



Financial Assurance for Decommissioning of Utility-Scale Solar Facilities

NCACC Environment Steering Committee
April 19, 2022

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Recent Solar Panel Decommissioning Legislation

- SL 2019-132 (H329) - Ratified July 19, 2019
 - Required the EMC to adopt rules to establish a regulatory program to govern the management of end-of-life renewable energy equipment and decommissioning of utility-scale solar projects and establish a stakeholder process to support development of the rules.
 - In the development of the rules, DEQ was to consider nine specific aspects. Two (of the nine) aspects pertained to decommissioning and financial assurance:
 - A survey of federal and other states' and countries' regulatory requirements relating to management of end-of-life utility scale renewable energy equipment including reuse, refurbishment, disposal, or recycling of such equipment; decommissioning; and financial assurance.
 - Whether or not adequate financial assurance requirements are necessary to ensure proper decommissioning of utility-scale solar projects upon cessation of operations.



SL 2019-132 (HB329)

- DEQ evaluated the nine aspects of the end-of-life management of renewable energy equipment and summarized the evaluation in the January 1, 2021 "Final Report on the Activities Conducted to Establish a Regulatory Program for the Management and Decommissioning of Renewable Energy Equipment."
- As noted in the H329 final report:
 - There is already a regulatory program in place for end-of-life solar panels that are a solid and hazardous waste, so a new regulatory program was not needed just for the management/disposal.
 - There is a minimum 10-year time horizon for when the first significant tranche of solar panels may reach end-of-life, repowering efforts notwithstanding.
 - Existing local government regulatory structures for end-of-life management and decommissioning are in effect in the majority of the counties where utility-scale solar projects are installed.
 - DEQ recommended further study on the feasibility and advisability of establishing a statewide standard for financial assurance in five years.



Recent Solar Panel Decommissioning Legislation

- SL 2021-165 (H951) – Ratified October 7, 2021
 - Required DEQ to develop a plan by March 1, 2022, to ensure adequate financial resources for the decommissioning of utility-scale solar projects to be submitted to the General Assembly for legislative action.
 - Plan and Recommendations for Financial Resources for Decommissioning of Utility-Scale Solar Panel Projects



Overview of Utility-Scale Solar Facilities in North Carolina

- North Carolina is one of the nation's leaders for the number of solar facilities supplying power to the electricity grid.
- North Carolina currently has about 5,100 megawatts (MW) of grid-connected solar power.
- This power is supplied by more than 660 facilities that are greater than 1 MW in size.
- These facilities are located in 79 counties, and the land is generally leased to the solar developer by the landowner.
- Based on the last three years of data obtained from the Energy Information Administration, an average of approximately 50 facilities are expected to be added in North Carolina per year providing an additional 500 MW to the grid per year in total.
- Facilities are expected to get larger in the future, with more facilities expected to be greater than 5 MW.



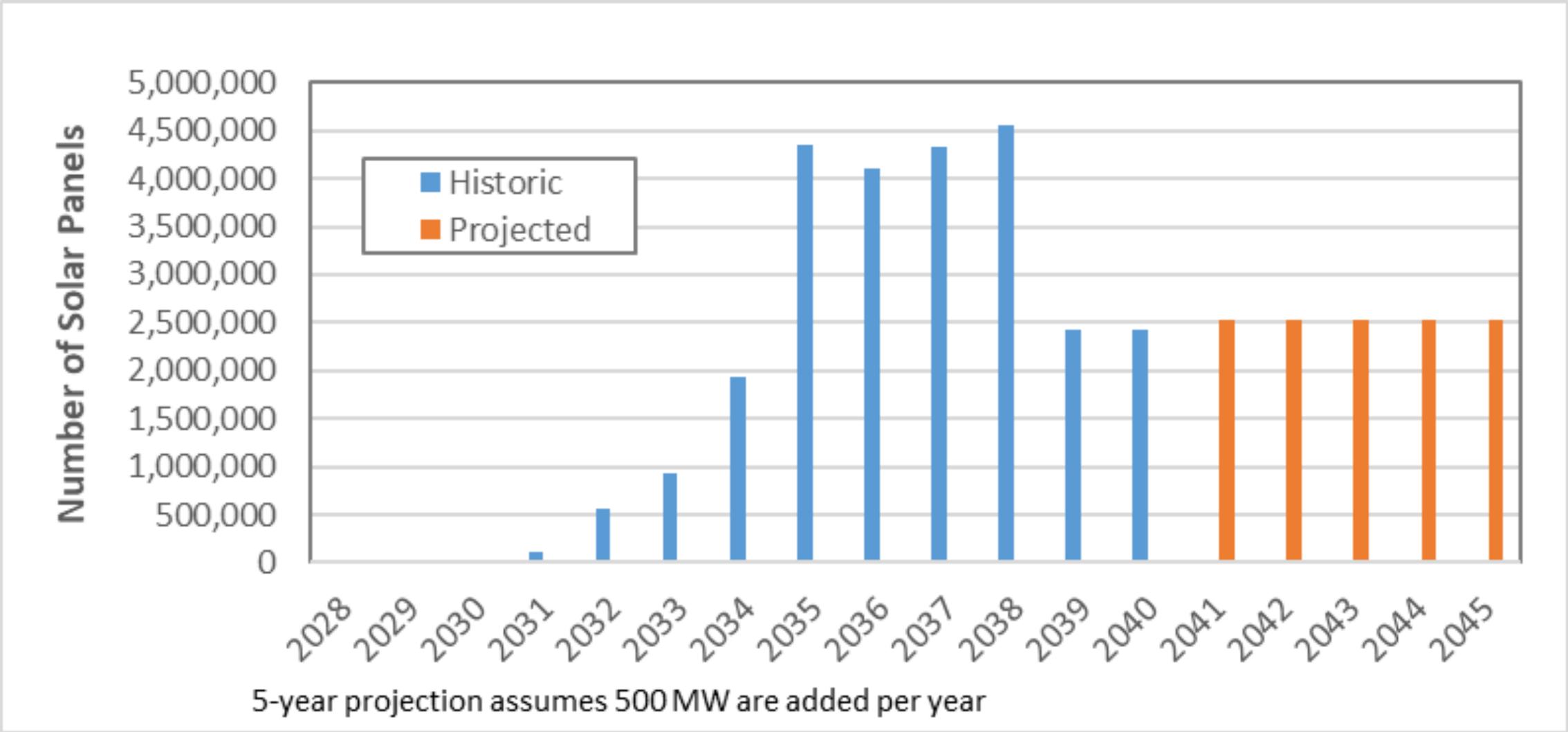
Year Utility-Scale Solar Facilities Came Online by Size Range

Key Points

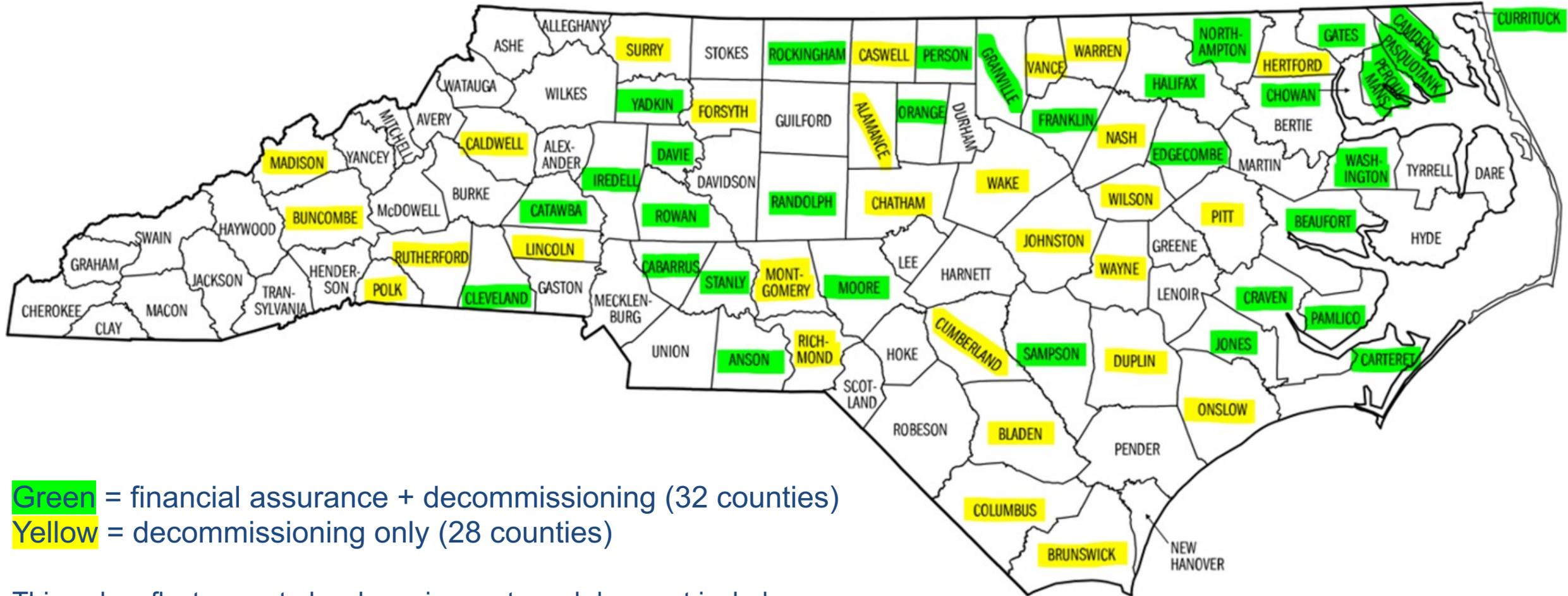
- Most facilities are in the 5 MW - 20 MW range
- 92% of facilities \geq 2 MW
- Facilities are getting larger. In last 3 years, 95% of new facilities are $>$ 5 MW
- About 50 facilities come online each year

Year	1MW- <2MW	2MW - <5MW	5MW - <20MW	20MW - <50MW	50MW - <70MW	70MW - 100MW	Total
2008	3						3
2009	1						1
2010	5						5
2011	11	3					14
2012	6	9	10				25
2013	1	12	30	2			45
2014	3	25	48	3			79
2015	10	34	79	8	1	1	133
2016	1	35	74	2	1	2	115
2017	4	15	49	4	6	2	80
2018	3	27	28	1	4	3	66
2019	5	19	28	2		3	57
2020		17	15	3		3	38
Total	53	196	361	25	12	14	661

Estimated Year for Retirement of Solar Panels, Assuming a 20-Year Life



North Carolina Counties with Decommissioning / Financial Assurance Requirements



Green = financial assurance + decommissioning (32 counties)

Yellow = decommissioning only (28 counties)

This only reflects county-level requirements and does not include decommissioning/financial assurance requirements in lease agreements/contracts.

Number of Existing Utility-Scale Solar Facilities and Solar Panels Located in Counties with Requirements for Decommissioning and Financial Assurance

Requirements in Local Ordinance	Estimated Number of Facilities	Approximate Percentage of Total Facilities	Estimated Number of Solar Panels	Percentage of Total Solar Panels
Decommissioning and Financial Assurance	186	28%	9,260,983	36%
Decommissioning Only	314	48%	11,274,958	44%
No Decommissioning/ Financial Assurance	161	24%	5,213,672	20%
Total	661	100%	25,749,613	100%

This data only reflects county-level requirements and does not include decommissioning/financial assurance requirements in lease agreements/contracts. The data also does not factor in the number of facilities constructed prior to the ordinance.



S.L. 2021-165 (H951)

Plan Development



- Reviewed the DEQ study conducted under S.L. 2019-132 (H329).
- Conducted targeted stakeholder engagement, including stakeholders representing the renewable energy industry, investor-owned utilities, North Carolina Utilities Commission (NCUC), the NCUC Public Staff, and the North Carolina Electric Membership Corporation (NCEMC).
- Sent a brief questionnaire to county governments to assess initial levels of concern and preferences for program administration.
- Reviewed current county-level requirements and requirements in other states.



S.L. 2021-165 (H951)

Plan Development (continued)

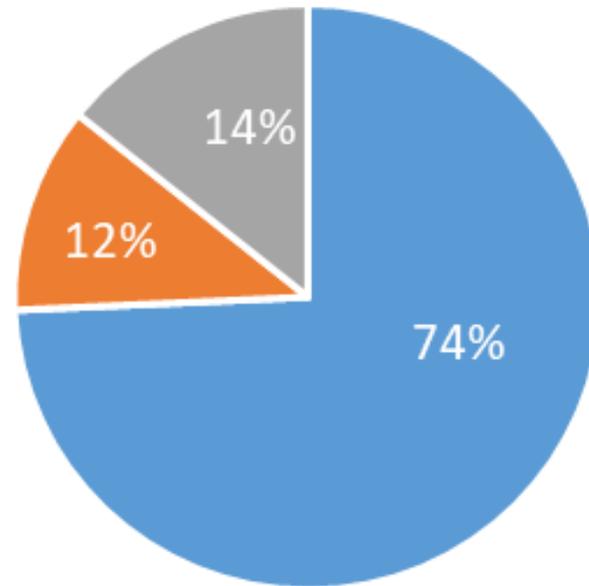
- Evaluated the authority that will implement and administer decommissioning and financial assurance requirements.
- Considered administrative and operational requirements of a new program, including structure, function, and resource needs.
- Considered how and when the decommissioning requirements are initiated.
- Recommended minimum requirements to ensure financial assurance for decommissioning of utility-scale solar projects.



Questionnaire Results

Program Administration Preference

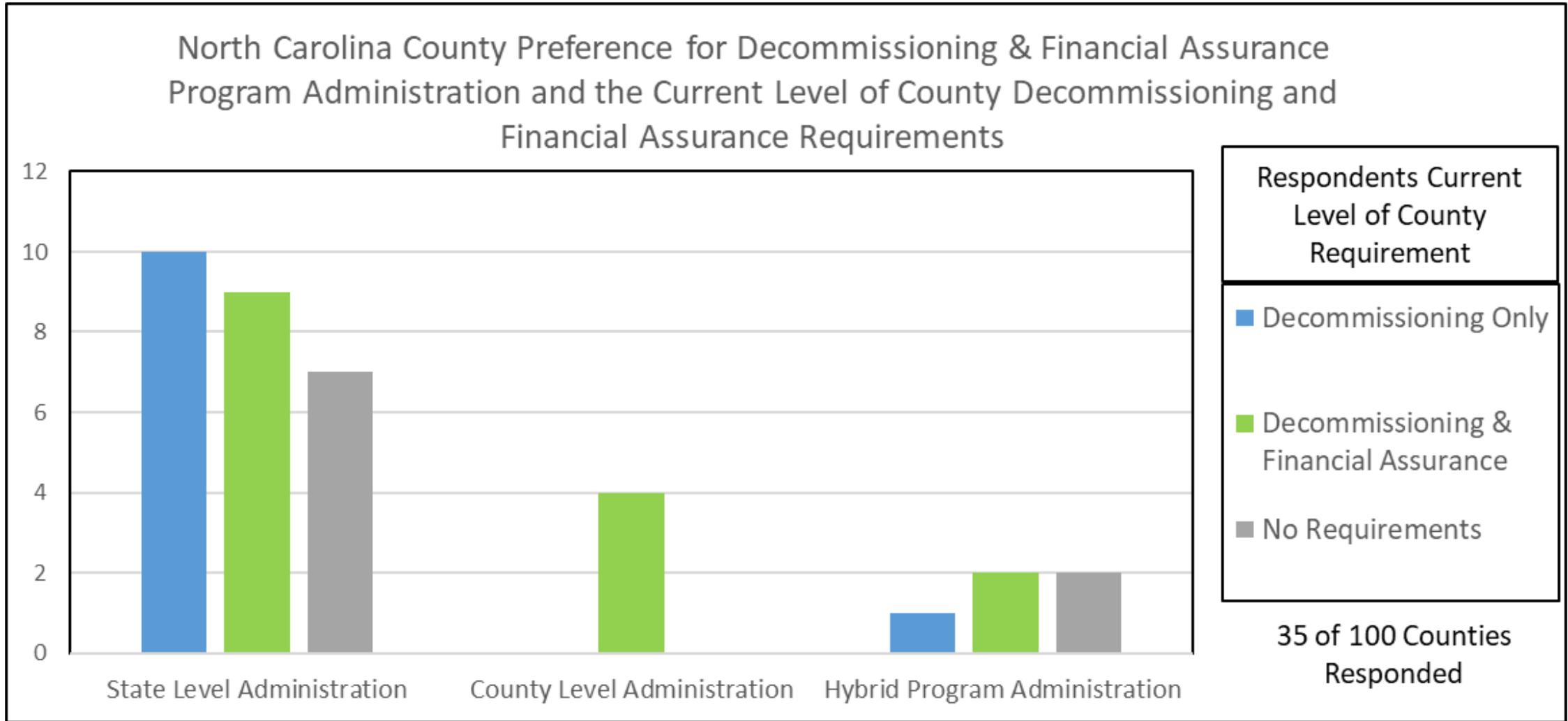
North Carolina County Preference for Decommissioning
and Financial Assurance Program Administration



35 of 100 Counties
Responded

- State Level Administration
- County Level Administration
- Hybrid Program Administration (County and State)

Respondents Existing Level of County Requirements and Preference for Program Administration



Key Recommendations

- Clearly define the term “utility-scale solar facility” in the General Statutes, differentiate between new and existing facilities, and make revisions to any existing definitions as needed.
- Set statewide minimum standards and direct a state agency, such as DEQ or the NCUC, to serve as the state-level program administrator, or designate certain components of the program to each agency according to its expertise.
- Provide local governments with the option to enter into a memorandum of agreement to administer the program in their jurisdiction on behalf of the state program administrator.
 - Local governments may also establish or retain ordinances that are more stringent than the statewide minimum standards.



Key Recommendations

- Establish or clarify minimum requirements and rulemaking authority in General Statute, with further detail provided through agency rulemaking action.
- Allow up to two years for the selected agency to set up the program and complete required rulemaking.
- Provide resources for the selected state agency to establish and administer the program through general appropriations that provides base funding for three FTEs.
 - Authorize the administering agency to collect fees through rulemaking that covers any additional program staffing, operating, and maintenance costs.



Key Recommendations

- Provide resources to encourage economic development of recycling or reuse of solar panels.
- Establish an annual registration requirement for new and existing utility-scale solar facilities that discloses names of responsible parties, expected service life, project timeline, and scope and scale of the projects.
- Establish minimum requirements for decommissioning cost estimates and financial assurance mechanisms for **new** solar facilities.
- Require financial assurance mechanism(s) for **new** facilities to be established and submitted to the state program administrator five years prior to the end of the facility's expected service life as reported in the registry.



Key Recommendations

- Allow **existing** facilities to operate under their current decommissioning plans and/or financial assurance mechanisms if they exist.
 - If and when the facility makes a material or major modification, the facility would be required to submit a decommissioning plan, cost estimate, and financial assurance mechanism that meet the same minimum standards proposed for new facilities.
- Maintain landowner's existing right to specify decommissioning and financial assurance requirements above and beyond the proposed state minimum standards and any local ordinances within lease agreements and contracts with the developers.



Questions?

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