BEFORE THE NORTH CAROLINA UTILITIES COMMISSION
DOCKET NO. E-34, SUB 54

In the Matter of: Application of Appalachian State University, d/b/a New River Light And Power Company For Adjustment of General Base Rates And Charges Applicable to Electric Service	)))))))	**DIRECT TESTIMONY OF NANCY LAPLACA**

BACKGROUND, PURPOSE OF TESTIMONY

Q: PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS. My name is Nancy LaPlaca, and I am Principal of LaPlaca and Associates LLC consulting. Both my home and business are located at 239 Wildwood Lane, Boone NC 28607. I own this residence with my partner, Dr. Douglas Goff James. I initially purchased the home in 2017, and Dr. James and I have owned the property together as joint tenants for approximately three to four years. New River Light and Power (NRLP) is our monopoly utility provider. In this testimony, I use the words Appalachian State University (AppState) and NRLP interchangeably, since NRLP is owned by AppState, and thus the State of North Carolina.

Q. WHAT IS YOUR BACKGROUND? Since 2013, I've had my own regulatory consulting business, with a focus on promoting clean energy. I have served as staff for two members of Congress (Morris K. Udall, D-AZ, and Karan English, D-AZ), was the sole Policy Advisor to a public utilities commissioner in AZ 2009-2013), worked as an independent consultant, researcher, strategist, expert witness and intervener in AZ, CO and NC, worked for the U.S.

Department of Energy's Solar Energy Technologies Office (SETO), and created and taught three courses on energy and climate change at Appalachian State University (2019-2020). I started my electricity career in 2006, successfully challenging the permit for a "clean" coal plant (Integrated Gasification Combined Cycle or IGCC) with carbon capture and sequestration (CCS). From my experience with "clean" coal, I learned that such non-solutions – which are really fantasies – are slowing down the transition we need to clean energy. I have both a Juris Doctorate (J.D.) and Bachelor of Fine Arts from Arizona (AZ) State University in Tempe.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY? My testimony addresses the following:

(1) NRLP's current rooftop solar rules, "buy-all sell-all," have predictably resulted in close to zero rooftop solar for NRLP customers, and the proposed net metering charge of $6.17 per installed kilowatt (kW) is so high that few people will be able to afford the charge, resulting in a continuation of zero rooftop solar in Boone;

(2) NRLP's electricity mix is 85% fossil gas, which is 84 times worse for the climate than CO2, with a side helping of staggering health and environmental damages,

(3) NRLP knew from surveys that tying its captive customers to fossil gas until ~2036 – nearly 14 years from now -- is <u>not</u> what its customers want, according to multiple surveys of NRLP customers. While AppState describes itself as "defining sustainability since 1899,[1]" it has

[1] https://sustain.appstate.edu/office/

not lived up to its own sustainability commitments for over a decade, and its lack of transparency and greenwashing could be adding to the mental anguish, depression, and anxiety our youth are suffering.

I. NRLP'S BUY-ALL SELL-ALL ROOFTOP SOLAR RULES HAVE PREDICTABLY RESULTED IN ZERO ROOFTOP SOLAR IN BOONE; AND NRLP'S PROPOSED NET METERING CHARGES ARE SO HIGH ROOFTOP SOLAR WILL CONTINUE TO FLOUNDER

Q: WHY DO YOU PROPOSE THAT NRLP'S ROOFTOP SOLAR RULES HAVE PREDICTABLY RESULTED IN ZERO ROOFTOP SOLAR IN BOONE; AND NRLP'S PROPOSED RULES ARE NOT MUCH BETTER? Look around Boone, do you see any rooftop solar? No. Now head to Asheville, or Durham, or Greensboro, or Charlotte, with far more sensible rooftop solar rules, and you will find lots of solar rooftops. NRLP's current solar scheme, called "buy-all, sell-all," is also known as "forced sale." A customer who purchases rooftop solar *cannot use any of the solar electricity produced – they are forced to sell all of the solar electricity to NRLP at a very reduced rate*. Thus, every kWh generated by a customer's rooftop solar array is a *loss for the customer who installs rooftop solar*.

My household provides a useful example. Dr. James and I refinanced our home ~2019 and put away $30,000 to purchase a 10 kW solar system. Under NRLP's current "forced sale" rules, *we could not use a single kWh that our $30,000 system generated*.[2] Instead, NRLP would sell the (hypothetical) solar kWhs generated by our solar system to our neighbors at NRLP's current retail rate –~12-13 cents/kWh. Thus, every kWh our solar system produced would be a

[2] Nearly everyone that I have ever explained this to responds in the same way: then why would anyone put up rooftop solar in Boone?

loss to our household budget of ~10 cents/kWh. Under this forced sale scheme, our solar system would *cost almost double the installation price*. Forced sale does not benefit us, our community, or our personal and community resilience – it only serves to kill rooftop solar.

Q: WHAT ARE THE OTHER DETRIMENTS TO NRLP'S BUY-ALL SELL-ALL SOLAR SCHEME? A big problem with NRLP's current buy-all sell-all scheme is that it reduces individual and community resilience. In a climate-changed world, where wildfires, power outages, floods and droughts are all creating increasingly dire situations, communities need resilience, which means redundant systems. For example, when Portland Oregon hit 115 degrees Fahrenheit in June 2021 – almost 40 degrees Fahrenheit above normal,[3] residents without air conditioning needed a cool place to go. Communities all over the U.S. are now discussing resilience, so that residents who lack A/C have somewhere to go when heat waves hit. If most NRLP customers lack A/C, which is likely true, NRLP customers should count on having a "cooling center" where residents can go in case of a dangerous heat wave. In truth, buy-all sell-all *reduces* resilience because it essentially kills rooftop solar/distributed solar.

Q. HOW DOES BUY-ALL SELL-ALL REDUCE, RATHER THAN INCREASE, COMMUNITY RESILIENCE? The purpose of rooftop/distributed solar is to *reduce* grid congestion, *reduce* the cost of generating and distributing electricity, and *increase* community resilience. However, when a solar customer is forced to sell all its solar generation back to the grid, grid congestion increases rather than decreases, thus *reducing* resilience. For example, my

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[3] https://www.nytimes.com/2021/06/27/us/heat-wave-seattle-portland.html#:~:text=the%20main%20story-,Pacific%20Northwest%20Heat%20Wave%20Shatters%20Temperature%20Records,and%20Seattle%20also%20set%20records.

street has ~20 homes, and only a few have A/C, including our home. If Boone suffered a catastrophic heat wave and electric grid outage, our solar system would continue to work, and our neighbors could come over and take shelter from the heat. We want solar not just for ourselves, but for our neighborhood's resilience.[4]

Q. WHY IS RESILIENCE IMPORTANT? The past few years have shown that climate change is affecting our normal weather patterns in increasingly extreme ways. Cities are experiencing more and more heat waves,[5] huge amounts of rain,[6] devastating drought[7] and wildfires.[8] Distributed generation such as rooftop solar, local batteries, electric vehicles (EVs), and energy efficiency allow individuals as well as entire communities to be more resilient to these climate-exacerbated disasters, because it allows individuals and communities to have access to electricity even if the grid goes down.

Q. WHY DOES NRLP'S CURRENT 'GREEN' POWER PROGRAM NOT INCREASE COMMUNITY RESILIENCE FOR ITS CUSTOMERS? NRLP, after over a decade of not actually increasing its clean energy mix -- despite its own stated sustainability goals,[9] signed a contract to purchase power from a hydropower plant starting in January 2022. While hydropower is better than fossil gas or coal, it still arrives in Boone via power lines from a great distance, and thus does nothing for community resilience. If the grid goes down, Boone and NRLP customers will have no power. Local power like rooftop solar means increased resilience, and we are seeing

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[4] https://www.phoenixnewtimes.com/news/blackout-during-heat-wave-would-be-killer-mixture-for-phoenix-study-says-16311996
[5] https://www.nytimes.com/2023/04/25/climate/extreme-heat-waves.html
[6] https://www.epa.gov/climate-indicators/climate-change-indicators-heavy-precipitation
[7] https://www.cnn.com/2023/04/20/us/lake-mead-colorado-river-water-releases-climate/index.html
[8] https://www.nytimes.com/2023/06/04/business/allstate-insurance-california.html
[9] https://sustain.appstate.edu/academics/research/

this over and over in climate disasters. As we are all finding out in our climate-changed world, having electricity can be the difference between life and death.

Q: WHY ARE NRLP'S PROPOSED NET METERING CHARGES TOO HIGH? WHAT HAS HAPPENED IN OTHER JURISDICTIONS WITH SUCH HIGH CHARGES? I have been working in the electricity sector for nearly 20 years across the U.S., and sadly have seen utilities around the U.S. work to undermine rooftop (also called distributed) solar. Sunny Arizona has quite a bit less solar than not-as-sunny North Carolina, and the reason is that utilities in AZ have succeeded in dramatically slowing down solar.[10] A report for utility trade group Edison Electric Institute stated that utilities would be smart to kill rooftop solar early as eventually rooftop solar will seriously impact profits. The report warns of "irreparable damages to revenues and growth prospects" of utilities.[11]

At the public hearing on this docket (E-34, Sub 54) on 5/23/23 at the Watauga County Courthouse, I stated[12] that in 2015, AZ utility Salt River Project (SRP) imposed a $50 per month fee for rooftop solar customers in its territory in central and north Phoenix, and solar installations fell by 95%. Arizona's largest utility, Arizona Public Service (APS), saw a similar precipitous drop in residential solar installations after changing solar reimbursement so that it was no longer financially viable.[13] A February 2023 article in Grist noted:

> "In 2015, the rooftop solar industry in Maricopa County, Arizona, dried up almost overnight. That year, the Salt River Project, or SRP, a state-owned electric utility that serves about 2 million customers in the Phoenix metropolitan area, set new rates for

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[10] See Attachment A for graphics that show the relative amounts of solar in AZ and NC, and a slide from an APS investor presentation that shows the precipitous decline in solar installations.
[11] https://grist.org/climate-energy/solar-panels-could-destroy-u-s-utilities-according-to-u-s-utilities/
[12] I had permission from NCUC attorneys to make a comment since I had not yet submitted my intervention petition.
[13] https://grist.org/energy/utility-monopolies-are-hurting-rooftop-solar-can-antitrust-lawsuits-rein-them-in/

rooftop solar owners. Suddenly, generating your own electricity from the sun was expected to cost you $600 more per year on your electric bill than it had the year before. At that rate, paying off the panels could take twice as long.

NRLP should welcome customer electrification, as "electrifying everything" would *increase* electricity sales and revenues. For example, since our household installed two compressors and six mini-splits that run on electricity, as well as two Bolt Electric Vehicles (each EV has 60 kWhs of battery storage), our electricity bill has more than doubled. Electrification of our transportation fleet will add greatly to sales of electricity, and all utilities, including NRLP, will benefit.

II. NRLP'S ELECTRICITY MIX IS 85% FOSSIL GAS, WHICH IS 84 TIMES WORSE FOR THE CLIMATE THAN CO2, WITH A SIDE HELPING OF STAGGERING HEALTH AND ENVIRONMENTAL DAMAGES

Q. HOW HAS NRLP TIED ITS CUSTOMERS TO FOSSIL GAS FOR THE NEXT 15 YEARS? A few years ago, I asked AppState for the contract it signed with NTE Energy in 2016. AppState would not share the document, so I filed the equivalent of a FOIA – Freedom of Information Act request -- to get a copy of the contract. This lack of transparency on such an important sustainability measurement is puzzling. Sadly, it's difficult to get information about NRLP beyond photos of its historic dam.[14] The 2016 contract changed NRLP's wholesale provider from Blue Ridge Electric Membership Coop (BREMCO), which purchased its power mostly from Duke Energy. to NTE Energy, an independent power producer (IPP). NRLP changed its wholesale provider to NTE because its power was cheaper – probably ~30% less

[14] https://nrlp.appstate.edu/

according to newspaper articles.[15] NRLP asserted that this new contract would save money, and while it has saved some money, it has the same flaw as other fossil gas contracts: the amount of fossil gas is finite, fossil gas prices are extremely volatile, and fossil gas (also called methane or CH4) is far, far worse for the climate than carbon dioxide (CO2). Tying NRLP customers to purchasing 85% of its electricity in the form of fossil gas for the next 15 years does not "define sustainability." Climate scientist Kevin Anderson says that *fossil gas is a bridge fuel – to a planet that's four (4) degrees Celsius hotter*.[16] An increase in global average temperatures of four degrees C. would be catastrophic.

Q. WHY IS FOSSIL GAS SO BAD FOR THE CLIMATE? Fossil gas is terrible for the climate because it is ~84 times worse than CO2 in its warming effect.[17] Fossil gas power plants emit approximately half the CO2 that coal power plants emit – but *only if you count the emissions directly from the power plant*.[18] However, because fossil gas/methane is a far more potent greenhouse gas than CO2, it's super-charging climate chaos. According to the Intergovernmental Panel on Climate Change's (IPCC's) 5th Assessment (AR5), issued in 2014, fossil gas is *84 times worse than CO2 for the climate*. Add in methane leakage from production and transportation, as well as health and environmental damages from fracking and gas production, and fossil gas creates more problems than it solves. From the IPCC's AR5 report on page 103, with a table of the values below:

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[15] https://www.bizjournals.com/charlotte/news/2018/09/13/how-this-small-florida-firm-is-making-a-power-play.html

[16] https://www.youtube.com/watch?v=vXEL4ZfDbdE and https://tyndall.ac.uk/people/kevin-anderson/

[17] https://www.greenpeace.org/usa/fighting-climate-chaos/issues/natural-gas/

[18] Duke Energy has "converted" many coal plants to run on fossil gas over the past decade, often without a hearing, which does not serve anyone except Duke Energy's profit margin.

"There is no scientific argument for selecting 100 years compared with other choices (Fuglestvedt et al., 2003; Shine, 2009). *The choice of time horizon is a value judgement* since it depends on the relative weight assigned to effects at different times." (*emphasis added)*

Gas	Lifetime (yrs)	Cumulative forcing over 20 years	Cumulative forcing over 100 years
CO2	100[19]	1	1
CH4	12.4	**84**	28

While the utility industry focuses on *direct* emissions of methane from fossil gas power plants, the problem is more complex because methane's effect on global heating is far worse than even CO2 from coal-fired electricity. We ignore this at our peril, as fossil gas-fired electricity has increased in North Carolina from ~2% of electricity production in the early 2000s to the current 40%, and NRLP's share of fossil gas electricity is a stunning 85%.

Q. WHY IS FOSSIL GAS BAD FOR OUR POCKETBOOKS? The cost of fossil gas has been increasingly volatile since the mid-2000s. Hurricane Katrina resulted in huge cost increases in 2005, with the most recent price spikes in the past year. Nearly all of the fossil gas used in the U.S. is fracked, and fracked gas wells deplete very quickly, 70-90% during the first three years of an average fracked well's production.[20] This means that new wells must be constantly drilled simply to maintain current production. When drilling stops, fossil gas production drops. The Ukraine war, which started in February 2022, added to the volatility of the cost of fossil gas. Since then, exports of U.S. natural gas have increased dramatically as liquefied natural gas or

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[19] 100 years is the timeframe used by the IPCC, however, 25% of all CO2 is still in the atmosphere after 300-1,000 years, as CO2 has a very long lifespan. *See* https://climate.nasa.gov/news/2915/the-atmosphere-getting-a-handle-on-carbon-dioxide/#:~:text=Once%20it's%20added%20to%20the,timescale%20of%20many%20human%20lives.

[20] https://www.desmog.com/2021/12/08/david-hughes-shale-optimistic-fracking-forecasts-eia/ and https://www.resilience.org/resilience-author/david-hughes/

LNG. LNG is even worse for the climate,[21] since leakage from production, transportation, compression, and re-gasification[22] are far worse than fossil gas that isn't exported.[23]

An example of the cost benefits of clean energy happened last week in Texas. Wind and solar *saved $11 billion in fuel costs in a single year -- 2022* -- for Texas utility customers. It's highly likely that high fuel costs for fossil gas plants will eventually make them uneconomic. Most of the cost to run a fossil gas power plant is the fuel, and fuel costs are increasingly volatile, with prices spiking during ever-increasing heat waves and cold snaps. Utilities can only "hedge" future fossil gas fuel costs for a fairly short time, perhaps a year or two. Thus, upwards of 70% of the cost to run the fossil gas power plant is unknown. Solar electricity requires no fuel, so that costs are stable compared to fossil gas.

Q. WHAT ARE THE HEALTH AND ENVIRONMENTAL DAMAGES FROM FOSSIL GAS? Studies proving fracking's damages are overwhelming, and the National Institute of Environmental Health Science's website[24] reports on health and environmental damages, water and air pollution, birth defects, toxic chemical exposure and a host of other ills. Despite mounds of evidence showing that fracking is dangerous, destructive, and that it releases super-potent methane gas, utilities have increasingly turned to fossil gas power plants rather than cleaner, cheaper solar and wind. Fracking creates vast amounts of wastewater, emits greenhouse gases

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[21] https://www.theguardian.com/environment/2019/jul/03/booming-lng-industry-could-be-as-bad-for-climate-as-coal-experts-warn
[22] https://environmentaldefence.ca/2022/10/26/dont-buy-the-hype-lng-is-bad-for-the-climate/
[23] https://www.bbc.com/news/science-environment-63457377
[24] https://www.niehs.nih.gov/health/topics/agents/fracking/index.cfm

such as methane, releases toxic air pollutants and generates noise, sometimes 24 hours a day, 365 days a year.[25]

III. NRLP KNEW FROM ITS OWN SURVEYS THAT TYING ITS CAPTIVE CUSTOMERS TO FOSSIL GAS UNTIL ~2036 IS NOT WHAT ITS CUSTOMERS WANT, NOR HAS APPSTATE/NRLP LIVED UP TO ITS OWN SUSTAINABILITY COMMITMENTS,

AppState describes itself as "defining sustainability since 1899,[26]" and yet has close to zero rooftop due to its solar-killing policies, no rebate programs for electrification, no energy efficiency (EE) (except pre-pay, which isn't an EE program but rather a way to avoid shut-offs for non-payment per experts[27]), and lags far behind other NC utilities in offering customer-and-clean-energy friendly programs.[28] *In tying NRLP customers to climate-chaos-inducing fossil gas until the mid-to-late 2030s, NRLP is in fact doing exactly the opposite of what customers want.*

Lancet Study Shows High Depression Rates For Youth Ages 16-25

Our youth are depressed, and this is becoming increasingly obvious. In early 2021, the medical journal Lancet investigated youth climate anxiety, surveying 10,000 young people aged 16-25 across 10 countries. Four of the countries were in the Global South (Brazil, India, Nigeria and the Philippines) and the remaining six were in the Global North (Australia, France, Finland, Portugal, the U.K. and the U.S.). The findings were alarming: *75% of young people surveyed*

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[25] https://wvutoday.wvu.edu/stories/2016/12/22/noise-pollution-from-oil-and-gas-development-may-harm-human-health and https://news.berkeley.edu/story_jump/noise-pollution-from-fracking-may-harm-human-health/#:~:text=Fracking%20creates%20noise%20at%20levels,well%2Ddocumented%20public%20health%20hazard.

[26] https://sustain.appstate.edu/office/

[27] https://www.aceee.org/blog/2019/05/prepay-saving-electricity-and-money

[28] DSIRE-USA, the Database of Incentives for Renewable Energy, has a long list of clean energy programs in NC: https://programs.dsireusa.org/system/program/nc

think the future is frightening and 45% say climate concern negatively impacts their day. A stunning 64% of those surveyed said [government] officials are lying about the impact of the measures they are taking, and 58% saying governments are betraying future generations. Sadly, they are spot on. NC universities are also fighting a student suicide crisis.[29] According to the newspaper article:

> "Seven students died by suicide, two fatally overdosed…[o]ver a dozen students and mental health experts described the loss of life at NC State to ABC News as staggering and tragic, as well as a concerning example of national trends in student mental health."

As a 67-year-old "Baby Boomer," I am distressed by what seems to be a lack of concern by AppState's administration, its refusal to face our current climate change crisis, and lack of meaningful action that would at least allow NRLP customers to reduce their *own* carbon footprint. In addition, rooftop solar creates a lot of jobs – according to the U.S. Department of Energy, solar creates 79 times more jobs per megawatt-hour (MWh) than coal-fired generation.[30]

CONCLUSIONS

(1) NRLP's "forced sale" residential solar has resulted in close to zero residential solar installations in Boone over the past decade. NRLP knows that these rules effectively killed rooftop solar in Boone.

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[29] https://abcnews.go.com/US/challenging-year-north-carolina-state-confronts-spate-student/story?id=99008743#:~:text=NC%20State%20convened%20a%20mental,November%20to%20examine%20the%20problem.&text=Ahead%20of%20Mental%20Health%20Awareness,making%20a%20priority%20to%20help

[30] https://www.econlib.org/archives/2017/05/solar_power_lot.html

(2) NRLP's proposed solar fee of $6.17/kW of installed capacity will similarly kill rooftop solar in Boone; these high rates have killed rooftop solar in other jurisdictions, including sunny Arizona.

(3) Despite multiple customer surveys over the past decade, NRLP has ignored the clear directive from its customers to increase local clean energy such as rooftop solar. Sadly, NRLP also has no energy efficiency (EE) or other programs that would help Boone's low-income community. By tying NRLP customers to an electricity mix that's 85% fossil gas, NRLP is super-charging climate chaos, and setting up customers for rapidly increasing bills due to volatile and rising costs of fuel.

While there are several issues that need addressing, such as NRLP's lack of transparency, Ms. LaPlaca has one major recommendation: any net metering charge for rooftop solar customers be capped at no more than $1.50/kW installed capacity. If NRLP is allowed to charge such a high fee, Boone will continue to have close to zero rooftop solar, despite AppState's assertion that it is "defining sustainability since 1899." Now that we are 124 years beyond 1899, it's time to update NRLP's solar rules to meet the needs of a climate-changed world. After all, AppState graduates dozens of students from its Sustainable Technology department, solar is at the top of the list of sustainable technologies, and our youth need jobs – and hope.

Submitted electronically this 6th day of June, 2023.

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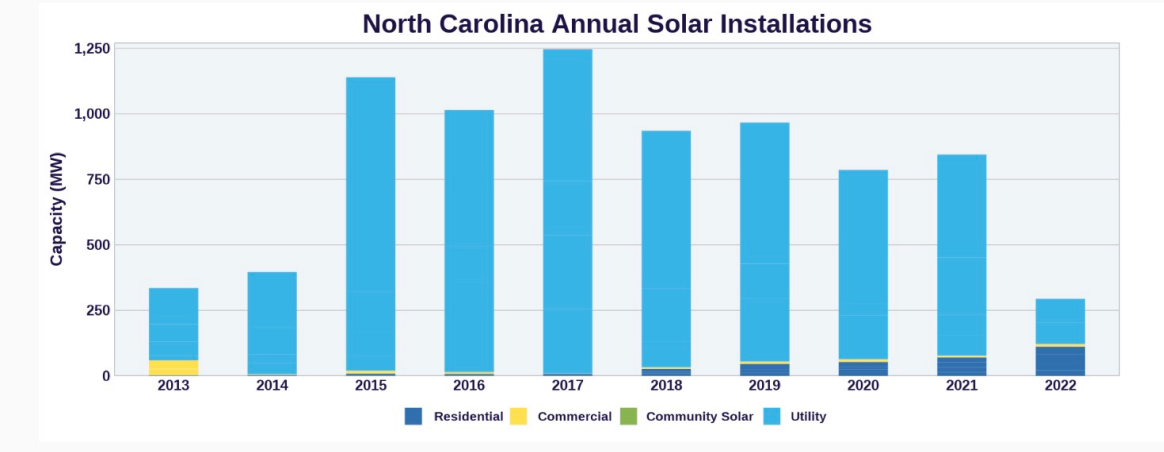
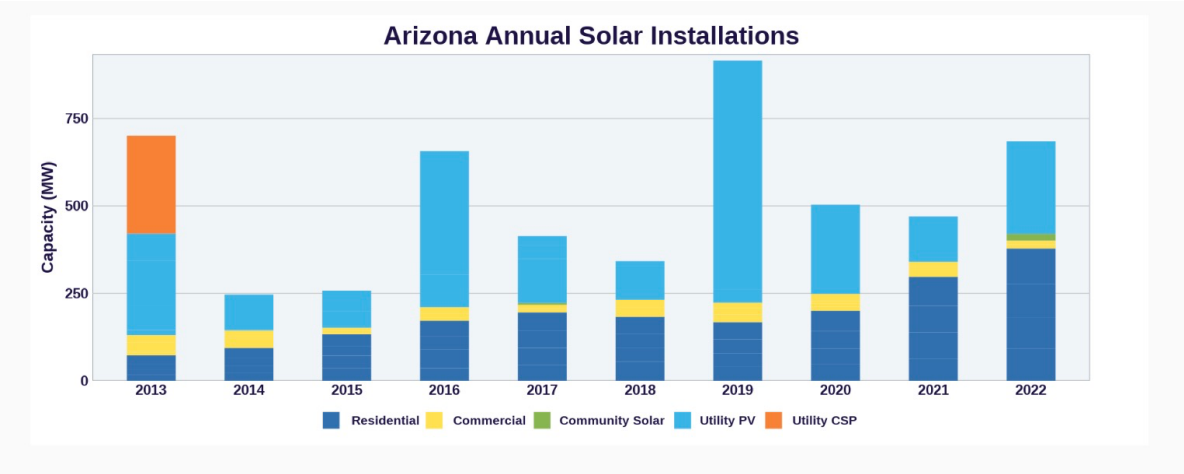
ATTACHMENT A



North Carolina's solar installations slowed down considerably, so that 2022 installations were as low as in 2013, nearly a decade ago. As you can see from the chart, NC had practically no residential solar until ~2018. NC's total solar capacity as of the end of 2022 is 8,179 MW.[31]



Due to poor policies, the sunny state of AZ lags in solar, with a total capacity of 6,330 MW at the end of 2022. Although residential solar took a big hit due to solar-inhibiting rules in 2013 and

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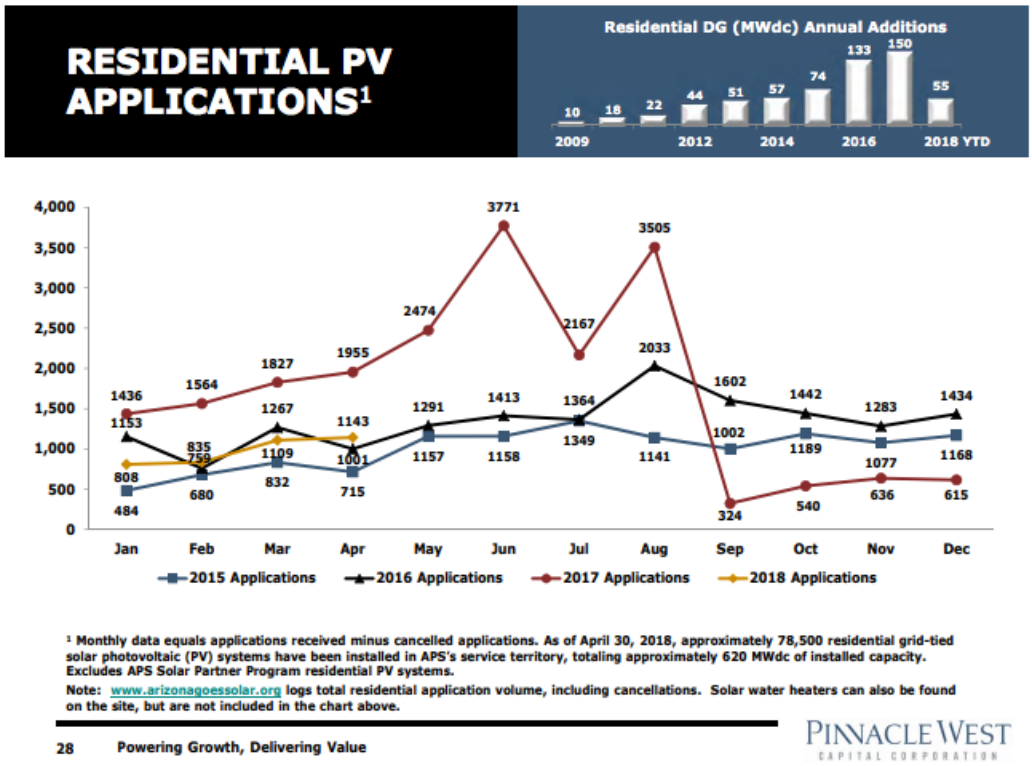
[31] Source: SEIA website, accessed 6/5/23 https://www.seia.org/state-solar-policy/north-carolina-solar

2014, the residential sector is recovering, mostly due to the fact that AZ is so sunny and solar makes sense.[32] Due to solar-killing rules, residential solar applications for APS/Pinnacle West in 2017 fell from a high of 3,505 to 324.



http://s22.q4cdn.com/464697698/files/doc_presentations/2018/Investor-Meetings-May-18-24-2018.pdf, slide 28

[32] SEIA's Arizona page, accessed 6/5/23: https://www.seia.org/state-solar-policy/arizona-solar

CERTIFICATE OF SERVICE

I certify that a copy of the Direct Testimony of Nancy LaPlaca, J.D., has been served on all parties of record or their attorneys, or both, in accordance with Commission Rule R1-39, by electronic delivery.

This 6th day of June, 2023.

Electronically submitted

Nancy LaPlaca