



“Upgrade to \$ave”
financed by
**USDA’s Energy Efficiency &
Conservation Loan Program**

Curtis Wynn
Roanoke Electric Cooperative

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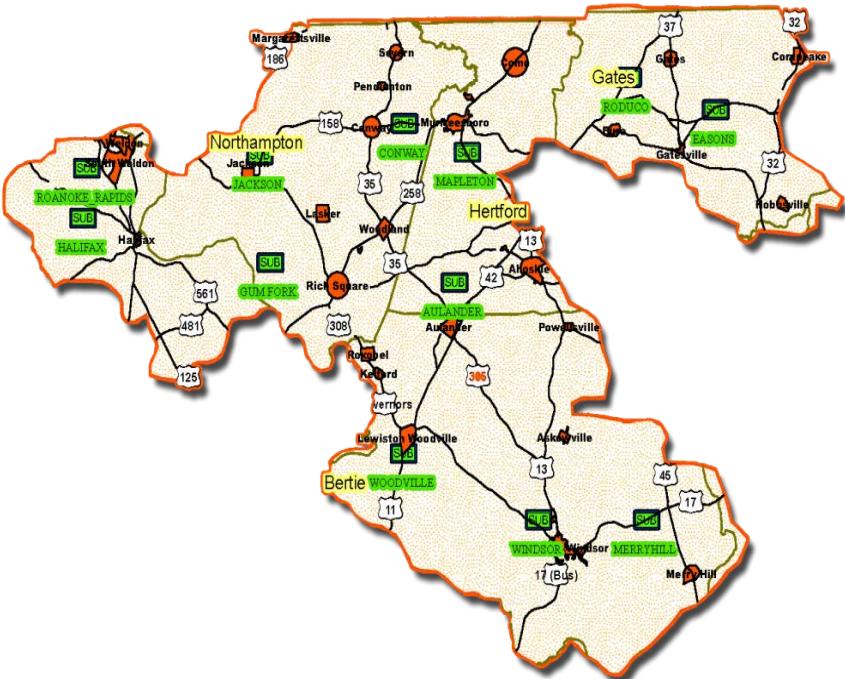
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Roanoke Electric Cooperative

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- 1,500 square mile service area
- 2,210 miles of line
- \$39 million operating revenue
- \$84 million asset value
- 52 employees
- 14,700 meters
 - ✓ 95% residential
 - ✓ 5% commercial/industrial



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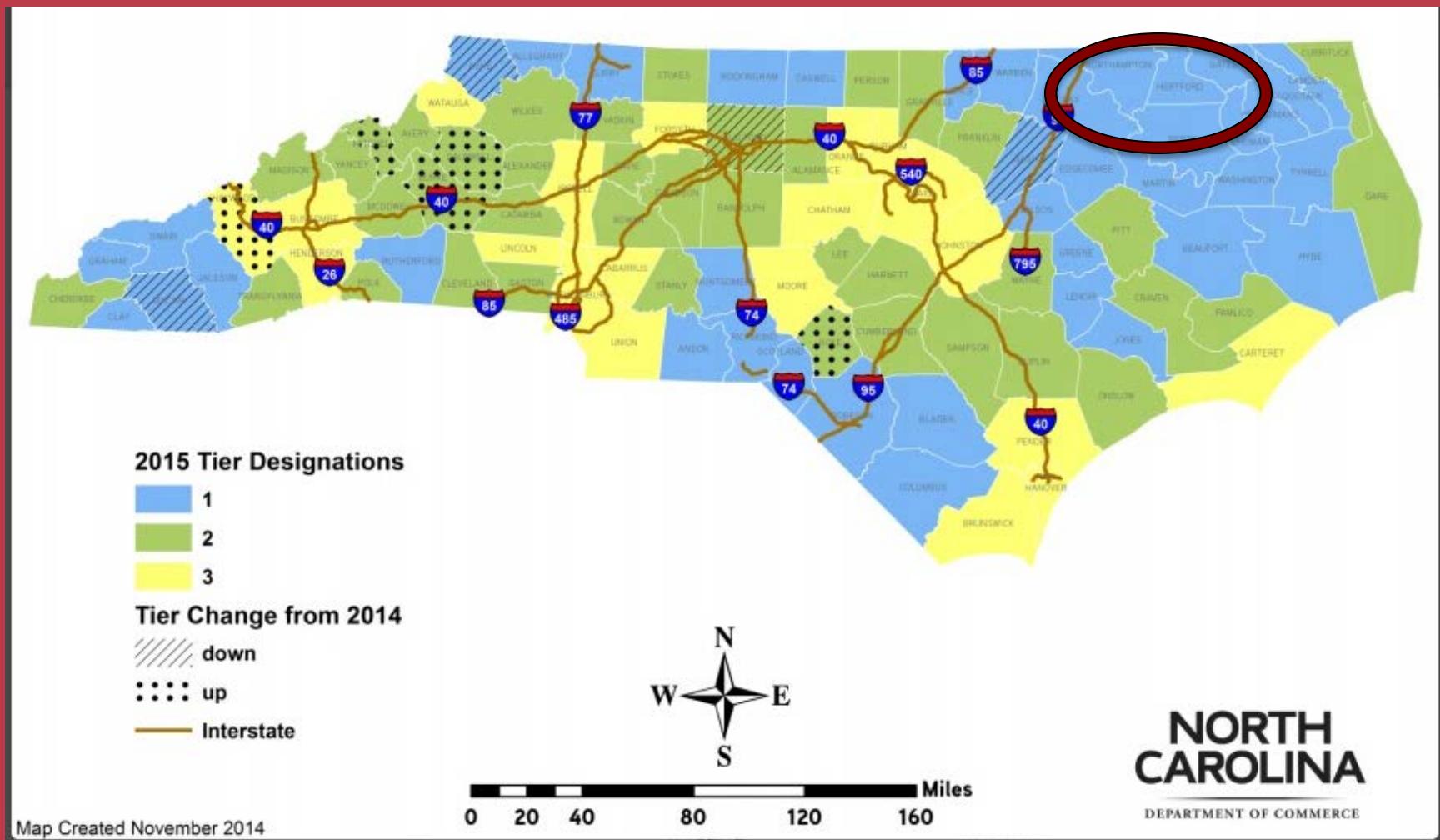


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Demographics



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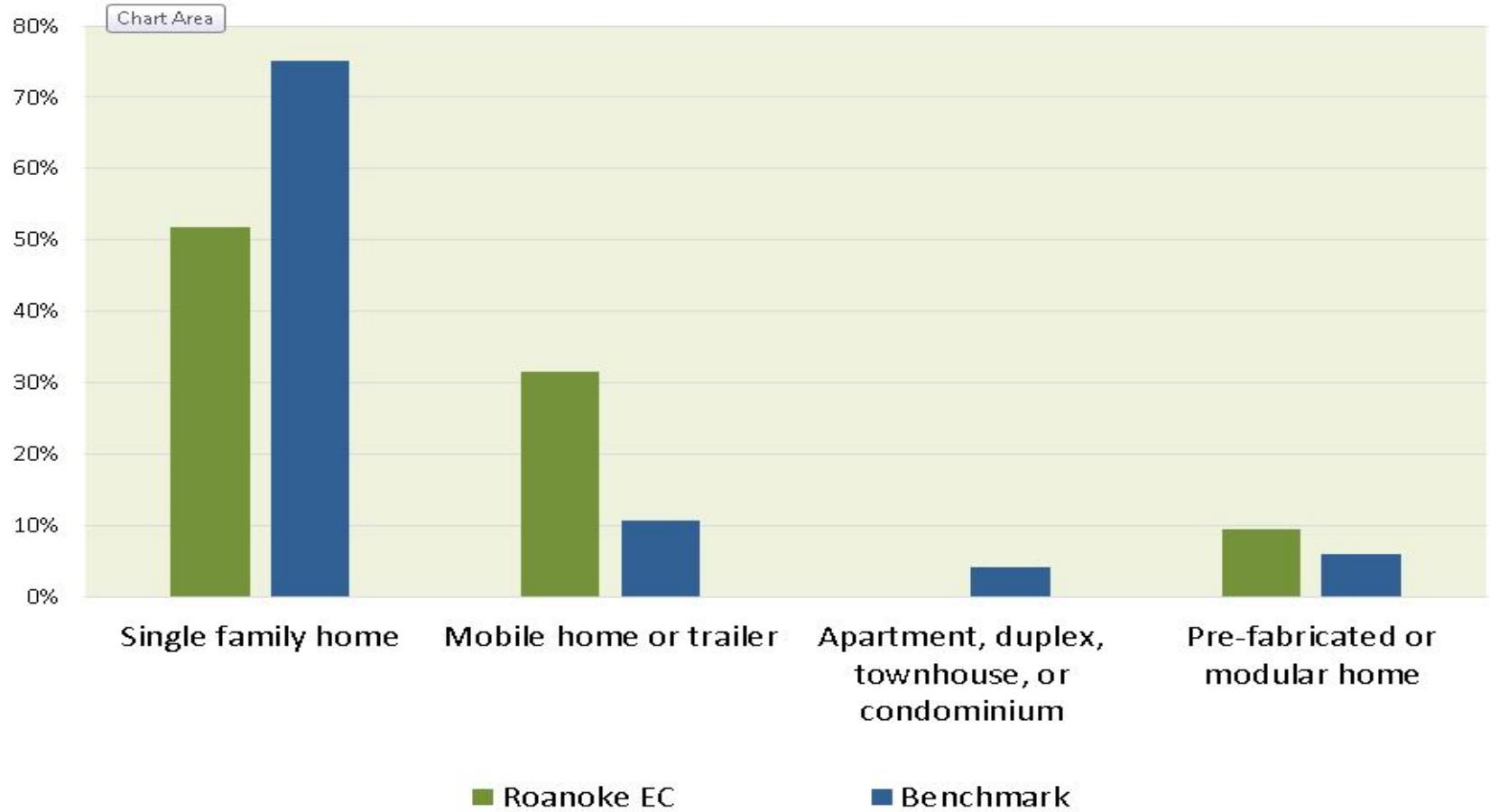
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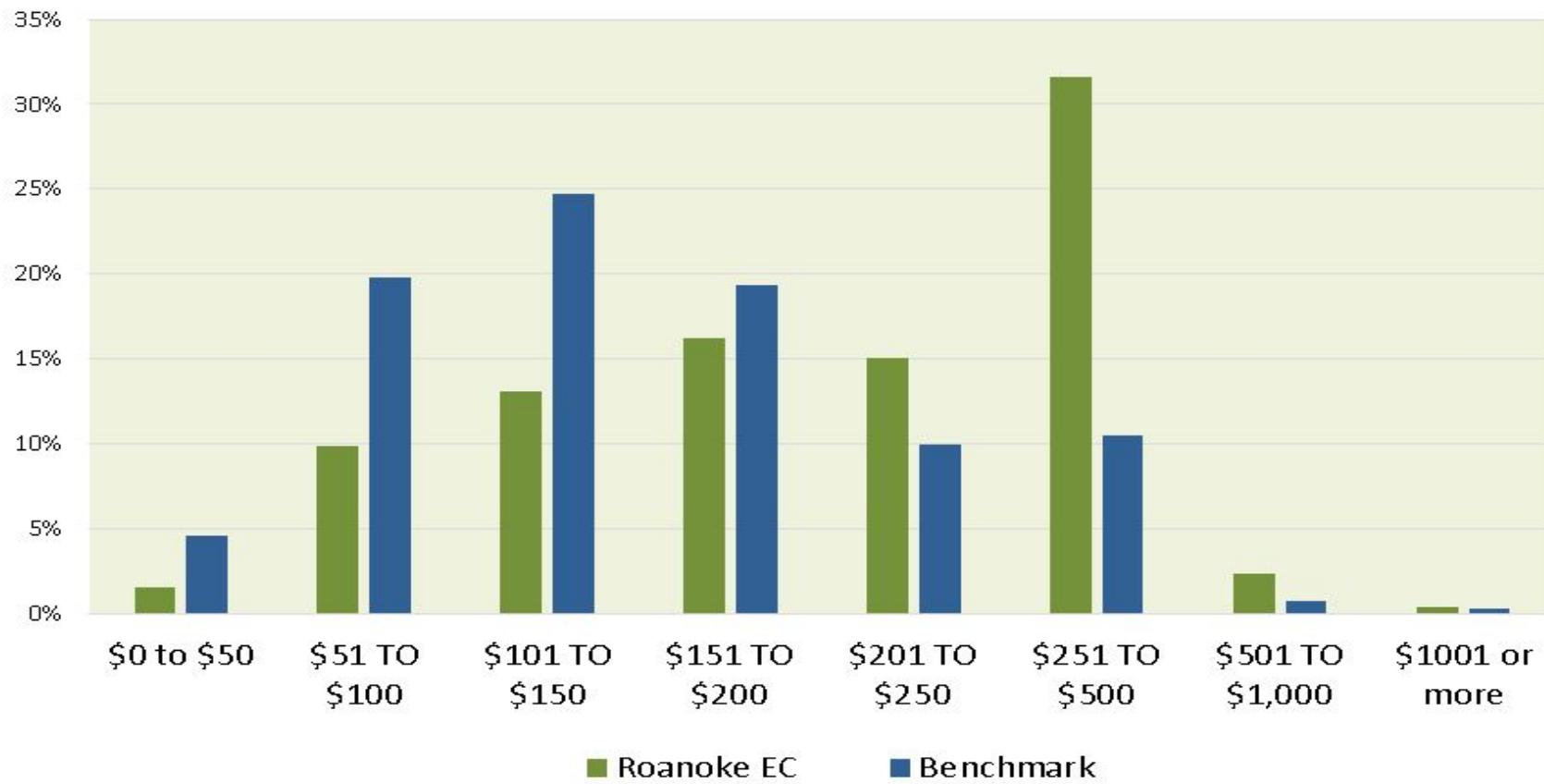
Demographics

Housing Type



Demographics

Average Monthly Bill



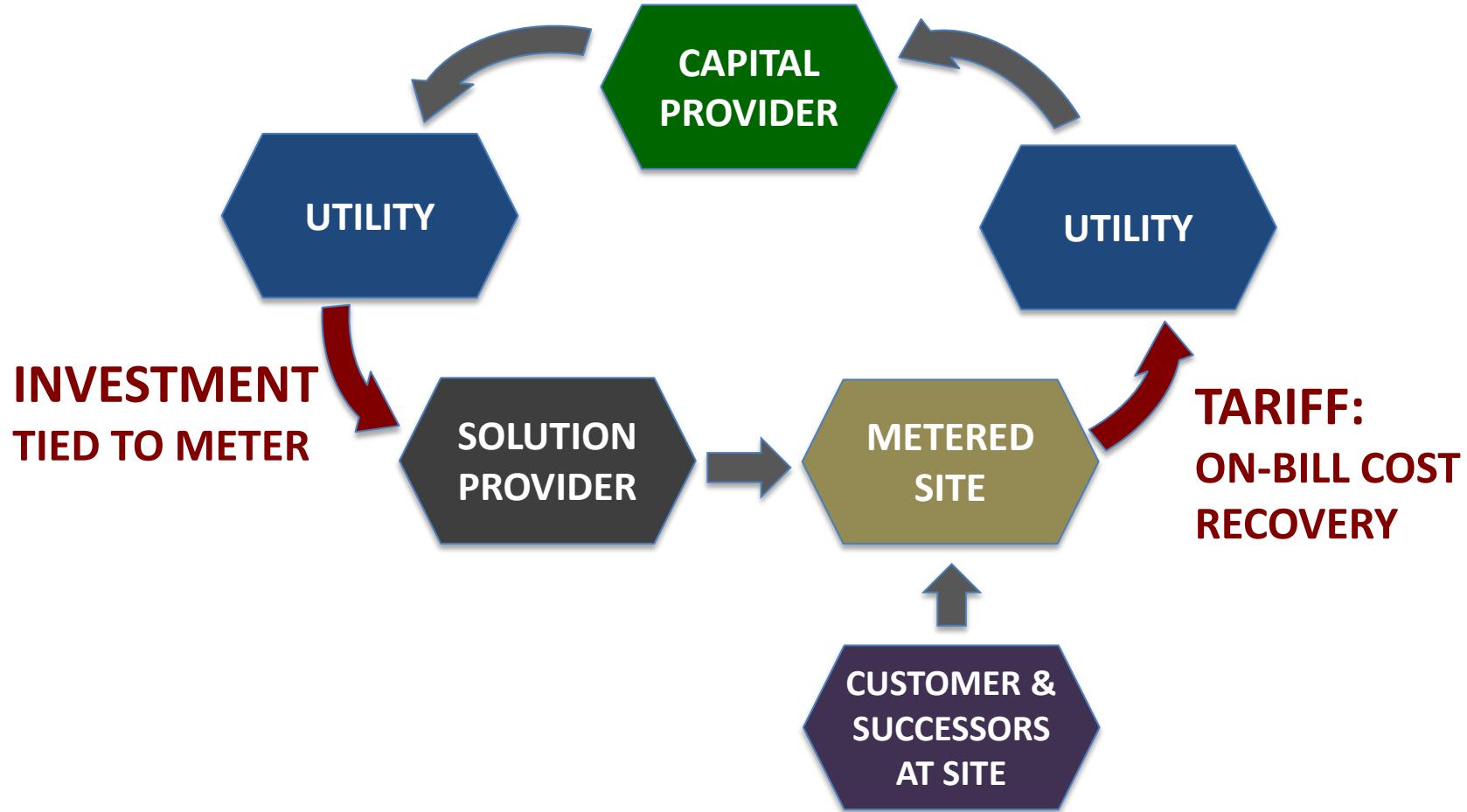
Bill Size & Member-Owner Satisfaction

	Roanoke EC	Quarterly Benchmark		
Avg. Monthly Bill Amount	Percent of Responses	Average Rating	Percent of Responses	Average Rating
TOTAL	100%	8.05	100%	8.72
\$100 or less	12%	9.21	25%	8.98
\$101 to \$200	28%	8.65	42%	8.80
\$201 or more	53%	7.37	22%	8.19
Don't Know	6%	8.87	9%	8.96

Initial loan offer wasn't enough get to “Yes”...

- Even though we offered:
 - Cost effective upgrades for high consumption member-owners
 - On-bill financing
- Major barriers remained:
 - Creditworthiness
 - Renter eligibility
 - Members declining additional debt
- So, we sought a solution that would be *more inclusive* and generate *more value* for *more members*

Opt-in Tariff Approach



Based on the Pay As You Save® system developed by EEI.

Harnessing Our Business



Members contact us seeking assistance with cost savings.

Roanoke EC, through The Roanoke Center, identifies the best efficiency upgrades for investment.

Contractor installs upgrades at no upfront cost to member, with quality assurance oversight from The Roanoke Center.

Utility recovers its costs for the upgrades with a fixed charge on the bill that is less than the estimated savings.

The Offer & Investment



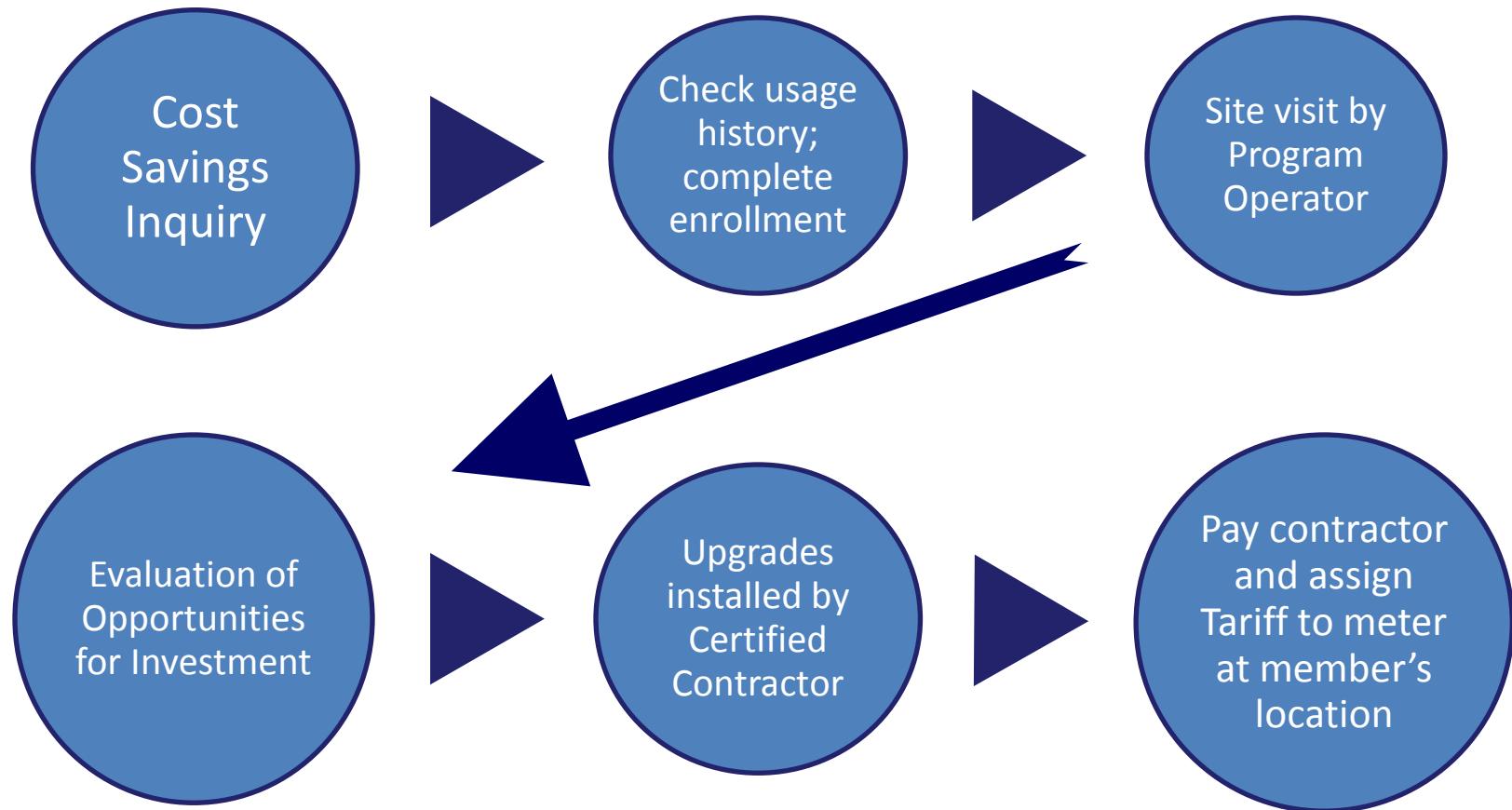
Allows more member-owners to access capital for energy efficiency improvements to their properties/dwellings on a debt-free basis

Helps local qualified contractors gain steady and consistent work

Lowers demand costs for the electricity Roanoke EC buys

Avoids purchasing solar, poultry, swine and wind renewable energy credits that are mandated by the State of NC

Path to Investment & Returns



Typical Efficiency Upgrades



Insulation



Duct
Sealing



Air
Sealing



Heat
Pump
Upgrades



Water
Heater
Wraps



LED



Where We Invest

- **Pass**

- Savings are sufficient for the utility to recover its investment within 10 years through a tariff capped at 75% of estimated savings
- 25% of estimated savings stay with member
- Purchase of EE Credits capped at \$.02/kWh for total savings

- **Co-Pay**

- Amount needed from member (if any) in order to make the investment Pass

- **No Go**

- Assessment doesn't identify savings that are cost effective enough to warrant investment
- Assessment identifies major repairs needed first

Actual Results for Initial Participants

Sample of over 75 homes

Average cost of upgrades	\$6,900.00
Average buy-down for EE Credits	\$482.00
Average monthly savings per site	\$120.00
Average monthly tariff	\$62.00
Average monthly savings for member	\$58.00
% of savings kept by member during cost recovery (Target: 25%)	50%

Co-op's Business Case

- Wholesale power cost reduction
 - Rising future cost
 - Lower wholesale demand cost
- Offsets cost of EE Credits
- 6-10% NPV IRR
 - Savings benefit all REC members
 - IRR accounts for foregone kWh sales
- Distinct advantages over 3rd party providers
- Co-op's risk exposure is meter stops turning

Source of Capital: EECLP

- RUS is our primary source of capital
 - Other co-op capital providers are also options
- \$6 million
- Application and approval process: 90 days
- Reimbursable basis: only owe what is used
- Interest-only in first year
- Uses same processes as our other RUS loans

Future Efforts / Considerations

- Include demand response: ecobee3 wi-fi thermostats
- Addressing homes that don't qualify because they need major repairs
- Leveraging EE efforts to support potential broadband / fiber-to-the-home initiative

What have we learned...?

Decision Tool for Utility Managers:

Key considerations before investing in resource efficiency and rooftop solar through a tariffed on-bill program

January 2016

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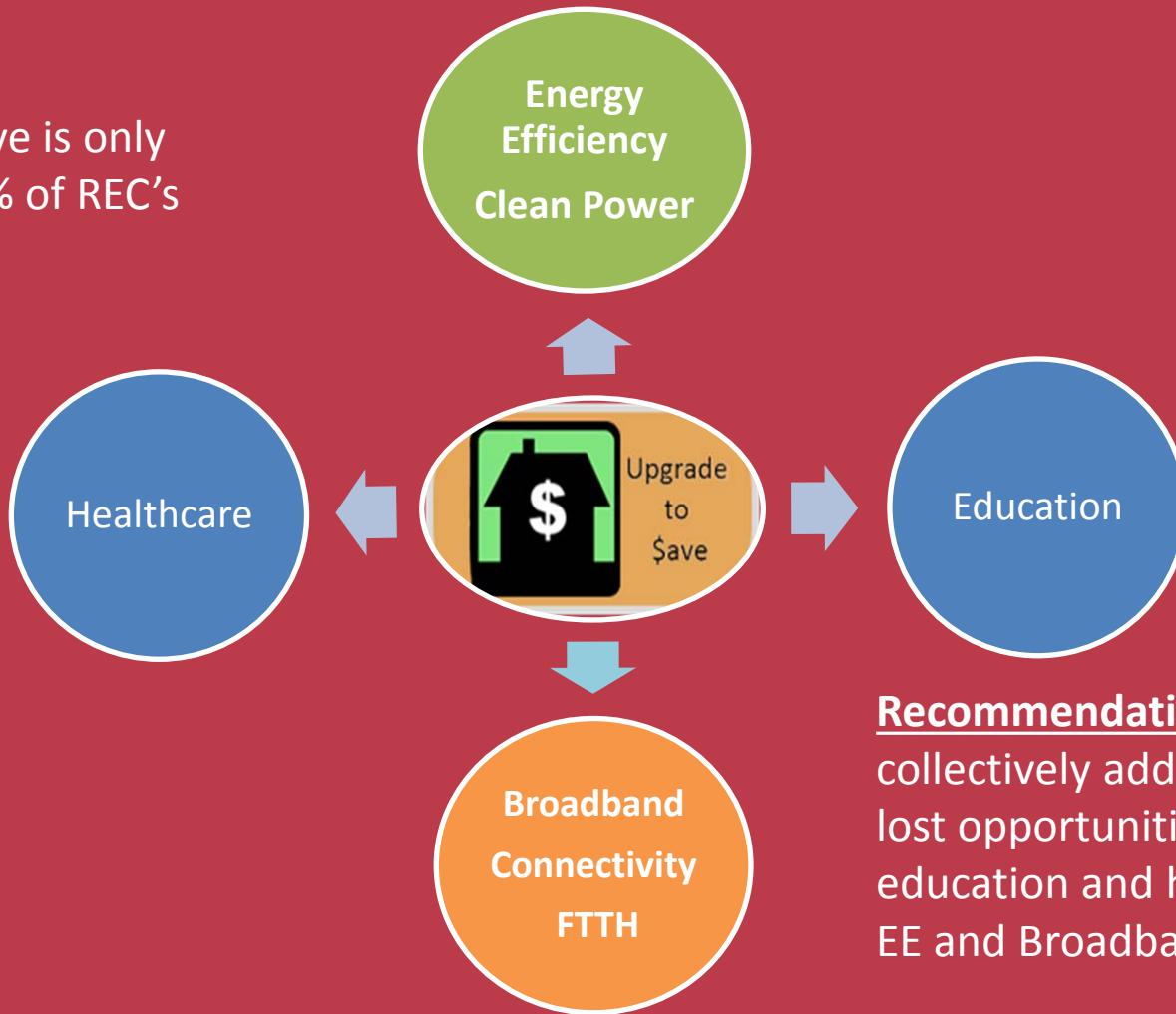
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What can the federal government / DOE do?

Situation:

Upgrade to \$ave is only addressing 50% of REC's inquirers...



Recommendation: Recognize and collectively address waste and lost opportunities related to education and healthcare; using EE and Broadband as enablers.



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Curtis Wynn
President & CEO
Office: 252-209-2236
Toll-Free: 1-800-433-2236
Post Office Drawer 1326 Ahoskie, NC 27910
518 NC 561 West Aulander, NC 27805
Website: www.roanokeelectric.com

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