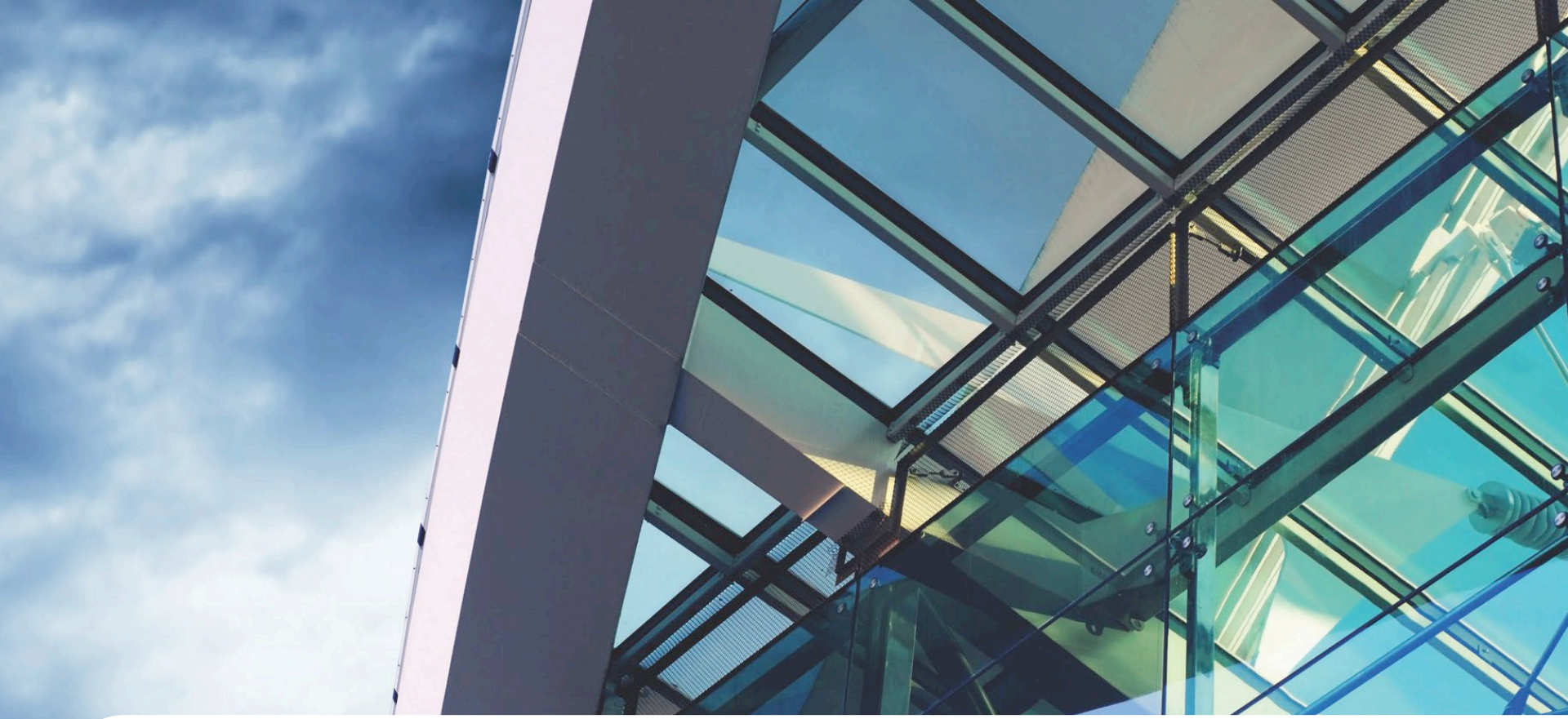
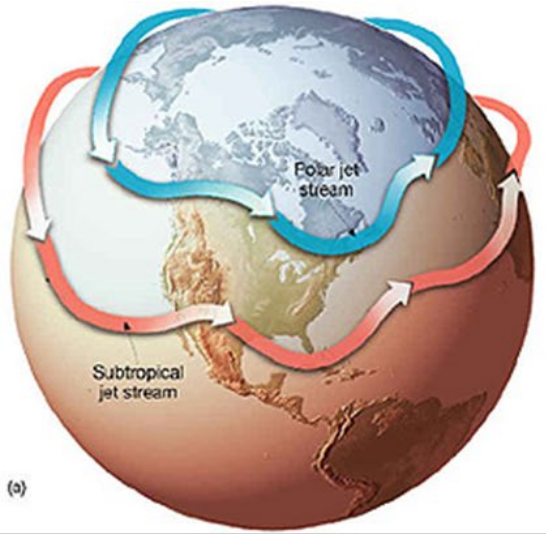


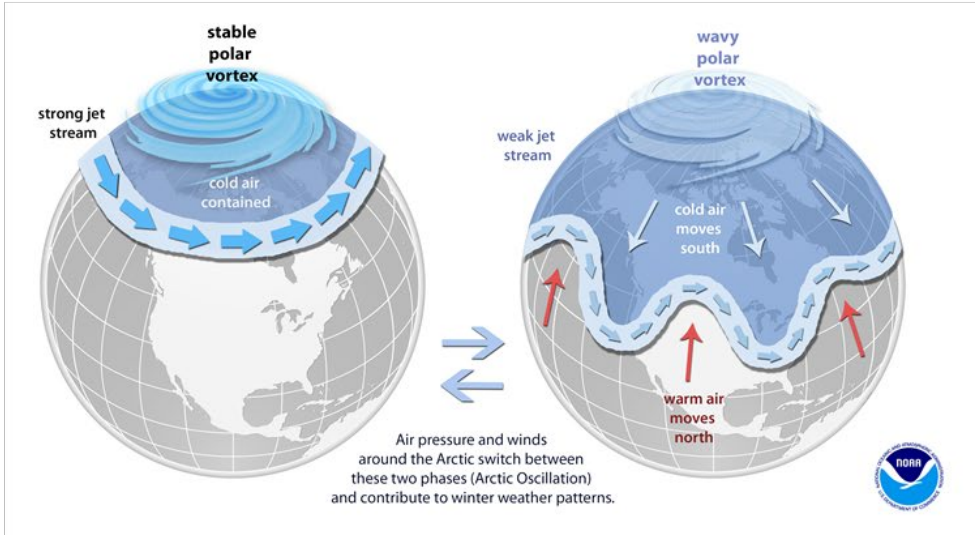
Modernizing the Rooftop Solar Transaction

Lon Huber

DUKE ENERGY®

New Realities – Extreme Weather Events



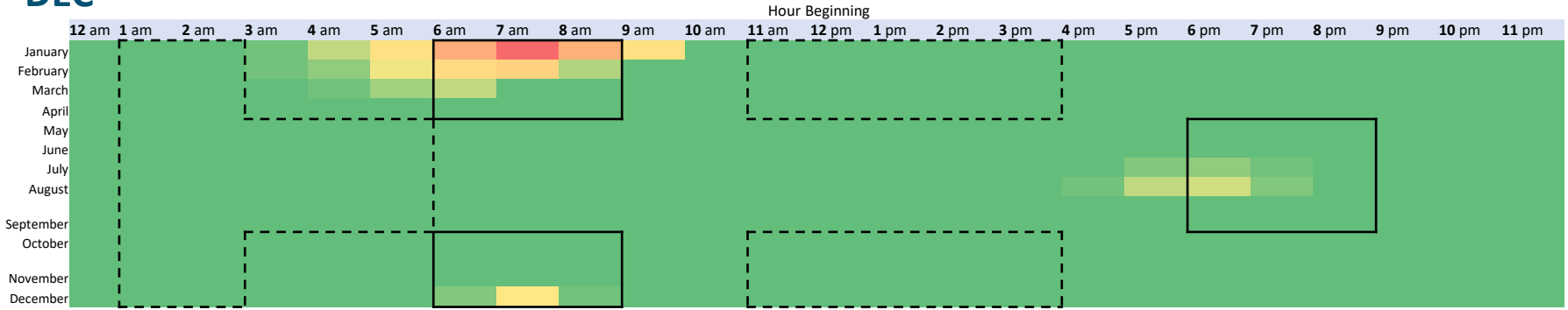


Loss of Load Expectation: 2024

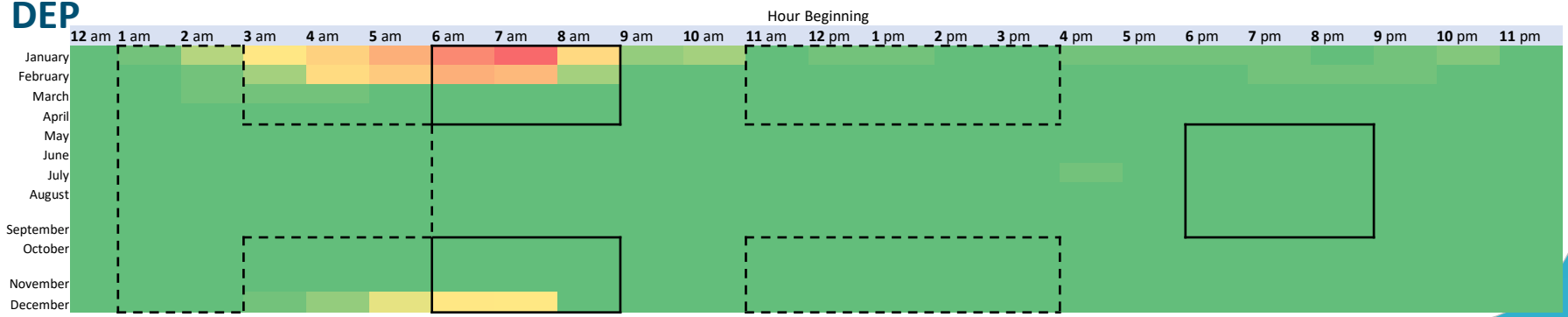
From 2020 DEC Resource Adequacy Study

- Projected LOLE hours and peak periods align
- Note: The high LOLE in January 6-9 am (order of magnitude higher)

DEC



DEP



Collaboration

1. Utilized a collaborative stakeholder process to produce a durable and equitable policy outcome
2. Developed a program that will (i) advance the next generation of residential NEM in the Carolinas and (ii) provide residential customers an opportunity to manage demand and reduce strain on the power grid

Parties:

- Duke Energy Carolinas & Duke Energy Progress
- North Carolina Sustainable Energy Association
- Southern Environmental Law Center on behalf of:
  - Vote Solar
  - Southern Alliance for Clean Energy
  - South Carolina Coastal Conservation League (SC)
  - Upstate Forever (SC)
- Sunrun Inc.
- Solar Energy Industries Association
- Alder Energy (SC)

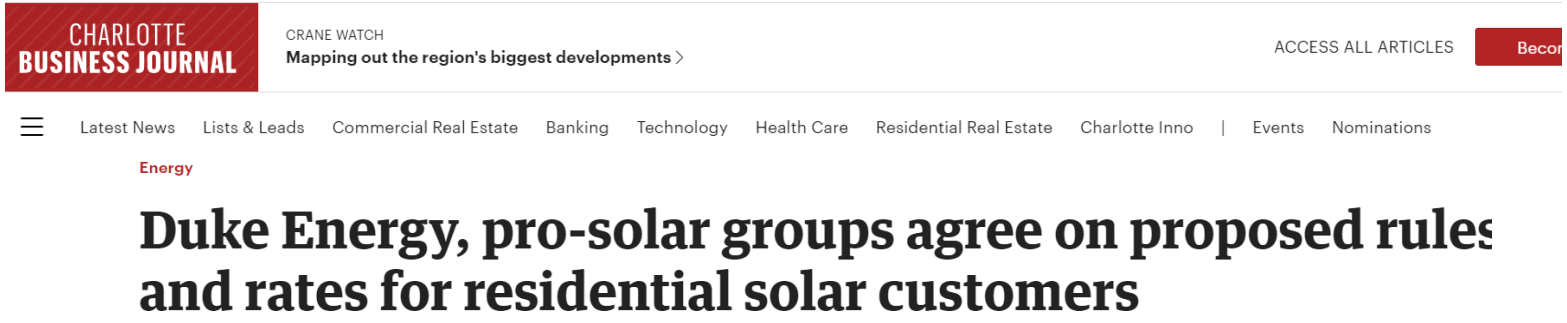
Recognition

UTILITY DIVE

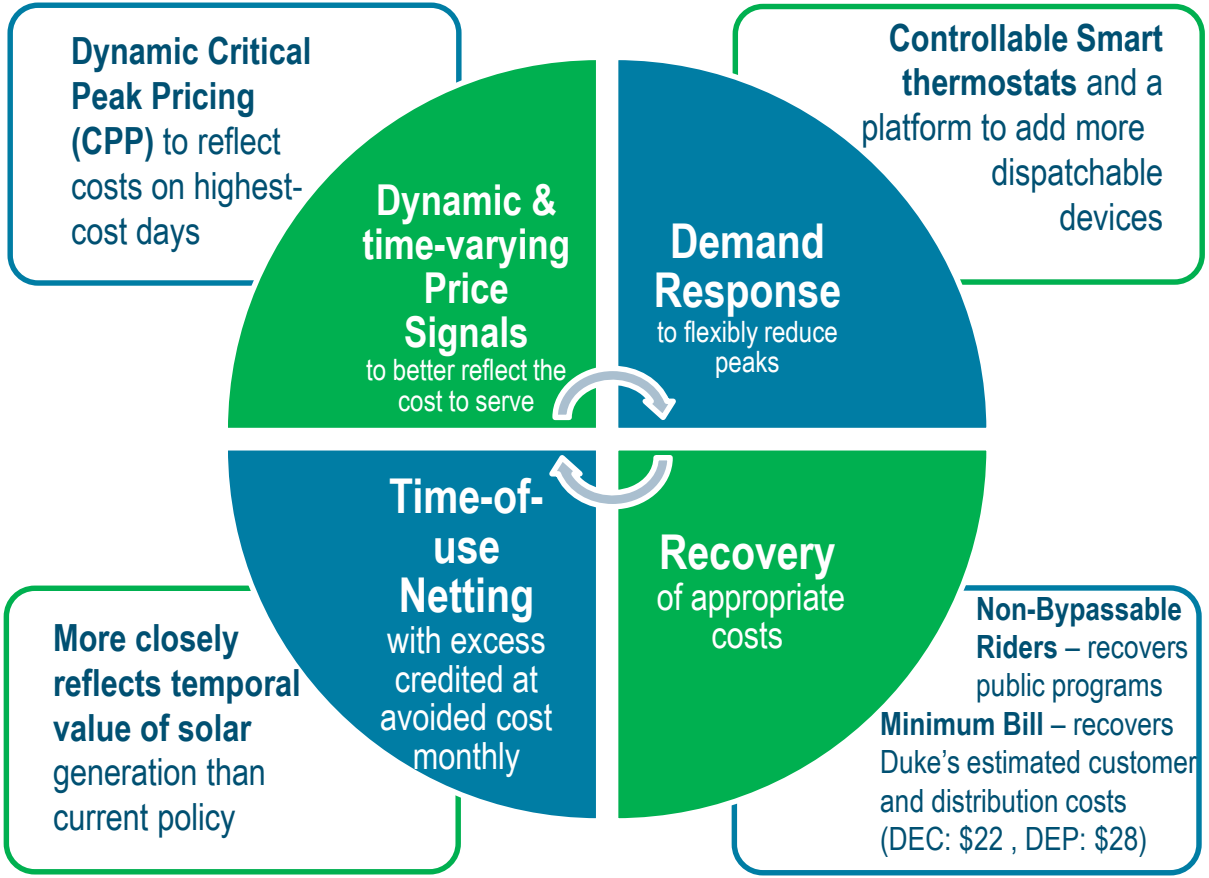
Duke net metering agreement with renewables advocates expected to increase North Carolina solar adoption

Duke-solar industry breakthrough settlement aims to end rooftop solar cost shift debates

Successor tariff deal reshapes solar with dynamic rates, demand response requirements

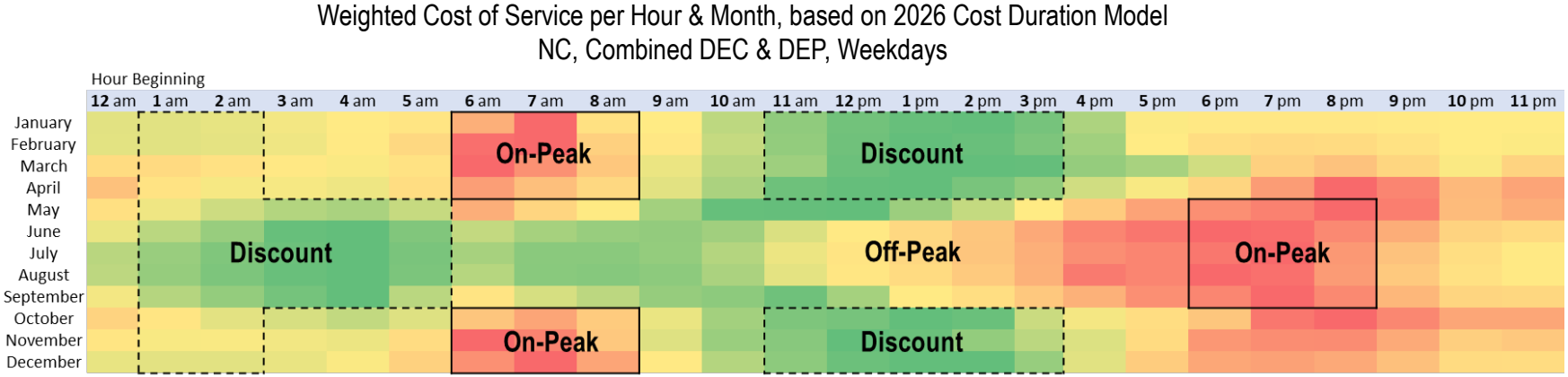


Key Elements of the Proposal



Refreshing TOU Periods

- Updated TOU Periods to align with system costs and optimize coverage of loss-of-load expectation hours
- Utilized forecasts for 2021, 2026 & 2030 to ensure TOU periods are stable for 10+ years
- Shorter 3-hour peak periods enable customers to better respond to price signals
- Lower-cost discount hours enable EV and battery charging, as well as further savings opportunities



Time of Use and Dynamic Prices

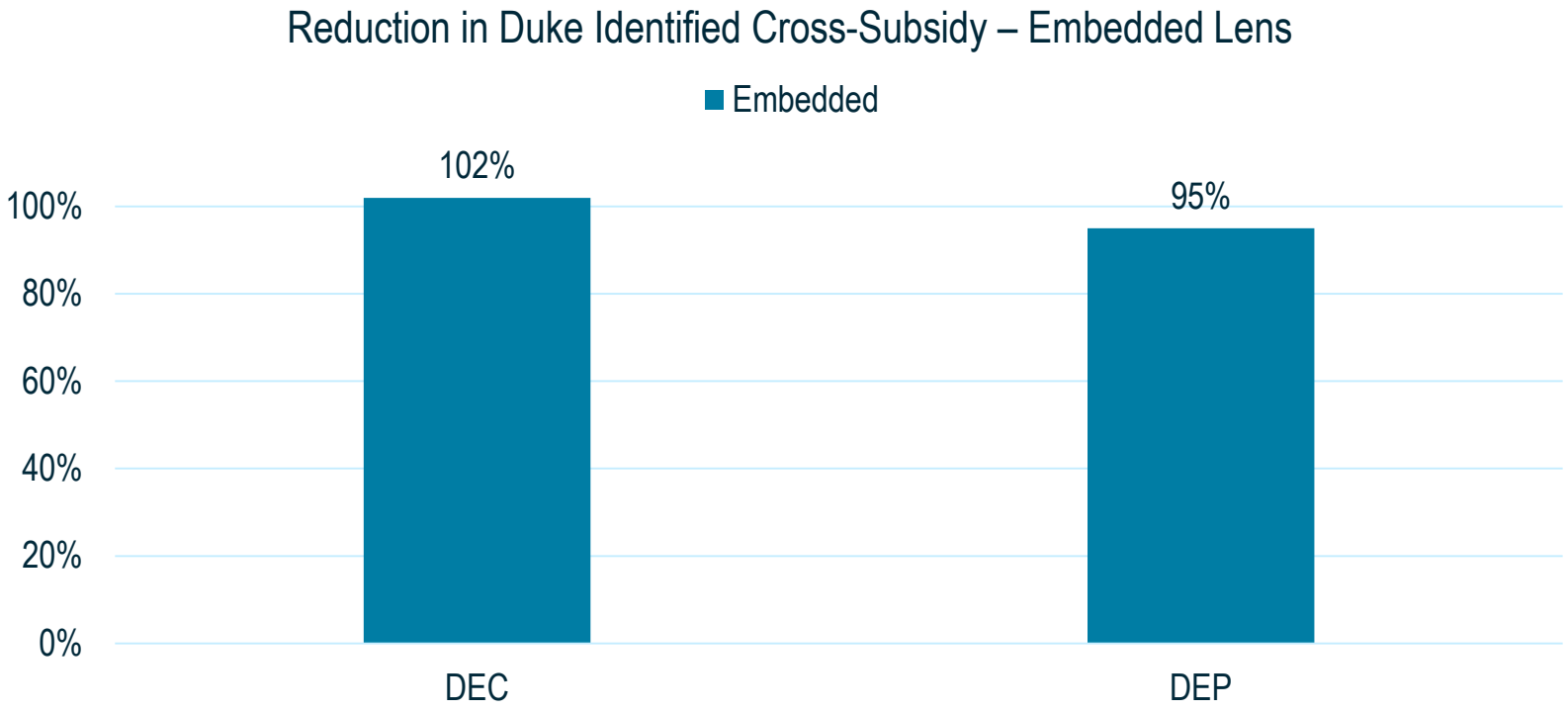
	Prices (c/kWh)		
	DEC RSTC*	DEP RETC	DEP R-TOU-CPP
On-Peak	19.2297	16.8762	19.028
Off-Peak	8.4187	7.7044	9.469
Discount	6.0864	5.5734	7.090
Critical Peak	35.0000	35.0000	35.655

DEC prices exclude riders; DEP prices include riders

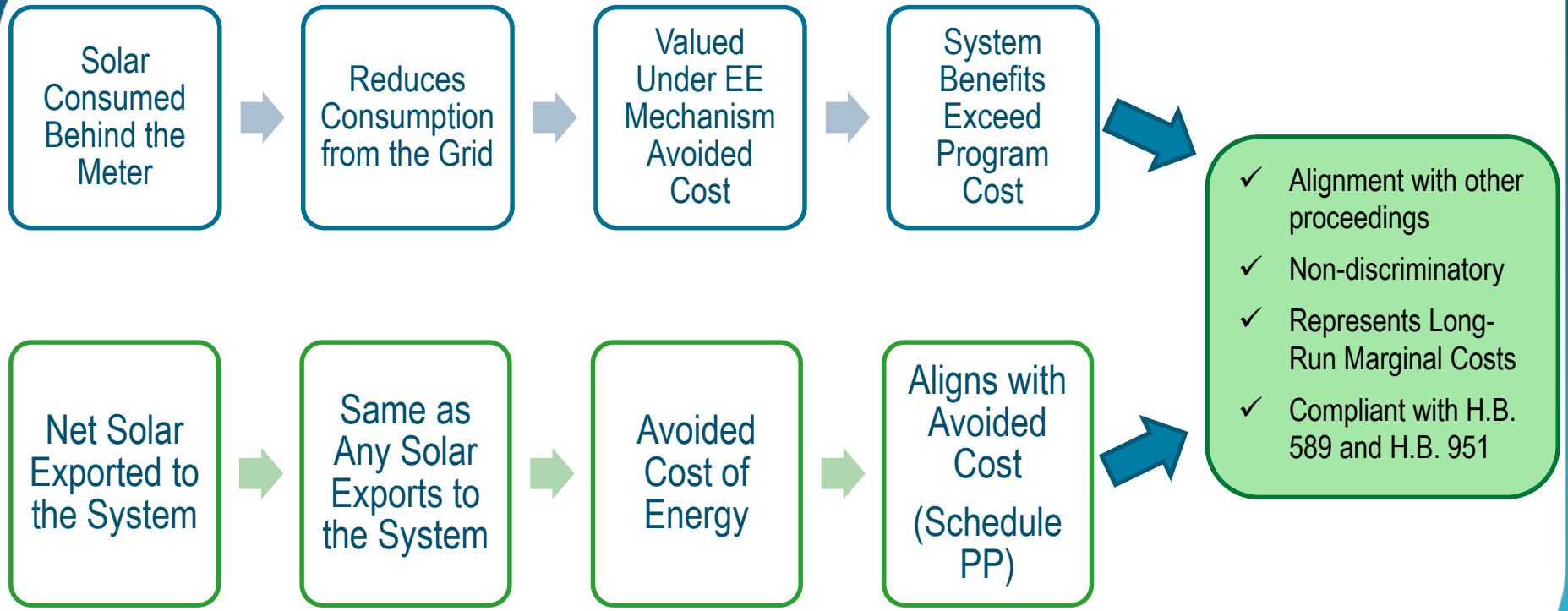
Non-Participant Protections

Address Potential Cost Shifting to Non-Participants	Protects Against
TOU & CPP	✓ Inter- and Intra-day arbitrage between high- and low-cost periods
Grid Access Fee	✓ Very large system sizes
Monthly Netting	✓ Seasonal Arbitrage
Non-Bypassables	✓ Non-collection of Public Benefit Costs
Minimum Bill (DEC: $22 , DEP: $28)	✓ Non-collection of Customer and Some Distribution Costs

Settlement Reduction in Duke Calculated Cross-Subsidy



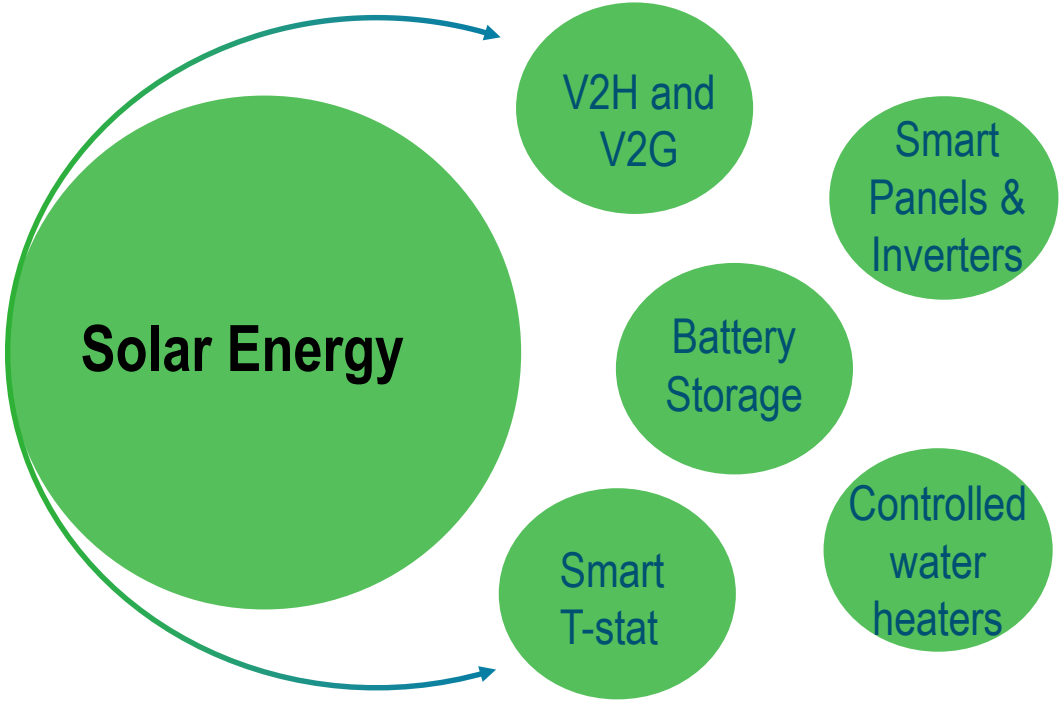
Value of Solar – Marginal Lens



Solar + Demand Response

- Enables synergistic system benefits by linking rooftop solar to controllable peak demand reducing devices – with a focus on winter peak
  - Smart thermostats 
  - Battery storage and other connectable devices that bring a reliable reduction of at least 1 kW (future state)
- When a new NEM customer also participates in a proposed winter smart thermostat program (Winter BYOT), the adopter becomes qualified for an EE incentive of ~0.39/Watt
  - Solar reduces system energy needs + DR reduces system capacity needs = Comprehensive System Benefits
  - Must pass cost effectiveness tests
  - Incurs same treatment as today's EE measures

Solar + Demand Response



The vision is to make rooftop solar scalable and create an accessible ecosystem of grid beneficial products

Transition For Existing Customers

- At their transfer year (2027, H.B. 589), existing NEM solar customers will be given the option to switch to the CPP TOU rate.

- If they elect not to be on that rate:
  - They can remain on the standard residential tariff but any volumetric price increase after their transfer year will be placed in a non-bypassable, non-volumetric charge based on their system size for the remaining life of the system.
  - This will also include monthly netting with net excess energy credited at the avoided cost rate.
  - The solar customer will also be assessed a minimum bill set at $10 more than the Basic Facilities Charge at that time.

Best Practices/Lessons Learned

1. Meet early and often
2. Transparency of goals
3. Don’t recreate the wheel
4. Address reluctantly to change
5. Breakdown the complexity to policymakers
6. Understand economic incentives of news outlets and consultants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