

# Stakeholder Participation in Public Hearings for Utility-Scale Solar Projects in NC

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## Abstract

North Carolina ranks fourth in the country in terms of solar capacity, thanks largely to the adoption of the Renewable Energy and Energy Efficiency Portfolio Standard (REPS), which was adopted in 2007, and the state Renewable Energy Tax Credit. However, solar companies are still seeing challenges and opposition to new solar development. This capstone project sought to address the key issues which might be preventing the addition of new solar arrays. It is our wish that our analysis, regardless of its support of this hypothesis, will be instrumental in moving forward and overcoming challenges in expanding the solar industry.

## Research Question

What patterns of stakeholder participation in utility-scale solar projects exist in North Carolina and which statistically significant issues emerge? What values are most important to stakeholders involved in solar development?

## Materials & Methods

- Selected 37 out of 100 state level approved solar farms in North Carolina.
- Public records consisted of 6 quasi-judicial hearings, 9 CPCN hearings, letters sent to county commissions and a few other sources.
- Used a mixed methods, sequential design to triangulate/analyze the data.
- Compiled and categorized 165 individual comments from the public documents for each project.
- Assigned quantitative labels to each of the 42 project level characteristics and assigned each individual commenter a data unit.
- Commentor labels included affiliation, attitude, and representation.
- Testing method included using nonparabolic statistics such as the chi-squared statistic, to evaluate crosstabs.
- Project characteristics could then be listed in order of most prevalent or isolated to evaluate significance and residual information.



## Results

### Frequency Findings

Based on the calculated frequency of each comment coded, the findings from the study were ranked.

### Oppositional Comment Rankings

- Projects Appropriateness, Harmony, and Neighborhood Value - 9.9354%
- Property Value Impact - 9.2903%
- Public Participation Process - 8.2580%.
- Visual Aesthetic Impact - 7.3548%
- Project Buffer - 5.33778%
- Environmental and Natural Area Impact - 4.774%
- Project Zoning - 4.6451%.

### Supportive Comment Rankings

- Green Energy - 6.2841%
- Visual Aesthetic Impact and Project Buffering - 5.1935% each
- Project Appropriateness, Harmony, and Neighborhood Value - 5.4645%
- Toxics and Hazardous Materials - 4.3716%

## Results

### Unexpected CrossTabs

#### Representation and Attitude Correlation

In a crosstab comparing each individual's representation with their associated attitude, the 37 business representatives studied were in support of the projects 8.7 times more than expected. The 43 government representatives were mainly neutral with a standard residual of 6.3. The 136 individuals representing only themselves in this study were opposed 2.8 times more than expected.

		Attitude			Total	
		Neutral	Opposed	Support		
Rep	Biz	Count	0	2	35	37
		Std. Residual	-1.9	-4.5	8.7	
	Gov	Count	17	24	2	43
		Std. Residual	6.3	-.8	-2.6	
	Indy	Count	4	117	15	136
		Std. Residual	-2.5	2.8	-3.1	
Total		Count	21	143	52	216

## Conclusions

Our research and findings provided significant conclusions concerning the attitude toward solar projects at public hearings. Based on the data shown from our testing, we determined our hypothesis had some validity, but also produced some new insights. The top categories of concern were property values, harmony or good neighbor, visual, public participation, and natural areas. While some of these were expected and confirmed our original hypothesis, others like natural area took precedent over subsidies and zoning, which were not mentioned nearly as much as we originally would have thought. Taking these results and focusing further into outreach and education about topics like property values, companies will avoid some of the controversial meetings and public backlash demonstrated in our study.

## Acknowledgements

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Commentor	Project	ID#	Vehicle	Rep	Affil	Interest	ICAttitude	Env/Natur	PropertyV	Buffer/Scr	Visual	Noise
██████████	SP-3604	1	2	Biz	Attorney	1	0	0	0	0	0	2
██████████	SP-3604	2	2	Biz	Solar Biz	1	0	0	2	2	2	2
██████████	SP-3604	3	2	Biz	Engineer	1	0	0	2	2	2	0
██████████	SP-3604	4	2	Biz	Appraiser	1	0	2	0	2	2	2
██████████	SP-3604	5	2	Biz	Citizen	1	0	2	0	0	0	0
██████████	SP-3604	6	2	Indv	Leasehold	1	0	0	0	0	0	0
██████████	SP-3604	7	2	Biz	Solar Biz	1	2	0	0	2	2	2
██████████	SP-3604	8	2	NGO	Church	0	0	0	0	0	0	0
██████████	SP-3604	9	2	Biz	Citizen	0	0	0	1	0	0	0
██████████	SP-3604	10	2	Gov	City	2	0	0	1	0	0	0
██████████	SP-3604	11	2	Gov	City	0	0	0	0	0	0	0
██████████	SP-3604	12	2	Gov	City	0	0	1	0	0	0	0
██████████	SP-3604	13	2	Gov	City	0	0	0	0	0	0	0
██████████	SP-3604	14	2	Gov	City	3	0	3	0	0	0	0
██████████	SP-3604	15	2	Indv	Citizen	0	0	0	0	0	0	0
██████████	SP-3604	16	2	Indv	Citizen	0	0	0	0	0	0	0
██████████	SP-3604	17	2	Indv	Citizen	0	0	1	0	0	0	0
██████████	SP-3604	18	2	Indv	Citizen	0	1	1	1	1	1	0