

Solar Energy: A Utility Perspective

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Renewable Energy at Duke Energy Carolinas

- Duke Energy Carolinas is developing innovative renewable power projects to serve our customers in North Carolina and comply with North Carolina's renewable statute.
- Complementing our existing hydroelectric fleet, we are making significant investments in **solar photovoltaic and solar thermal, biopower, and landfill gas.**

North Carolina's Renewable Statute

North Carolina Renewable and Energy Efficiency Portfolio Standard

- Enacted in 2007, as part of Senate Bill 3 - Renewable energy must equal 12.5% of an investor-owned utility's sales by 2021
- A portion of the requirement may be met through energy efficiency programs (<25% until 2020, <40% thereafter)
- A portion may be met through purchases of out-of-state unbundled RECs (<25%)
- "Set-Aside" resources are: solar, swine waste and poultry waste-to-energy

Significant increases in the obligation in the years 2012, 2015, 2018, and 2021

Cost caps are in place to limit the amount utilities are required to spend and to limit the rate impact to customer

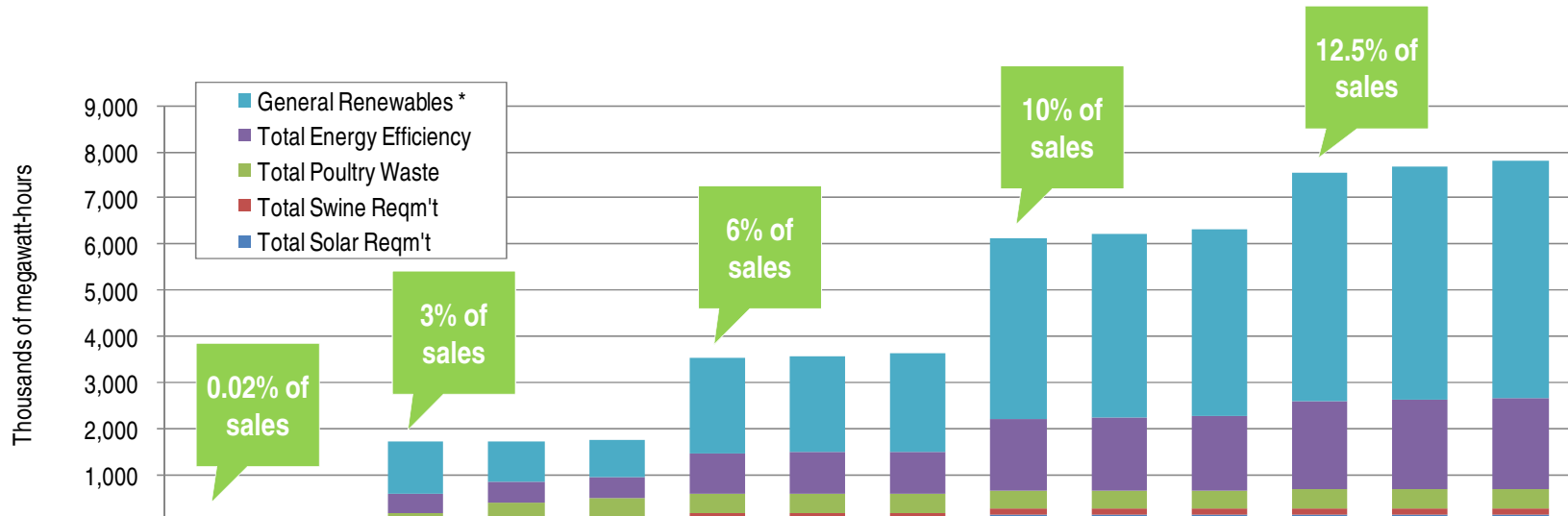
NC REPS Cost Limitations and Cost Recovery

- Electric Power Suppliers are allowed to recover their incremental costs to comply with the RPS requirements through an annual rider not to exceed the following per-account* annual charges:

Duke Energy Carolinas REPS Rider (annual charge) North Carolina Customers – Effective September 1, 2010				
	Actual (2010)	Statutory Cost Cap (per account, per year)		
		2008-2011	2012-2014	2015-onwards
Residential	\$3.24	\$10.00	\$12.00	\$34.00
Commercial	\$15.84	\$50.00	\$150.00	\$150.00
Industrial	\$158.56	\$500.00	\$1,000.00	\$1,000.00

*These costs do not apply to Duke Energy's South Carolina customers.

Duke Energy Carolinas' Statutory Renewable Energy Requirement



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
General Renewables *	-	-	1,115	890	806	2,058	2,093	2,128	3,899	3,971	4,047	4,958	5,046	5,150
Total Energy Efficiency	0	0	435	440	442	895	908	921	1,558	1,584	1,611	1,918	1,949	1,986
Total Poultry Waste	0	0	76	316	406	406	406	406	406	406	406	406	406	406
Total Swine Req'm't	0	0	40	41	41	83	84	85	124	126	128	131	133	135
Total Solar Req'm't	11	11	40	41	41	83	84	85	124	126	128	131	133	135
Total Renewables (Net of SEPA)	11	11	1,706	1,728	1,736	3,525	3,575	3,625	6,111	6,212	6,320	7,544	7,667	7,812

Notes: Assumes 25% Energy Efficiency through 2023. Projected obligation based on Fall 2010 Load Forecast. Duke Energy Carolinas Renewable Energy Requirements includes the obligations of some wholesale electricity customers, including Rutherford EMC, Blue Ridge EMC, City of Dallas, Forest City, City of Concord, Town of Highlands, and City of Kings Mountain.

How is Duke doing vis-à-vis the compliance requirements?

- We are well-positioned to comply with the first several years of Solar Set-Aside Requirement, which began in 2010.
- We are also well-positioned to comply with the initial General Requirement in 2012.
- We continue to face challenges relating to compliance with the Swine and Poultry Set-Aside Requirements due to relative immaturity of the poultry and swine waste-to-energy industries. However, we remain focused in our efforts to cost-effectively meet those requirements.
- Energy Efficiency remains a key component of our compliance, contributing 25% of the General Requirement, the maximum allowed.
- Out-of-state RECs remain a very cost-effective compliance option in comparison to in-state renewable energy purchases.

Solar Perspectives

renewable energy



Past

- Is it safe for our personnel?
- How will it impact our system?
- How will it impact our business?

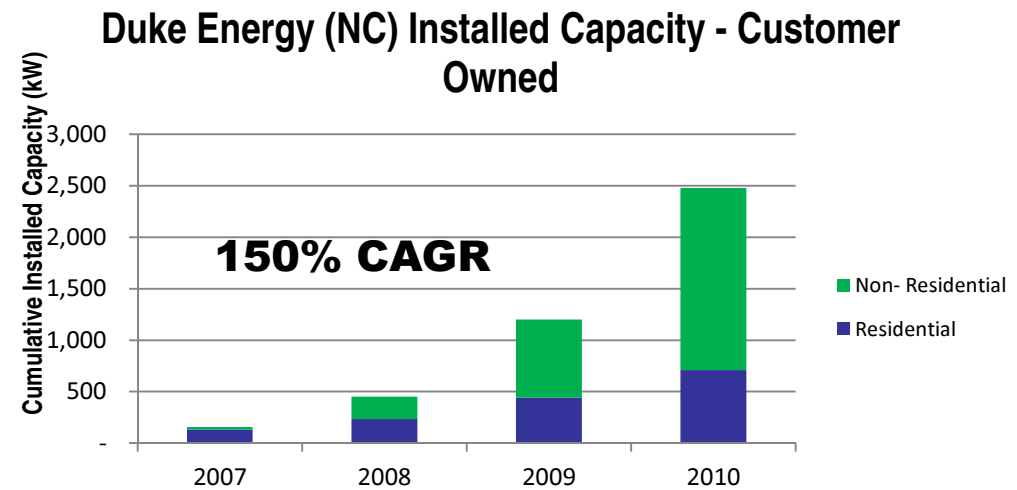
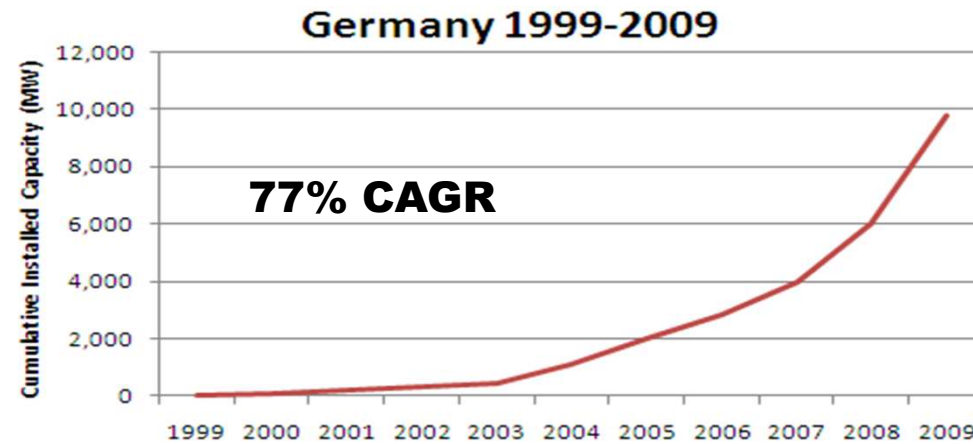
Present

- Safety concerns are easily addressed
- Better understanding of system and business impacts

Future

- Parity will come – some disagreement on when (technology breakthrough or scale economies)
- What happens after 12/31/2015? (Exp. Of NC Tax Credit)
- Inverters will be completely “utility friendly”
- Advent of economic energy storage will change the game

Food for Thought



More Food for Thought



Back of the Envelope Example				
		NC Tax Credit Value (using \$3/watt avg installation cost)		
80% CAGR	Installations		Cumulative	In 2020 Alone
	Cumulative at end of 2020	In 2020 Alone		
	1,430 MW	635 MW	\$1.5 Billion	\$667 Million
Governors' Recommended Budget for 2011-2012 (as of Feb)			\$20 Billion	
Inflated at 2% per year to 2020			\$23.9 Billion	
Tax Credit as Percentage of Budget in 2020			2.8%	
Estimate of PV Capacity to meet Duke Energy SB3 set aside in 2020			86 MW	