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Catching Up on NC Energy Policy, Regulation, and Potential Reform

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NCSEA's Story: Policy & Markets

- Where We Work

- In NC's clean energy market with home, commercial, industrial, and government energy consumers
- Planning and guidance with NC communities
- State and Local Government
- NC Utilities Commission
- Proof of concept and analytics with utilities to transition to an energy services business model
- Strategy, intelligence products, and services to Southeast industry, partners, and utilities

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- Who is NCSEA

  - 501 (c)(3) Nonprofit founded in 1978 in response to the oil crisis, NCSEA's founders created a membership organization to transform NC's energy economy.

  - Our purpose is to transform the energy system and economy to benefit all of North Carolina:
    - consumers
    - clean energy industry
    - independent producers
    - electric and gas utilities

NC Ranks in Clean Energy!

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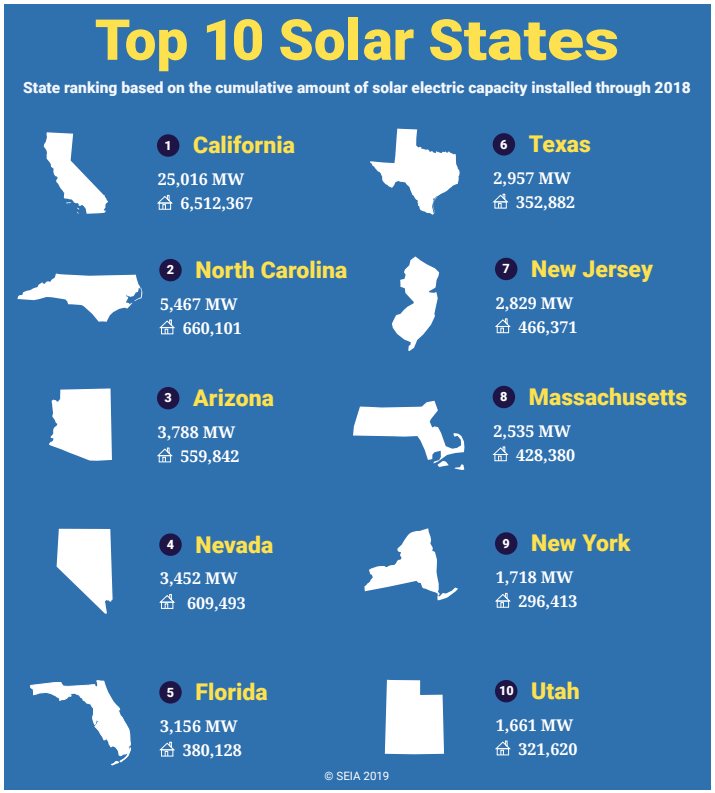

Equivalent of the number of homes supplied by solar energy.

All data is sourced from SEIA/Wood Mackenzie Power & Renewables Solar Market Insight® 2019 Q2 Report.
For more information, contact research@seia.org

SEIA Solar Energy Industries Association®
www.seia.org/smi

#2 in installed solar PV generating capacity

#4 electric vehicle charging stations per capita

#3 in Southeast for energy storage planned and built

Governor Cooper's
Executive Order 80

80,000+ electric vehicles

70% less greenhouse gas emissions across economy

Gov't use 40% less energy

NC Cumulative RE Capacity, 1890-2018

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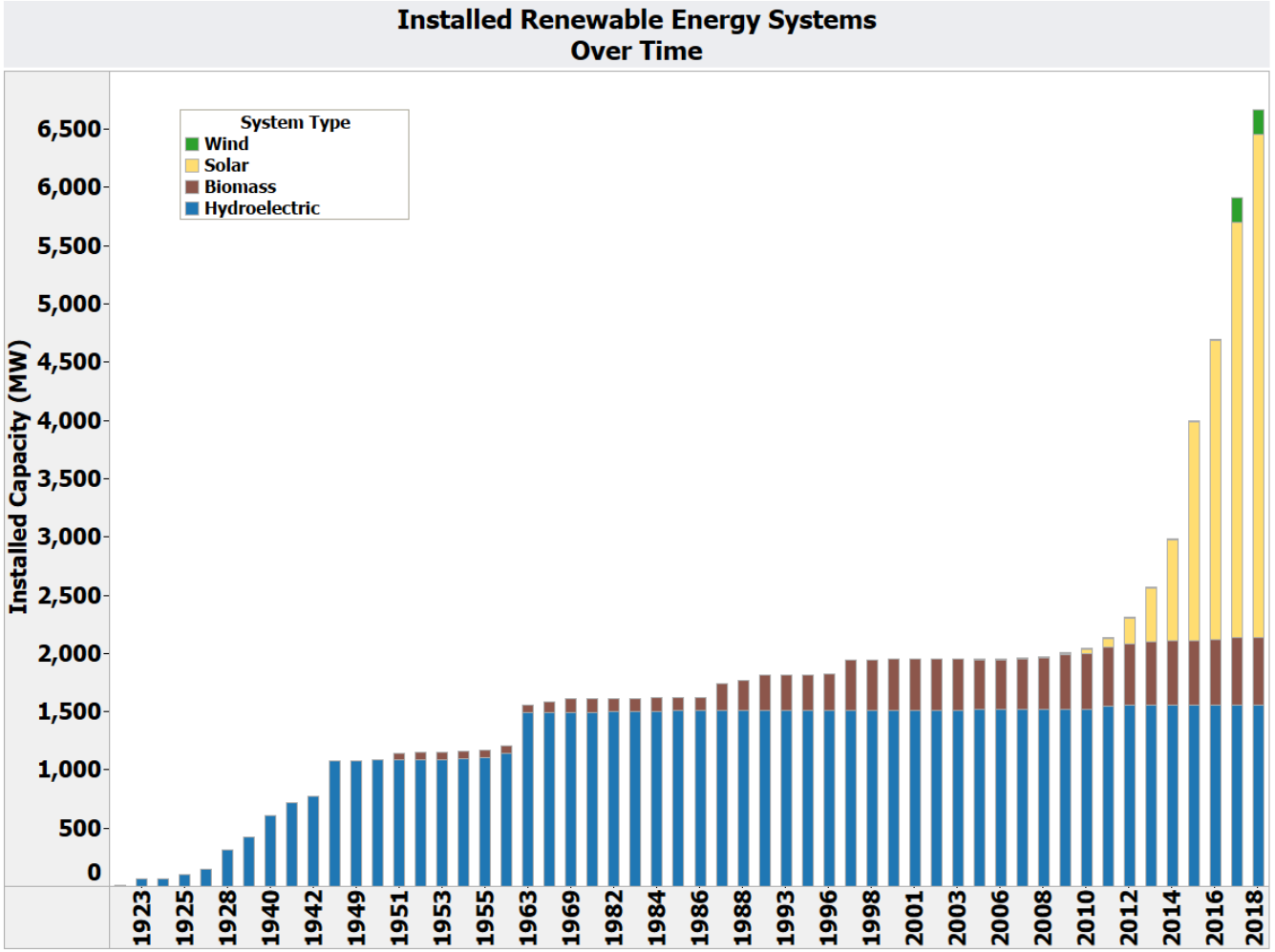

Current NC Solar Systems, September 2019

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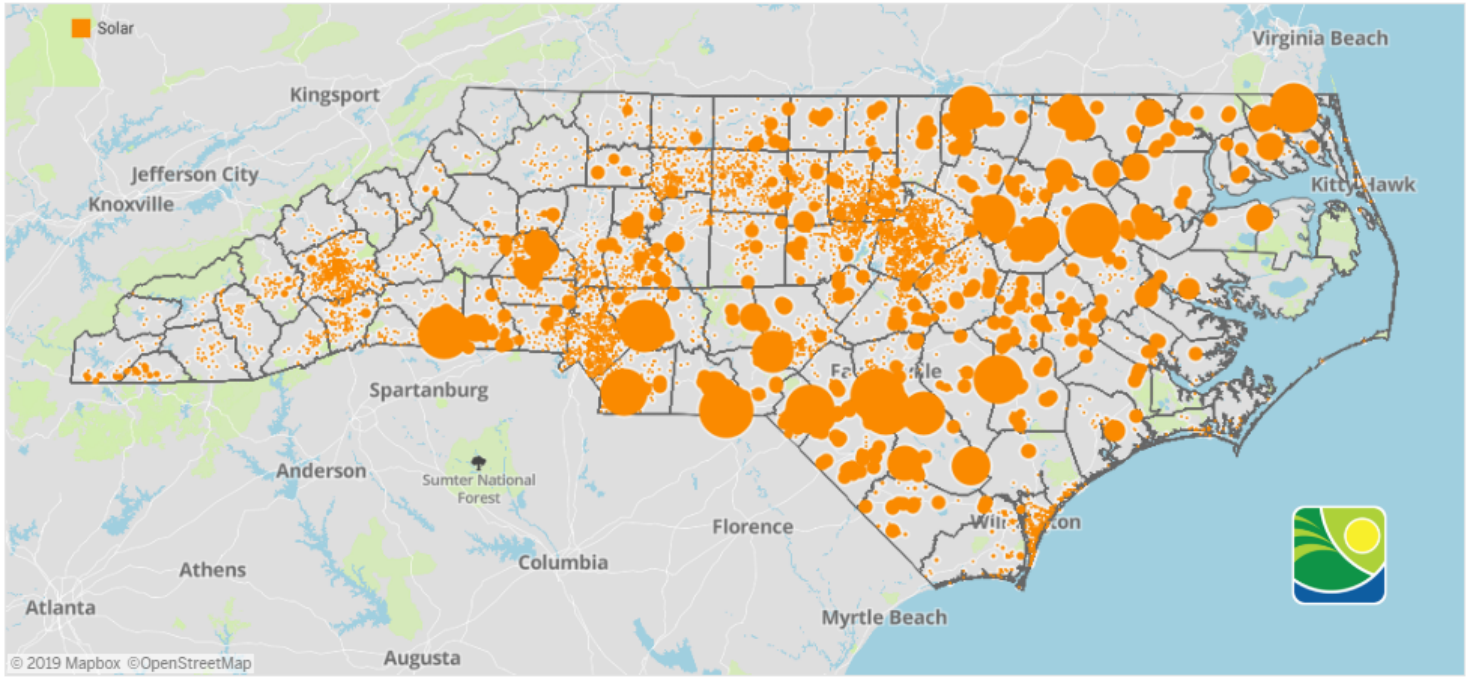
Installed Renewable Energy Systems



General System Type	Capacity (MW)	Number of Systems
Solar	3,874.95	8,259
Grand Total	3,874.95	8,259

General System Type

- (All)
- Biomass
- Hydroelectric

County

(All)

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Increased North Carolina County Tax Revenue from Solar Development

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July 2019

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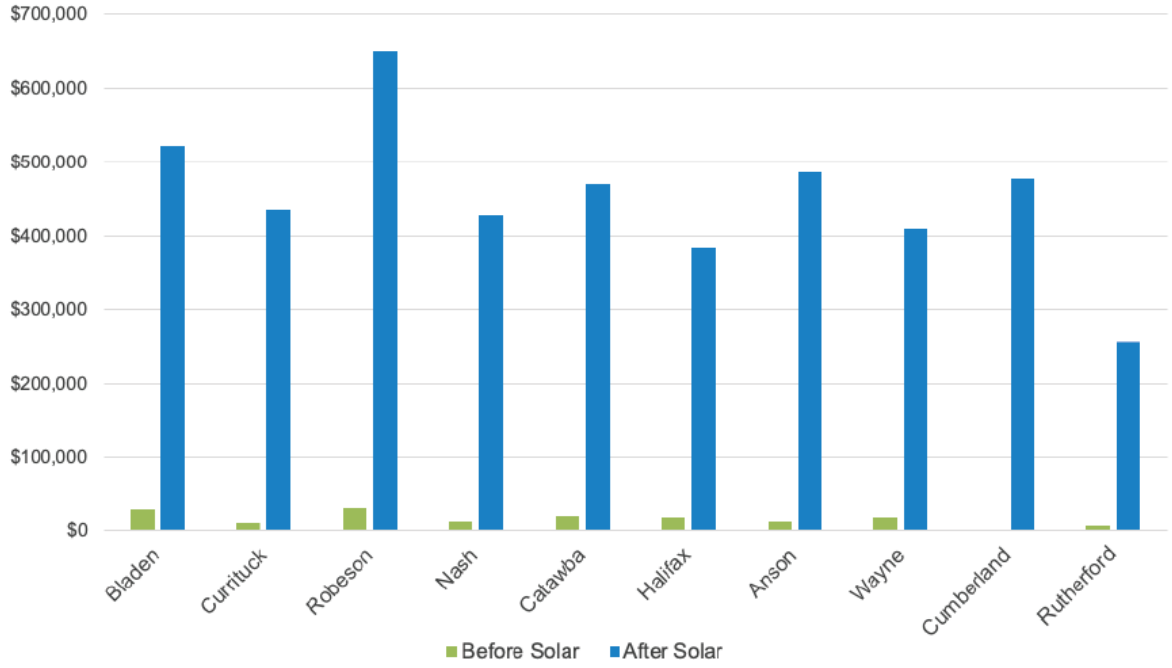
Increased property tax revenue due to solar development is an economic benefit to counties across North Carolina. Using publicly available property tax data from 50 North Carolina Counties, this report quantifies the tax revenue increase on properties that NCSEA identified as having solar developed on them through 2017. Overall, the properties with solar facilities paid almost $10.6 million in property taxes in the year after the facilities were developed compared to only $513 thousand in the prior year; **a nearly 2,000 percent increase.** Chart 1 highlights the experience of 10 counties, showing the total property taxes collected on parcels where solar facilities were built, in the year prior to and year after construction. Tax data for the 50 counties included in this study is in Appendix 1.

Chart 1. Annual Property Taxes Paid on Real Estate Parcels with Solar Projects

*Data represents taxes collected in the year before and after a large solar project was built.
Source: County Tax Offices, North Carolina Utilities Commission and NCSEA Renewable Energy Database



NC Net Generation 2008-2018

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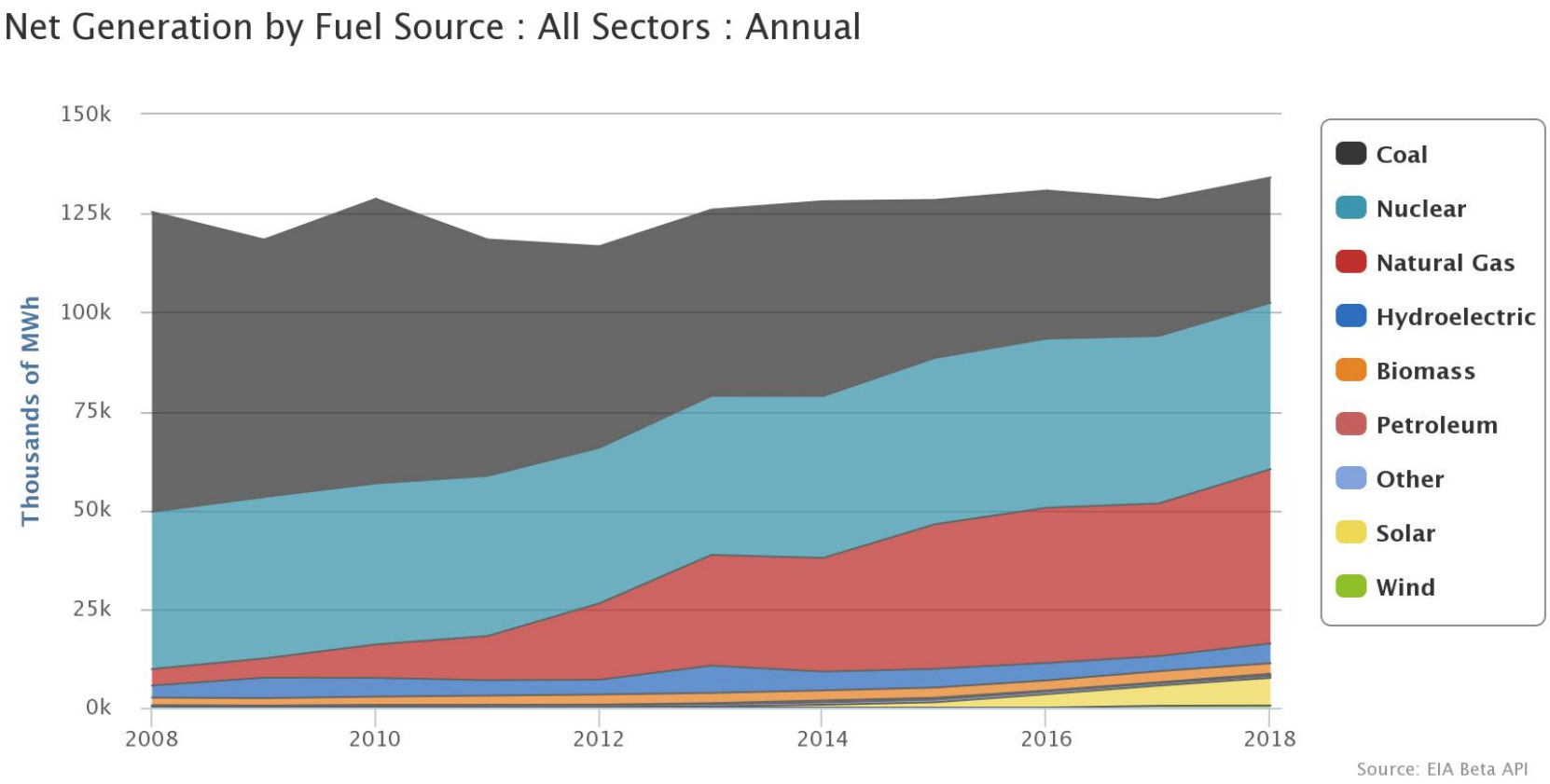

Decreasing cost of Solar PV across system type creates opportunity

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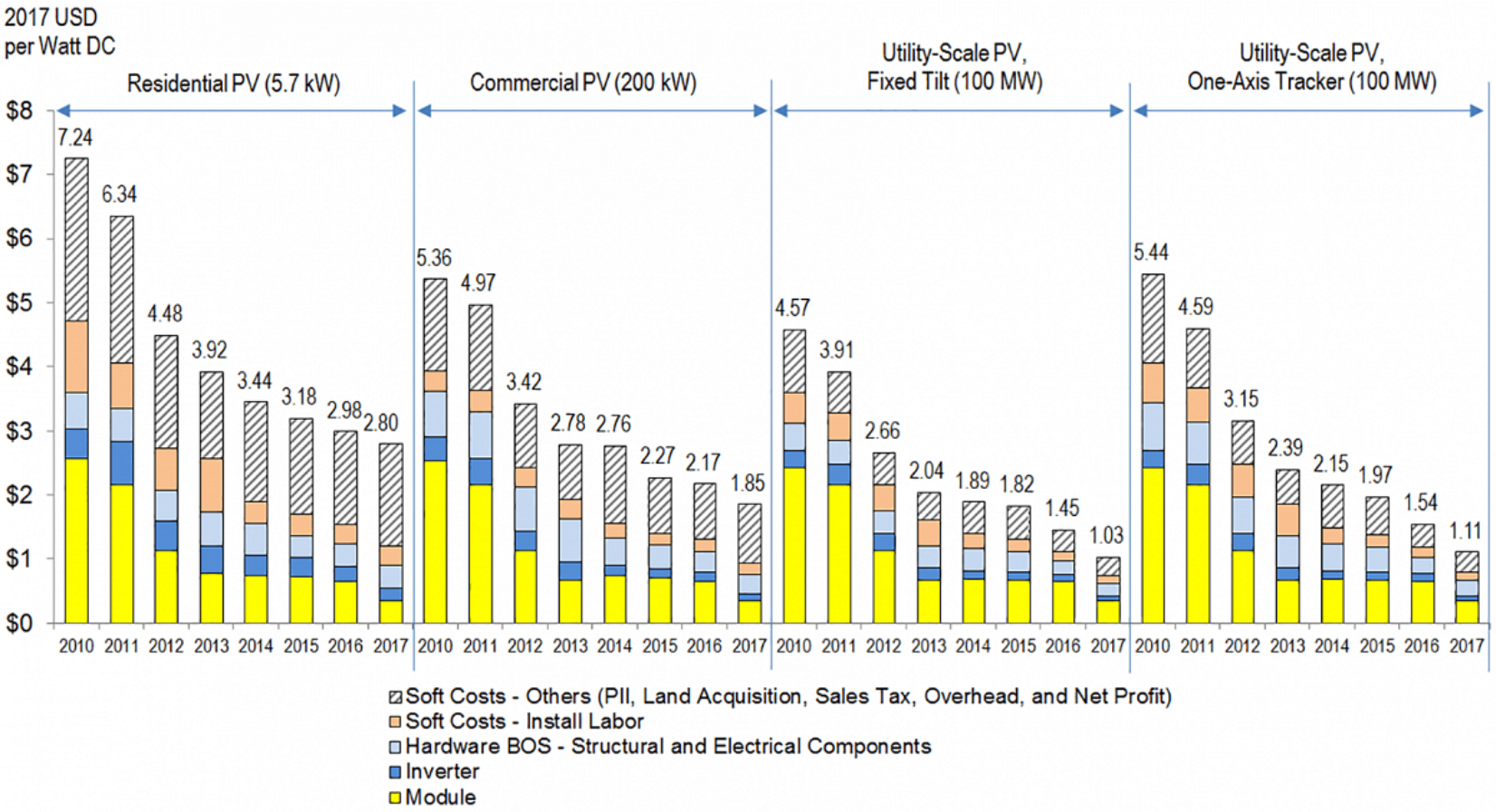

Source: NREL

Decreasing cost of energy storage

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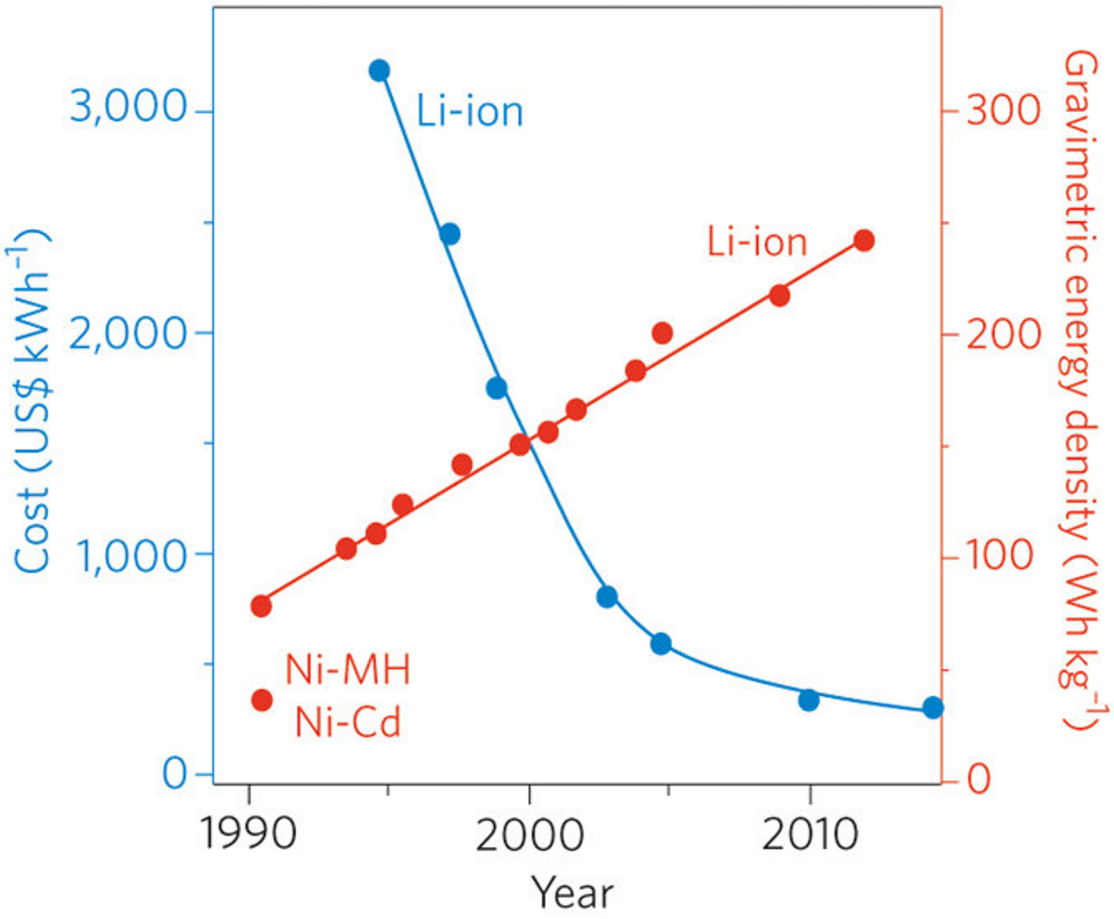

Energy Storage Deployment Accelerating

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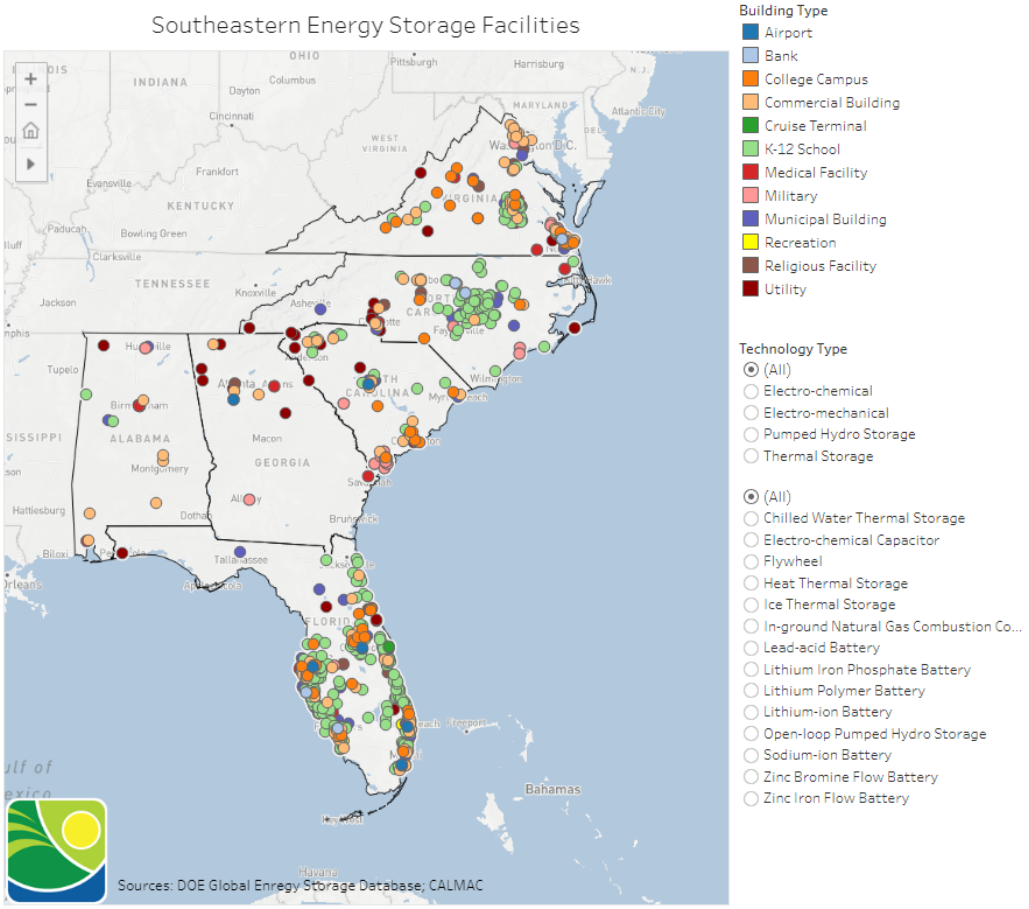

Source: www.energync.org, non-residential storage assets, not comprehensive yet, Nov 2018

Offshore Wind and Solar?

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- NC has more than 22,000 MW of viable offshore wind resource
- Offshore wind compliments solar and batteries
- By 2025 in NC: solar below 3 c/kWh? Offshore wind at 7 c/kWH? Batteries in that price range?

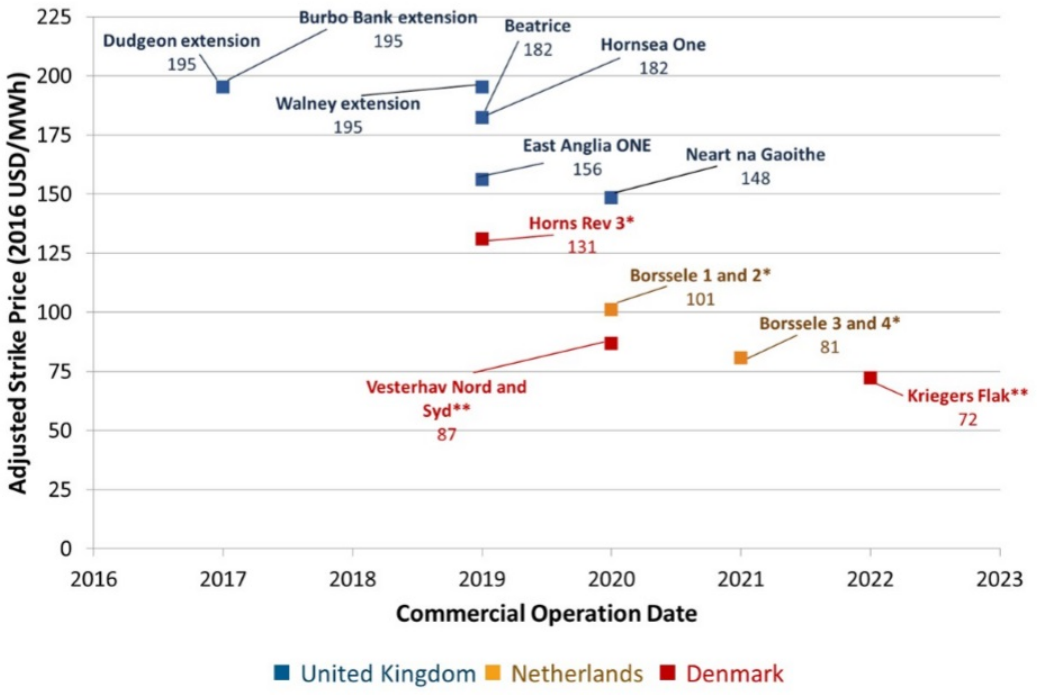

Figure 1. Recent strike prices of European offshore wind winning tenders adjusted to U.S. dollars, with grid cost, development cost, and contract length adders

Source: U.S National Renewable Energy Lab (NREL). Data Source: 4Coffshore
Provided to NCSEA by the South East Wind Coalition

A Cleaner Scenario Under Existing IRP Rules and Assumptions

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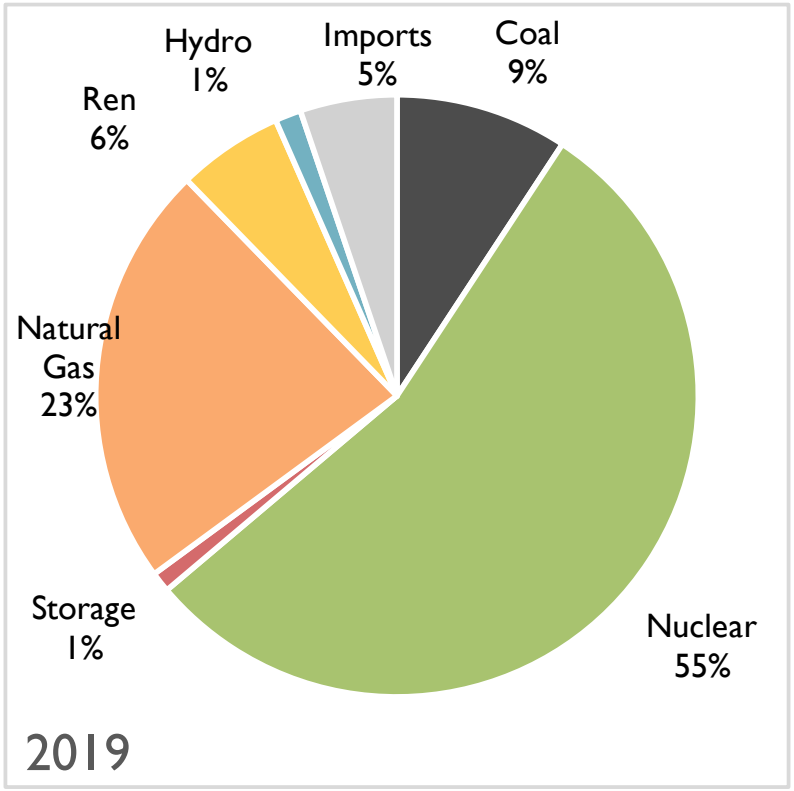

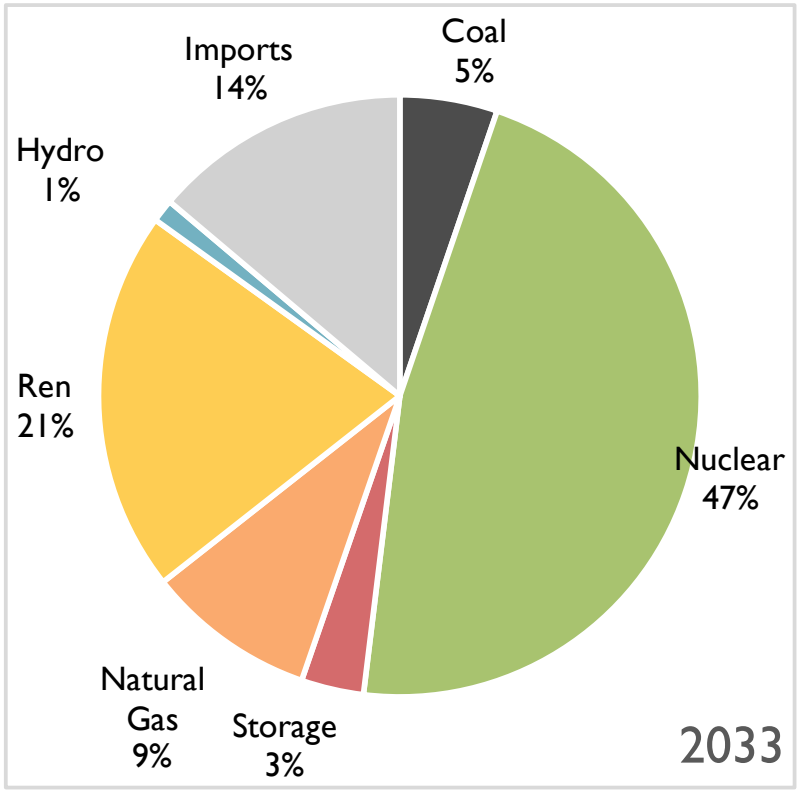

Source: Synapse Economics, Inc. North Carolina's Clean Energy Future: An Alternative to Duke's Integrated Resource Plan. March 2019.

2019 NC Legislative Session

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Passed

- SB559/HB624—Multi-Year Rate Plans and Storm Securitization
- SB377—Wind Energy Permitting Changes (Formerly Wind Ban)
- HB 329—Electric Vehicle Charging plus Wind/Solar Decommissioning & Small Hydroelectric Producers
    - Solar/Wind/Battery Storage Decommissioning Stakeholder Process
- Three NC Utilities Commission confirmations and Public Staff Executive Director confirmation

Did not pass or Vetoed

- HB330—Energy Reduction Goals for State Building
- HB966 – 2019 Appropriations Act
- HB958 – Electric Utilities/Allow Study RTE (Regional Transmission Entity)

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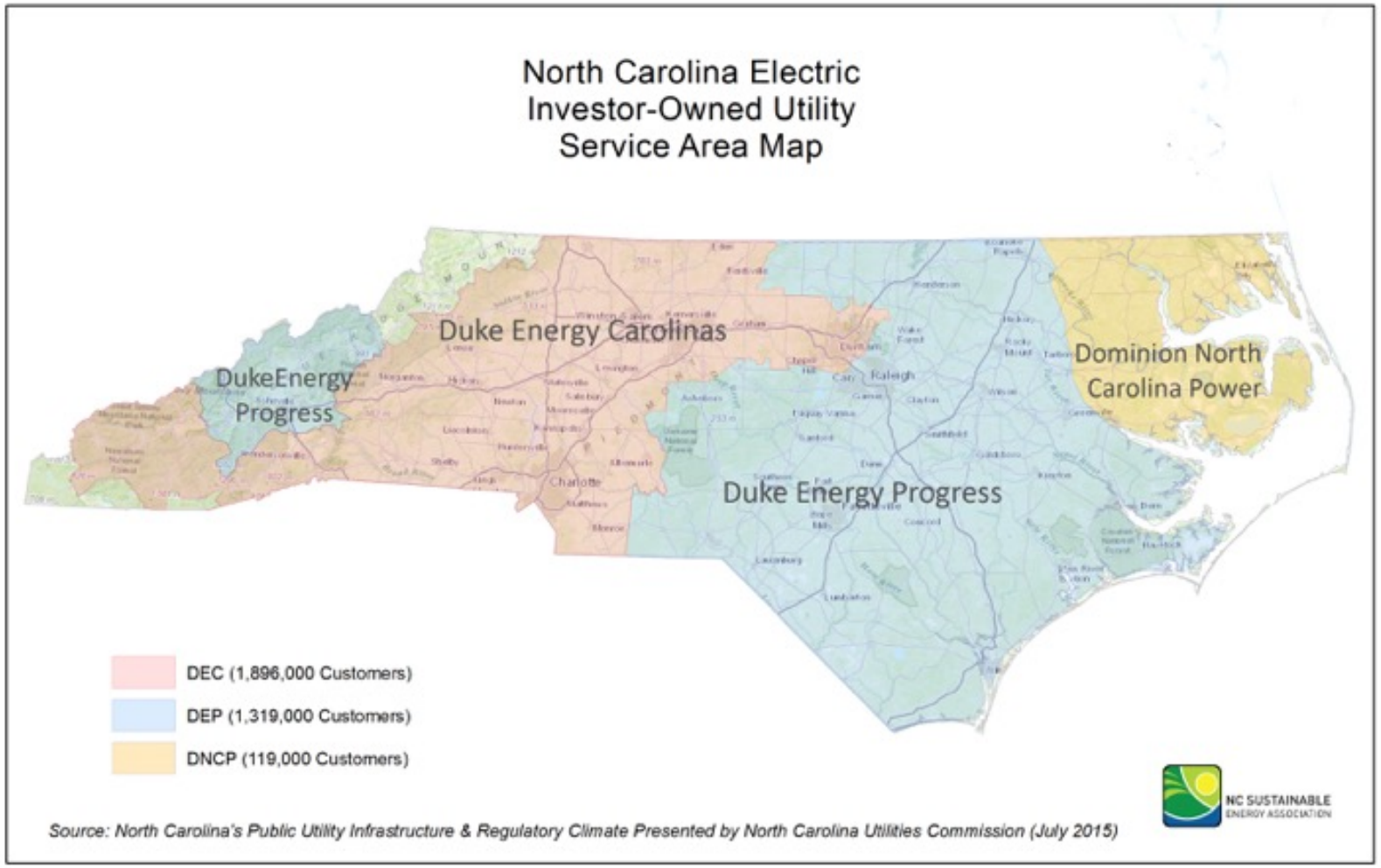

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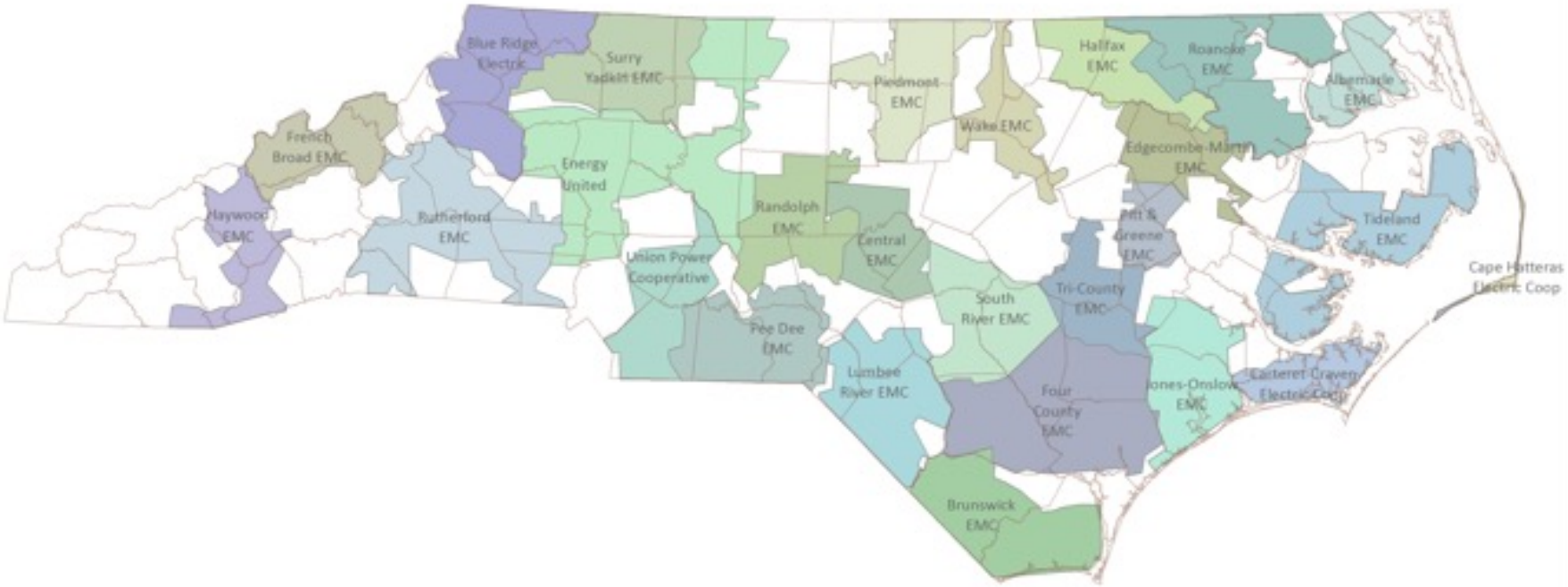
North Carolina's Electric Cooperatives



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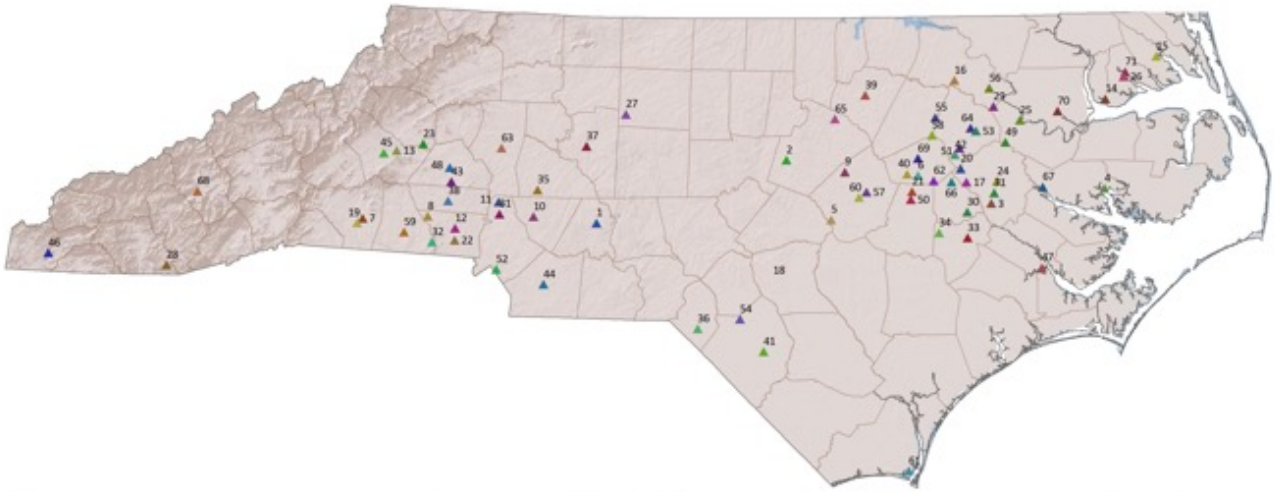
North Carolina's Electric Municipalities



1) City of Albemarle
2) Town of Apex
3) Town of Ayden
4) Town of Belhaven
5) Town of Benson
6) Town of Black Creek
7) Town of Bostic
8) City of Cherryville
9) Town of Clayton
10) City of Concord
11) Town of Cornelius
12) Town of Dallas
13) Town of Drexel
14) Town of Edenton
15) City of Elizabeth City
16) Town of Enfield
17) Town of Farmville
18) City of Fayetteville
19) Town of Forest City
20) Town of Fountain
21) Town of Fremont
22) City of Gastonia
23) Town of Granite Falls
24) Greenville Utilities
25) Town of Hamilton
26) City of Hertford
27) Town of High Point
28) City of Highlands
29) Town of Hobgood
30) Town of Hookerton
31) Town of Huntersville
32) City of Kings Mountain
33) City of Kinston
34) Town of La Grange
35) Town of Landis
36) City of Laurinburg
37) City of Lexington
38) City of Lincolnton City
39) Town of Louisburg
40) Town of Lucama
41) City of Lumberton
42) Town of MacClesfield
43) Town of Maiden
44) City of Monroe
45) City of Morganton
46) Town of Murphy
47) City of New Bern
48) City of Newton
49) City of Robersonville
50) Town of Pikeville
51) Town of Pinetops
52) Town of Pineville
53) Town of Tarboro
54) Town of Red Springs
55) City of Rocky Mount
56) Town of Scotland Neck
57) Town of Selma
58) Town of Sharpsburg
59) City of Shelby
60) Town of Smithfield
61) City of Southport
62) Town of Stantonsburg
63) City of Statesville
64) Town of Tarboro
65) Town of Wake Forest
66) Town of Walstonburg
67) City of Washington
68) Town of Waynesville
69) City of Wilson
70) Town of Windsor
71) City of Hertford
71) City of Winterville

Now: Traditional "Cost of Service"

- Utility profits by building and owning Gen, Trans, and Dist
- Earn regulated return each time invest capital in building an asset
- Bias to increase capex to increase earnings, avoid activities that do the opposite

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- Achieves economies of scale for large, centralized generation
- More load reduced marginal cost and prices, justified more assets

Future: Traditional "Cost of Service"?

- Goal of universal electricity access achieved
- Load growth has slowed, declining in areas
- Customers and independents can invest in distributed energy resource assets
- Utility capex and earnings opportunity further reduced

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- If utilities cannot spend on load growth in order to earn, must spend on something else or earn less
- Customer sees this, motivated to adopt DER to lower their use and bills, by avoiding rate increases

Traditional "Cost of Service" ?

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- Low and still declining cost of DERs, directly accessible to expanding portion of a regulated utility's customers
- Existing coal, new natural gas, new nuclear now costing more than solar and combinations of efficiency, demand response, renewables, and storage
- Even if utility offers DERs at cost plus eligible earnings, utility will spend less and thereby earn less than continuing to pursue traditional resources + grid plans
- Consumer distrust of grid improvement proposals that are comparable in capex to old resource plans
- Large consumers / employers' studies find grid improvement plans could increase rates 25 to 50% over ten years, residential customers 50%+, and low-income customer bills even higher
    - With insufficient options to meet their needs and goals

Regional Transmission Organizations

- RTOs and Independent System Operators emerged to provide open access to transmission to enable trading of energy across broader regions, multiple utilities
- Provide independent operation of transmission grid, manager interconnection, and operate centralized markets for wholesale electricity products
- Seven organizations across the U.S., plus forming Energy Imbalance Market in west

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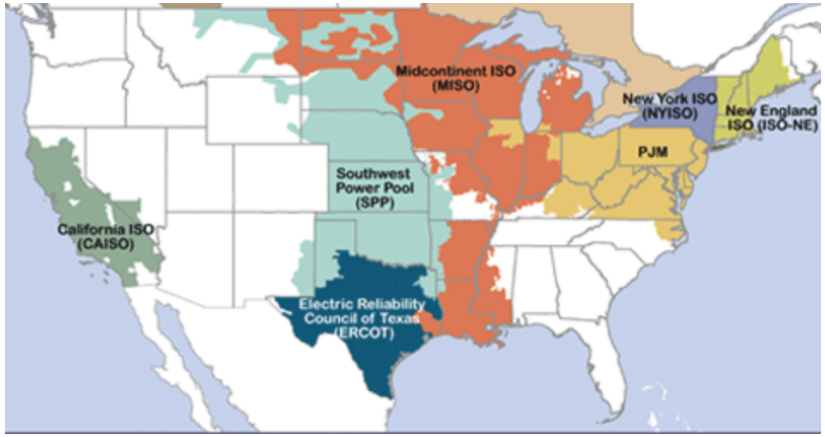

What does joining an RTO mean?

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- Utility owning transmission chooses to join
- Higher returns on transmission investments, regulatory streamlining
- Utility transfers operational control of transmission to RTO
- Complex stakeholder processes
- Jobs and costs may shift across RTO region
- State may have less control
- More efficient planning and transmission use
- Reduced operational costs
- Easier renewables integration
- Improved competition and choice can drive savings
- Increased flexibility and options for consumers
- NC almost created RTO
- HB958 in 2019, RTO study
- Save $600M annually

Performance Based Regulation (PBR)

- 15 states actively exploring or pursuing PBR
- Can align utility financial interests with customer interests and policy goals, shifting earnings from what goes in to the system, to what comes out of it
- Can address problems resulting from utility's capital bias or "capex incentive"

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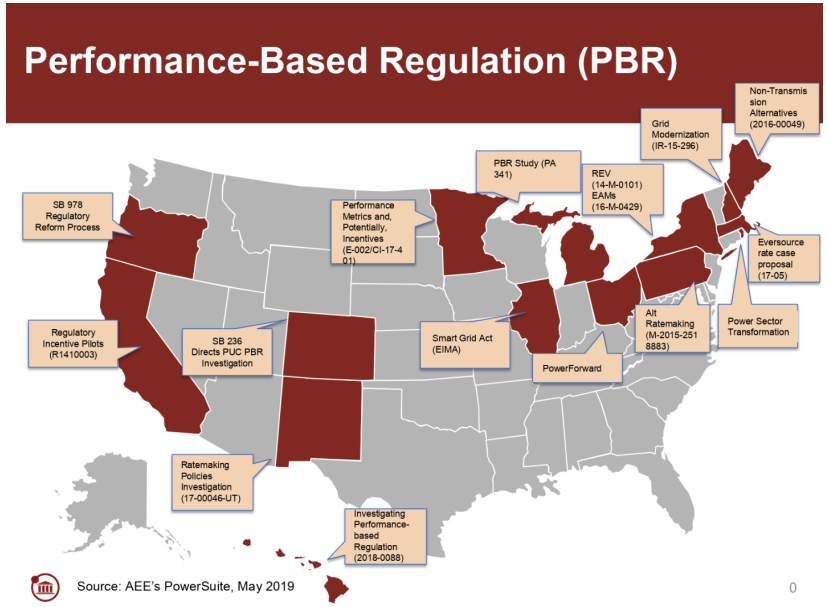

Securitization

- SB559 authorizes the NC Utilities Commission to allow securitization of storm recovery costs
- Does not speak to coal or natural gas generation facilities

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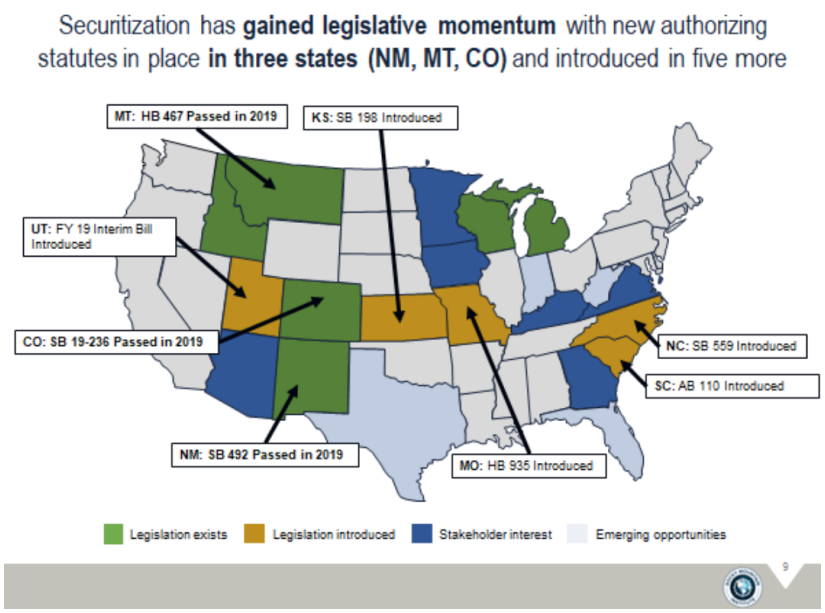

NC renewables impact

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- From 2007 – 2018, Solar PV represented a $11.6 billion direct investment in NC's economy (Source: RTI)

- From 2007 – 2016, Renewable energy development in NC had a total economic impact of $23.3 billion

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Thank you!

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