Input Session

Beginning at 3:00pm, the meeting was opened up to public comment and feedback.

Hershel Specter

Is concerned about grid reliability related to the energy transition. If reliability is not attended to, jobs will be lost and LMI communities disproportionately affected. Endorses keeping the present NYISO reliability criteria: only 1 day every 10 years should there be loss of load. There is no value in having an arbitrarily set renewable energy system that most cannot afford, we should seek out the low-cost low carbon future. Beneficial electrification will be truly beneficial when no new gas is allowed. Urged the panel to learn from CA and Germany, who have attempted 100% renewables and so far have failed. Specifically urged the panel to look into offshore wind, noting the need for jack-ships in order to implement large offshore wind policy

Bill Kish

Stop Cricket Valley

Power Gen is one of the most meaningful components for CLPCA, other sectors decarbonize and will rely entirely on electric power, we need to develop plan to decarbonize TWhs. The first CAC meeting was held less than a year ago, and each day we fail to erase our footprint brings us closer to climate catastrophe. NYS should implement a moratorium on all new gas combustion facilities. 3 GW of energy storage by 2050 is not sufficient. NYS will need 100 of the largest energy storage facility by 2040 to meet this goal. Expressed opposition to renewable natural gas as a means to achieving carbon-free goals. Noted that 30% of NY's electric power is currently nuclear energy, and while nuclear plants have negative environmental impacts, these pale in comparison to those of fossil fuels.

Joshua Douglas

Attorney in Millerton, working on Cricket Valley

Drafted a letter with various stakeholders asking the CAC to adopt urgent requests. Starting at the end of the letter, cited a new report that shows that 18% of deaths worldwide are attributable to particulate matter from fossil fuels. Bob Howarth's research shows methane is more effective than CO2 in a short 10-12 year period. Recommends renewing research on the methane in the state and instituting a review process for methane utilization in state.

Shayok Mukhopadhyay

Grew up in India, and lives in a rural part of Warren county and White Plains. Made focused remarks on a comment from the panel on renewable reliability. Emphasized that we cannot have lights go out for 8 hours when you have coal plants sitting 150 miles away; this is not something we can negotiate. There will be no reliability if we have back-to-back hurricane-caused outages. We cannot negotiate with climate.

Paul Van Lindon Tol

Retired librarian from Brooklyn.

Believes nuclear energy is crucial against global warming and ocean acidification. Indian Point is safe. Nuclear has seen many safeguards since 1950s and should be considered for the CLCPA.

Mary Finneran

Before considering nuclear, urged the panel to look seriously into what people are saying about Germany, look at research from Fukushima, releasing water containing Tritium. Urged the panel to say no to gas and nuclear. Hundreds of billions of dollars in cost recovering from Fukushima for Japan. Also noted that the increased load from Bitcoin operations for Greenidge coal plant should not be exempted from CLPCA laws.

Andra Leimaris

Alliance for a Green Economy

Noted that they will be submitting detailed comments next week. Committed to 100% and 70% by 2030. Does not want the panel to be swayed by nuclear proponents. Due to safety and monetary issues, nuclear plants are closing down. ACE serves as primary nuclear watchdog and they are trying to extend \$7 billion worth of subsidies for nuclear. Urges the panel to not be deterred by rumors against renewable energy.

John Ingram

Retired teacher and activist with NYC 350

NYISO's pie chart is a display of the total resources, both new and established, needed to meet our goals. The transition away from a deeply established system must take place in a tight timeframe. The IPC 1.5-degree deadline makes any compromise in the timeline a false solution. Demand response technology does not represent the amount needed. Demand response is a real solution and should be more broadly emphasized. The transition depends on technology and IT that already exists and is in use, and technology that can be developed quickly. Enel X already as a strong price responsive demand business in NY.

Zongkai Wang

350 NYC

Uranium mining leaves waste near the mines. Low income and indigenous communities have been disproportionately affected by these mines. Uranium mining left 500 abandoned mines in native Navajo territories. While it has since been banned in Navajo nations, it does not mean the same problem will not occur elsewhere. Fukushima caused major terror. A huge number of subsidies already exist for nuclear. Renewable energy has grown very fast. The potential for Renewable Energy is growing fast. We need to have more discussion on nuclear energy.

Leondard Rodberg

1) Comments made today in panel suggest 70x30 goal is achievable, but we have not seen any estimates of cost, land-use, energy make-up.

2) Members of the panel recognize the need for dispatchable energy, will nuclear be included in recommendations and if not, why not?

3) Will the panel have recommendations for maintaining the existing nuclear energy in the state?

Catherine Skopic

83,000 MT of nuclear waste is what we have accumulated in this country so far. We don't know where to store any of it. Why do we want to create more? The nuclear industry is being phased out globally. The process of boiling water to create energy is the least efficient way, we are far beyond this. Nuclear power creates Carbon14, the life cycle for nuclear is highly fossil fuel intensive, nuclear power plants create thermal pollution, extract 2.5 billion of gallons of water daily, and return water at much higher temperatures. If you look into the health issue, it's been difficult to get exact stat and figures.

Don Hughes

Listened to the presentation, alarmed that a number of future trends haven't been considered distributed generation, in particular, the electrification of buildings and transportation, and the huge impact to supply and transmission and storage. This has to be incorporated into the plans. Growth of wind and solar must also be included. Echoes the voices in opposition of nuclear energy. Finds nuclear to be foolhardy. We have 6,000 MT sitting along the shores of Lake Ontario now, phase out those plants, extremely old, nine-mile Pt 1 started up in 1969. Nuclear is as expensive as others have pointed out. Importation of dirty hydro power from Quebec should not be considered clean energy, extremely destructive environmentally.

Simon Strauss

Resident of Ulster county, co-chair of town of Olives. Partner of financial advisory firm where they assist Renewable Energy finance.

Speaking on the additional initiatives on slide 6, as well as slides 2-3. Making sure that under energy delivery and hosting capacity, there is focus on the ability of the distribution grid to accept DERs. Need to consider who and how should those upgrades be paid for. Note that for market solutions for energy storage, most renewable energy developers find it quite difficult to make pencil out. Many don't have sufficient confidence to do so and would require incentives.

Mark Dunlea

Green education and legal fund

Submitted written comments. Hopes quicker timelines will be considered. Highlighted President Biden's executive order that the nation needs to achieve 100% renewable energy by 2035, shut down existing fossil structure and adopt a timeline to phase out existing fossil fuel infrastructure. In 2015/2016 got the state assembly to study 100% Renewable electricity. It's now 5 years after that study was first requested and have not seen versions by E3. Would like actual specific timelines and activities. Hopes that info will be forthcoming.

Susan Shapiro

Supports the work of the panel, but concerned they've improperly identified nuclear energy as carbon-free. Noted that nuclear creates carbon CO₂, radioactive methane, and thermal pollution. Because of this improper info, large amounts of funds that should go to renewable energy has been diverted to go to nuclear. Nuclear delays and derails our transition to a clean energy future. The state should even the playing field for subsidized energy. The panel should study if nuclear is crowding out renewable energy and find timeframe for nuclear closures.

Miranda Robinson

Professional engineer working for a municipality in upstate NY

Has been working on a solar installation for a transfer station with a capped landfill. Was excited to jump in on it, but has come to find out that the transmission line could not handle the power output. Wants to do the right thing for the town but grid constraints are a real issue for power generation solutions.

Dietmar Detering

Sunnyside Queens, ratepayer

Supporting nuclear energy. Studies solicited for this overall transition are missing estimates of costs, both monetarily and environmentally, for resources. Study for resources of renewable energy should look to Germany where energy transition is now 20 years old and the promise was to the ratepayer was that it would cost a single scoop of ice cream. Had there been any calculations for cost to ratepayer, it

would have revealed substantially higher costs. Communal protection opportunity costs should be considered.

Manna Jo Greene

If we're going from a centralized to decentralized system, much of planning needs to be done at the local levels. The grid needs to change seriously. We need to have infrastructure where the large solar systems can be placed, without paving over farmland or forests. Utilities are sometimes charging unfair prices for interconnection. We need healthy buildings too. Project in the most polluted EJ areas should be pursued first. Suggested providing \$1 million in funding at local levels.

Dennis Higgins

Retired professor of Math and science.

No battery in the world is capable of powering NY even for an hour now. NYISO says it needs more firm generation, and is saying there is a need for more nuclear or gas to power the state. Fossil fuel emissions kill. Where nuclear has been shut down, gas has replaced it and costs have gone up. A recent national review article suggests that offshore wind O&M costs are much larger than recorded. 9,000 MW of brand-new nameplate wind would generate just half of that. Puerto Rican wind turbines were destroyed in the hurricane. Regarding the 70x30 target, asked if they should pursue arbitrary targets or pursue a reliable carbon-free grid at minimal costs

Johanna Fallert

Poughkeepsie resident

If we look at the facts, every year global temps have increased. We have less than a decade to avoid irreversible climate change. We need to examine every single option, including nuclear energy. We should also consider tidal power.

Courtney Williams

Co-founder of an energy rights group and lives one mile from nuclear plant, 400 ft from Algonquin gas line. Spoke about cancer research: community is a poster child set by lobbyists that prioritize profit over the health of communities. Nuclear and gas are not the solution. Nuclear plants are closing because nuclear is no longer profitable, NYS is asked to pay billions to pay off debts from upstate nuclear plants.

Carl Perez

Was anti-nuclear, then started an advanced nuclear company. Company to use the spent waste, to generate 300 years of carbon-free energy, asking NYSERDA to open up the pools for nuclear so it can be weighted equally. Requests data transparency for reports reviewed by the panel.

Keith Schue

Electric Engineer and Environmentalist

Lots of comments have been made about nuclear advantages. Encourages everyone to look at objective facts. Supports renewable energy and also supports nuclear power. One should compare death rates from nuclear melt-downs compared to deaths caused by other power resources. James Hansen, a climate expert, says we need nuclear power to solve this problem.

George Davidson

American Biogas Council

NY needs to recognize renewable natural gas as renewable energy and power generation source. If it is not a tier 1 renewable energy, they will not be able to sell the biogas energy easily. Certain waste can

only be disposed of via anaerobic digestion or composting. Need biogas to help state achieve its environmental goals.

Robert Ciesielski

State's Sierra Club, chair of the energy committee

Talking about renewable energy, favors wind and solar power. Cited a recent study by the MISO, discussed by Richard Perez, that found that overbuilding renewables by 50% and coupling with ESS and good transmission, could result in electricity costing just 5 cents per kwh. Suggests a gas moratorium. Suggests setting up a docket to consider gas transition and how to remove by 2040 completely. Being from western NY, it could ruin water supplies for millions of people if nuclear waste leaks to Great Lakes.

Mark Richardson

President and CEO of US Light energy - CSS developer based in Lakum NY

Regard to some of the items in slide 6 not discussed today, urged the panel to focus on clean energy siting. Represents the largest community solar developer based in NY: fully 10% of the interconnection queue in National Grid territory. Suggests that ORED permitting and siting arm that focuses on utility scale projects be expanded to include smaller distributed generation projects. Uniform siting policy would be incredibly useful. Been in solar for 15 years now. Company has about 1 GW of shovel ready projects if not for constraints regarding land-use, incentivize vs revenue based economic model.

Richard Fenelly

EE&H group may want to take a look at the G7 environment ministers report in 2019. The report mentioned only one sector: cooling, and identified HFC refrigerant replacement as key. The report missed a discussion of maintaining cooling by heat transfer, filter replacement, carbon trust estimated that poorly maintained refried waste 500 million MT globally. Indirect emissions in NYC come to almost 8.5 million MT in NYC. No one is looking at this, translates to 11.4 billion kWh per year wasted.

Dianne D'arrigo

Western NY, SAPE energy and tracking NY waste, starting at waste site at West Valley. As NY considers new energy, should look at costs of nuclear (existing), and also look at the costs that are implied. This includes that nuclear waste could be reused or recycled and that New Yorkers are financially liable for reprocessing site in western NY. The estimated cost for full cleanup is \$9-10 billion.

Annie Wilson

NY environmental law and justice project in NYC. With regards to studies needed, please look into tier 3 and tier 4 of what is now the Clean Energy Standard, specifically tier 4 nuclear and hydro. Look at the costs for ongoing subsidies including 7.6 billion dollars for Lake Ontario. In addition to a full cost account for nuclear cradle to grave, what is the carbon footprint for this process of storage over time? Also noted that Hydro from Canada will displace local jobs and transmission line going under Hudson River.

Isuru Seneviratne

Queens resident, graduate of sustainability at Harvard Extension

We need more renewable energy, energy storage, but no energy sources without and environmental footprint. Nuclear and renewables need to work together to displace fossil fuels. Risks of probability and low impact need to be balanced with air pollution and climate change. Nuclear waste has not killed a singular person. AOC recently mentioned that the green new deal is open to nuclear. In all pathways

identified by IPCC, nuclear remains steady or expands relative to 2010 levels. On cost side, NYSERDA contracted \$160 / MWh for OSW recently.

William Mattingly

Resident of Finger Lakes region

Question and concerns about the Greenidge power plant: an old coal-fired plant using natural gas now. It very recently changed business model from peaker plant to help mine bitcoin, essentially taking the power plant off the grid. Will this plant be covered under the 70x30 goal? Entities under the jurisdiction of PLC are covered. Time of passing of CLPCA, Greenidge power was under jurisdiction of PSC? Now they're taking power off-grid.

Michel Lee

Researcher on the nexus between nuclear and fossil fuels. GHG is not a localized pollutant but a global Signals sent to energy market by NYS's CLPCA is where biggest impact can be made. Refurbishing buildings, adding bike lanes, setting the vision is NY's greatest possible impact.

John Cooley

Noted that the Greenidge power plant received local approval to expand their bitcoin operation, corresponding with a significant increase in their revenue. Urged the panel to reconsider this expansion in their recommendations.