



Minutes – Friday, January 27, 2023
Video Conference
9 am to 11 am

Attending: Bob Howarth, Aaron Fernando Amy Panek, Anne Rhodes, Brian Eden, Caitlin Cameron, Carol Chock, Charles Geisler, Dan Lamb, Dave Bradley, David Kay, Denise Katzman, Diane Cohen, Diane Stefani, Gerri Wiley, Guillermo Metz, Hailley Delisle, Holly Hutchinson, Ingrid Zabel, Janelle Bourgeois, Jeff Smith, Jessica Wickham, Joe Wilson, Karim Beers, Leigh Miller, Terry Carroll, Gay Nicholson, Margaret Johnson, John L., Eileen Hanrahan, Rod Howe, Luis Aguirre-Torres, Leon Porter, Margaret McCasland, Marie McRae, Marie Myers Shearing, Mike Straight, Nick Goldsmith, Rachel Leon, Ray Burger, Rene Carver, R. Strauss, Sara Hess, Sarah Carson, Sean Sullivan, Tom Hirasuna, Peter Bardaglio.

The Final Scoping Plan – Bob Howarth

Bob Howarth, the David R. Atkinson Professor of Ecology and Environmental Biology at Cornell, is a member of the Climate Action Council, which recently issued its Final Scoping Plan. Bob discussed the climate action plan and next steps for implementation.

- Peter thanked Bob for his leadership on Climate Action Council, especially for way Bob held his ground and at same time brought other people on board
- Climate Leadership & Community Protection Act (CLCPA) of 2019 mandated:
 - 40% reduction in greenhouse gases by 2030 (relative to 1990)
 - 85% reduction in greenhouse gases by 2050 (relative to 1990)
 - 70% renewable electricity by 2030
 - 100% carbon-free electricity by 2040
 - At least 35% of economic benefits have to go to historically disadvantaged
- CLCPA established the Climate Action Council, charged with producing Scoping Plan by Jan. 1, 2023 to outline policies for implementation
- Final Scoping Plan approved Dec 19, 2022 by 19-3 vote – culmination of 32 meetings of the full Climate Action Council starting in March 2020, hundreds of hours of meetings by advisory panels in 2021 and Council subgroups (2022),
- Following release of the draft plan in Dec. 2021 for public comment, held 11 hearings statewide and received written comments from more than 35,000 individuals and organizations
- Council subgroups met weekly between June and Oct. 2022 to hash out especially contentious issues such as how to pay for implementation of plan – Bob served on two of these
- Bob was pleased with draft plan – better than he would've expected at outset – would've given it a B+ if grading it – felt the final plan was much improved and would've given it an A-
- Buildings biggest source of GHG emissions in NYS (32-40%), followed by transportation (about 28%)
- Cost of inaction \$115 billion more than cost of implementing plan – some jobs will be lost but expect net increase of over 200,000 jobs by 2030 – by & large better than jobs lost – and over 300,00 by 2040 – net direct costs are small relative to size of NY economy (0.6% by 2030 and 1.3% in 2050)
- Health benefits will be huge – tens of thousands of premature deaths avoided
- Emphasis throughout plan on:
 - Beneficial electrification for both transportation and buildings
 - Wind, solar, and hydro, with storage, not nuclear
 - Equity, social justice, and high-quality union jobs
 - Health benefits
 - Resilient, reliable, and predictable energy supplies & costs
- Big debate over renewable natural gas, biogas, biofuels, and hydrogen, but final plan downplayed these elements, and they aren't mentioned in Executive Summary

- Hydrogen mentioned only once in Executive Summary, in context of use with fuel cells for transportation – also nuclear not major emphasis
- Plan stresses we have one-in-a-generation opportunity to reimagine the state’s economy and energy system and rebuild rust belts of upstate NY
- Buildings: majority of new purchases for space and water heating will be heat pumps by 2030 – 85% of homes and commercial building space electrified by 2050
- Zero emission building codes (no combustion of fossil fuels) by 2025 for new homes and low-rise residential buildings and 2028 for new high-rise residential and commercial buildings – draft plan called for 2024 and 2027
 - At least 250,000 retrofits per year away from fossil fuels in residential units (homes & apartments), 10X current rate – supported by increased incentives and low-cost public and private financing
 - After 2030, prohibition on purchase of fossil fuel powered furnaces, stoves, water heaters, dryers, etc.
 - Transition away from hydrofluorocarbons to natural refrigerants, to reduce greenhouse gas consequences of heat pumps
- Bob testified before NY State Senate on blueprint to implement NYS’s progressive Climate Law (CLCPA of 2019) on Jan. 19, 2023
 - Argued in support of draft plan timeline: 2024 (single family homes) & 2027 (commercial buildings) for all electric requirement for new construction
 - Immediately end 100-ft gas hookup requirement
 - Immediately end subsidies by utilities (and NYSEERDA) for fossil natural gas appliances
- Transportation: Prohibition of sales of internal combustion engine cars, SUVs, and pickup trucks by 2035
 - Incentives to purchase electric vehicles before then, and taxes/fees to discourage purchase of new internal combustion vehicles
 - Enhancement of public transportation and smart growth
- Electricity: Electricity demand to double by 2050, with shift to winter peak from summer
 - Requires enhanced & modernized, more resilient grid, and increased energy storage (electricity and thermal)
 - By 2030 expect 12-15% increase in demand for electricity
 - Increased production to come largely from wind, solar, and hydro – in winter, mostly offshore and onshore wind
 - No fossil fuel produced electricity by 2040, as stipulated in state climate law
 - Plan will lead to 70% reduction in GHG emissions in electricity power generation by 2030 relative to 1990 – already at 40% -- zero by 2050
- Gas System Transition: “Achieving the Climate Act’s emission limits will require a substantial reduction of fossil natural gas use and a strategic downsizing of the gas system.”
- In full report, Climate Action Council clearly states little if any role for renewable natural gas (RNG) and hydrogen for home heating and pipelines – big victory
- Some other hard-fought victories: NY will not follow lead of federal government in recent legislation on “clean hydrogen”
 - Very strong emphasis in plan on green hydrogen (electrolysis from 100% renewable energy), with brief mention that pink hydrogen (from nuclear plants) could be allowed
- Strong preference for biogas rather than renewable natural gas (RNG, which is made by processing biogas to reduce CO2, for injection into pipelines)
- Strong preference for using biogas at site of production (dairy farms, landfills, wastewater treatment plants), and for fuel cells rather than generators if used to produce electricity
- No major role for renewable diesel, biodiesel, and other biofuels for transportation – NY will not follow California lead on this
- Adoption of “fossil natural gas” terminology
- Cap-and-Invest Program: We rejected carbon fees on individual economic sectors, which NYISO urged for electricity – by not equally taxing fossil natural gas might have penalized beneficial electrification

- Also rejected carbon tax on all fossil fuels based on social cost of carbon, etc., which would have required new legislation
- The cap-and-invest approach an economy-wide fee, but derived from the CLCPA and requires no further legislation – DEC is tasked with developing regulations to implement by end of 2023 – “devil will be in details”
 - Caps set by CLCPA – fee will go up on an annual basis if caps not being met, and down if caps exceeded
 - Gov. Hochul has endorsed cap-and-invest approach
- Provides funding stream to implement CLCPA goals, and increases ability to leverage federal funds from IRA, etc.
- Rebates to be provided to low- & moderate-income families to avoid their being penalized as transition away from fossil fuels takes place
- Mechanisms will be included to help make sure industries don’t leave NY or are discouraged from coming here
- Benefits & costs for accelerated transition away from combustion relative to status quo inaction
 - \$130 billion in net benefits by 2050 based on 2021 fuel prices – cost of implementing plan will be \$270 billion and benefits will total about \$400 billion (health benefits \$160 billion)
 - If fuel prices remain at 2022 levels, net benefits would be \$163 billion
 - Funding from federal IRA could increase net benefits for New Yorkers by up to another \$53 billion, for total of >\$200 billion if fuel prices stay high

Q&A

- Peter asked Bob if he could explain difference between cap-and-invest and cap-and-trade
- Bob: With cap-and-invest, the caps are set by the CLCPA whereas with REGGI caps are arbitrarily established – in both cases, not an offset and cap goes down over time
- Funds collected will be used in beneficial electrification – if we’re not on target, fees will go up substantially by law – includes rebate feature to make sure burden doesn’t fall disproportionately on working families
- DEC charged with developing details of program – important to watch this closely to make sure it’s done right – DEC staff pushed hard to get this concept adopted
- Diane Stefani (chat): Could you say more about how businesses will be helped through transition?
- Bob: Plan is pretty vague beyond saying we need to do this – charges DEC to make sure measures are taken to avoid industry leaving state because of high energy prices
- State already taking steps to bring in battery storage and chip manufacturers – will also be aggressively recruiting heat pump and EV parts manufacturers
- Leon Porter (chat); Won’t most of benefits generated by climate plan get globalized and thus NYS will only receive small fraction of them?
- Bob: Benefits calculated in plan are just for state – reducing fossil fuel air pollution will be a huge benefit, in particular, for historically disadvantaged communities in state
- As plan gets rolled out and people see that transition to clean energy doesn’t destroy economy and actually strengthens it, and health benefits become clear, other states and countries will move in this direction – will have multiplier effect
- Rene Carver (chat): Will DEC be provided with additional staff and resources to make sure they can meet new responsibilities being assigned to them?
- Bob: Plan is silent on that issue but CLCPA and scoping plan binding on all state agencies, including DEC – incumbent on DEC to make clear to governor and state legislature what its needs are – DEC will clearly need lot more staff
- Carol Chock (chat): Not clear that representatives from DPS and PSC are on board with plan – approving three-year contracts in rate cases that don’t seem to push needle fast enough
- Bob: PSC chair on Climate Action Council and strongly endorsed plan – PSC has big role in making sure plan is carried out – but recent actions little puzzling – hoping they will step up to challenge – public pressure will be important factor
- Dave Bradley (chat): Would hydrogen be good candidate for use in NYC district heating systems
- Bob: We didn’t specifically discuss NYC heating system – NYC has its own climate laws and regulations and even moving faster than state away from fossil fuels

- Hydrogen pretty leaky and explosive – difficult to handle – plan overall discourages use of hydrogen for heating and for distributing via pipelines
- Currently, NYC district heating uses steam generated by fossil fuels – hot water would be more efficient and could be generated more cheaply using means other than hydrogen
- Ingrid Zabel: What is risk plan could be weakened or dismantled with different governor and legislature?
- Bob: CLCPA is law and you'd have to amend law or nullify it – would require majorities in both General Assembly and State Senate as well as signature of governor to do that
- Governor could slow walk implementation of plan so important to have governor who is supportive of plan
- Important to remember, though, that plan has force of law and would not be easy to undo it
- Peter pointed out that there are quite a few bills getting introduced in legislature that would go long ways towards firming up implementation of plan
- Bob: Much of implementation doesn't require further law, but everyone agrees no harm in legislature putting its own stamp on plan and would make it harder yet to undo it
- Fossil fuel industry lobbying legislature very hard as they did with Climate Action Council – if we can demonstrate in NY we can degasify our system, then it will make clear it's possible for other states to do so – lobbyists spent over \$10 million in past year alone in NYS

Rewiring America – Luis Aguirre-Torres

Luis Aguirre-Torres is Senior Advisor at Rewiring America, where he focuses on identifying, incentivizing, and articulating community-scale electrification projects. Prior to joining Rewiring America, he was the director of sustainability for the City of Ithaca, NY, where he led the implementation of the Ithaca Green New Deal. Luis shared Rewiring America's vision and strategy for electrifying the nation.

- Peter welcomed Luis back to TCCPI in his new role at Rewiring America, national nonprofit focusing on electrification
- Luis noted that at recent World Economic Forum in Davos three models for city electrification discussed – one of them was Ithaca electrification effort – we dared to try doing something new and different
- Rewiring America is also trying to do something different in different way
- Rewiring America leading electrification nonprofit, focused on electrifying our homes, businesses and communities – instrumental in drafting Inflation Reduction Act and Defense Production Act – also working with states, including NY
- We develop accessible, actionable data, and tools – believe in shared abundance and a climate safe future
- Everything can be electrified and that will lead to sustainable prosperity
- In US, electricity makes up 37% of nation's total energy stock – to fully decarbonize by 2035 we need to increase electrification by 5-6% each year
- Founded in 2020, Rewiring America pursuing three goals:
 - Lower energy costs
 - Healthier homes
 - Safer climate
- Focused on energy because it makes up 87% of all emissions on planet – coal, natural gas, and oil – includes:
 - Cars we drive
 - How we heat our homes and water
 - How we cook our food
 - How we dry our clothes
 - Where our electricity comes from
- 42% of our energy related emissions come from decisions made around kitchen table: what car we decide to buy, what washing machine, etc.
- 70% of Americans concerned about climate but don't know where to go to find solutions – we need to change conversation and control narrative
- First energy crisis in 1970s underscored need to secure enough energy to power our needs
- Needed standards such as EnergyStar and MPG labels on cars – emphasis on efficiency

- But climate crisis different – we cannot efficiency our way to zero – most efficient gas car still uses gas and most efficient furnace still uses fossil fuel
- Electrification is way to efficiency – for example, 70% of fossil fuel energy we use to heat our homes wasted – electrification eliminates most of this waste
- We have 1 billion machines to replace or displace thru electrification across 121 million households in US – need to focus on half of these machines, such as furnaces, cooktops, vehicles
- Average American household would save \$1,800 if they electrified – if we stopped paying for energy wasted, it would be largest wealth transfer in history from energy producers to consumers
- Over next decade we must change market default so efficient, electric machine becomes most affordable, convenient, and accessible one to purchase and install – there's market failure we need to fix: cost of carbon pollution should stop being externalized
- Hasn't happened yet because fragmented, fossil-fueled market is the default, creating fossil fuel feedback loop
- Consumers don't know what's available, installers aren't incentivized to sell something different, and without scale, upfront cost of machines remains high
- Thanks to IRA, we have an incredible opportunity to not just electrify our households, but our nation
- Because of the IRA, every household now has a bank account with thousands of dollars in it to go electric – they just don't know about it
- Widespread household uptake means community economic growth, fulfilling electric potential
- Generally thought that potential in IRA for residential electrification is \$100 billion, but actually \$858 billion thanks to tax breaks it provides
- To makes this happen we need to drive down costs thru economies of scale, change narrative, and create new market
- Can drive down costs and make electrification affordable by deploying federal and state incentives, aggregation at community level, consumer education, and realizing carbon value of every home
- Rewiring America launched IRA electric savings calculator in August – has attracted major media attention – over 400,000 users since launch – also providing guides with case studies and manual for decision making
- Customized electric planning toolkit:
 - All incentives and rebates available at federal, state, municipal and utility levels
 - Custom household electrification plan based on needs and opportunity
 - Community based resources and service providers
- Makes it possible to maximize incentives and minimize upfront costs
- Unleashing carbon value at community level will have tremendous impact – if 1.2 million homes electrified each year, it would lead to \$2.2 billion in annual savings for homeowners, mitigate 120 million metric tons of carbon, and create 49,000 new jobs
- Objective is to create local, synthetic markets and leverage for increased savings to organize 500,000 households and help them go electric

Q&A

- Peter: Clearly important to get word out about IRA and its benefits – seems to be one of chief purposes of Rewiring America – key to changing narrative – very pragmatic and concrete way to accomplish this
- Aggregation is crucial to making sure electrification takes place – a collective action by definition – but IRA focused on individual action – how do you take legislation largely aimed at encouraging individual action and turn it into collective action that leads to aggregation?
- Luis: IRA provides certainty at policy level for electrification – certainty has to be translated into reduced financial risk for investors
- Synthetic market created out of aggregating individual homeowners and building owners to create economies of scale
- IRA provides not only tax benefits but also \$100 million for point-of-purchase rebates and other incentives
- Peter: By changing narrative, Rewiring America can tell story of collective action based on what IRA offers – getting word out by itself is collective effort
- Karim Beers (chat): Could you speak more to role of education in bringing down costs? Is this a kind of scaled up HeatSmart campaign?

- Luis: Part of what Rewiring America is trying to do is to communicate message that has been very effectively conveyed by organizations like HeatSmart at national level in coordination with federal and state governments
- We focus on what exists and where it doesn't exist we create it – synthetic markets are example of this approach – creating markets for electrification in regions where they don't exist or are scarce
- Demonstrable political will key to success of this effort to create market at community level that will provide certainty and enable investors to see electrification of individual homes as single project and investment opportunity, and deploy capital at lower cost
- Also important to coordinate electrification efforts with contractors to reduce industry fragmentation
- If consumers are more educated about options for reducing energy costs and carbon footprint, then they will demand more effective solutions that are less expensive
- By all of us as community doing this, we will force volume and generate business that will increase competition among contractors
- Looking to launch “rewiring communities” later this year
- Karim (chat): Lot of rebates provided by IRA for heat pumps won't be available until later this year – aren't yet in place for NYS
- Lag time involved while machinery for providing rebates gets put in place
- Luis: Good news is that all of rebates will be retroactive even if not available at time of installation
- White House considering using Defense Production Act to establish small- to medium-sized manufacturing facilities for heat pumps throughout US
- Need to synchronize IRA with Defense Production Act and Infrastructure Investment and Jobs Act – will begin taking place in first half of this year
- Peter: How does IRA make benefits available to not-for-profit institutions?
- Luis: IRA puts in place changes in tax code that make it possible for nonprofits and municipalities to leverage tax exemptions for energy upgrades – direct cash payments and transferability under Infrastructure Act will also play important role
- From chat: What are some of ways Rewiring America is thinking about how to address issue of split incentives?
- Luis: Rewiring America not currently focused on this question but Biden administration taking up issue of renter protection
- Peter reminded Luis he would like to set up meeting for him to meet Rob Harmon, executive director of MEETS Coalition, which is working on problem of split incentives for energy upgrades
- Luis expressed hope that Ithaca and Tompkins County would become part of Rewiring Communities program
- David Kay: Could you say little more about how Rewiring America hopes to strengthen coordination and collaboration among communities undertaking decarbonization efforts
- Luis: Rewiring America reaching out to local community organizations that have already begun this work to see what they've been doing so they can share lessons learned – creating website and putting together knowledge base to help get word out
- Peter: Clear parallels between NYS climate plan, on the one hand, and Rewiring America and IRA, on the other, and together they tell exciting story about how we can move forward with decarbonization
- Very fortunate to have both Bob and Luis in our community representing us out in larger world and exercising their leadership to reshape dominant narrative by challenging fossil fuel industry and normalizing an electrifying America
- Peter also expressed thanks and congratulations to Lisa Marshall for her role in helping to organize very successful Renewable Heat Now rally in Albany earlier this week