

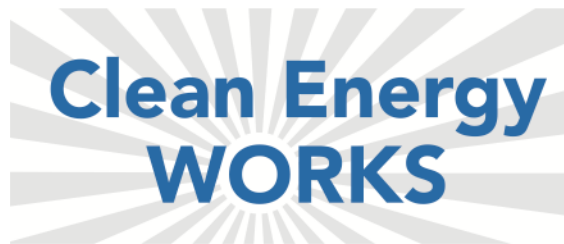
Inclusive Financing for Distributed Energy Solutions:

**Enabling utilities to offer tariffed on-bill programs
for cost effective upgrades**

Prepared for Mid-Atlantic Distributed Resources Initiative

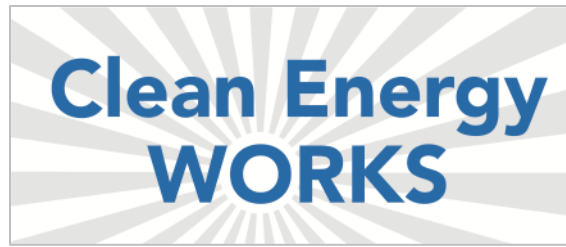
Baltimore, MD

December 5, 2017



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Opening the clean energy economy to all through inclusive financing

- ✓ Founded by Dr. Holmes Hummel, former Senior Policy Advisor in the Department of Energy's policy office (2009-2013)
- ✓ Winner of FiRe Award at the Bloomberg "Future of Energy Summit" for championing PAYS® as a high-impact innovation in finance
- ✓ Winner of a top award from the international Climate Strategies Accelerator for financing innovation to accelerate deployment of clean transit
- ✓ Expert advisor to utilities on business plan development for investments in cost effective distributed energy solutions

“Are you a renter?”

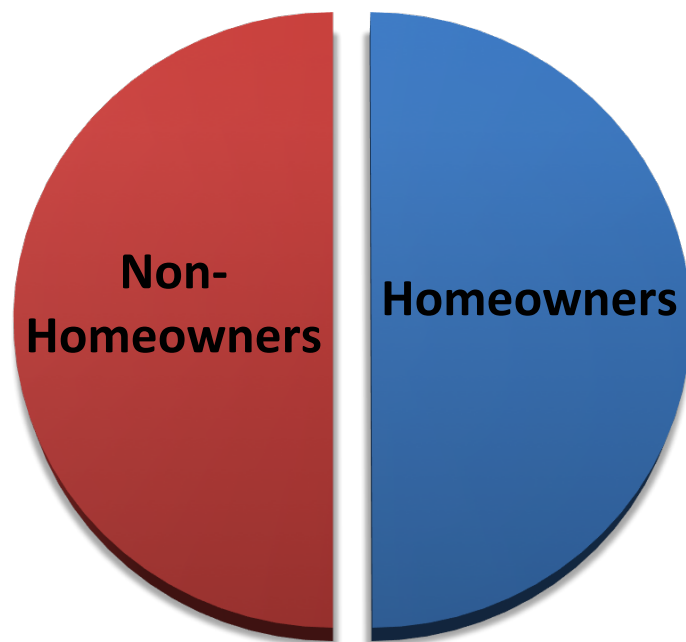
“Do you have a good credit score?”

“Do you have solid income?”

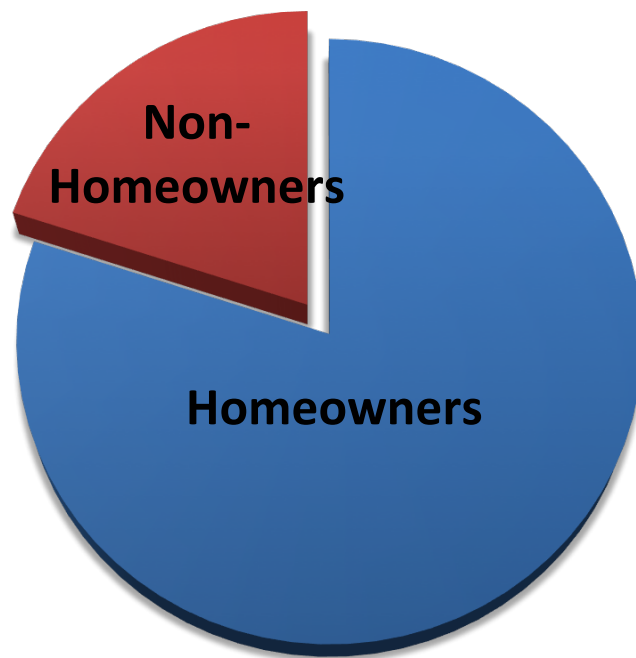
Barriers to Financing in the Clean Energy Economy:

Example - Property Ownership

Below Median Income

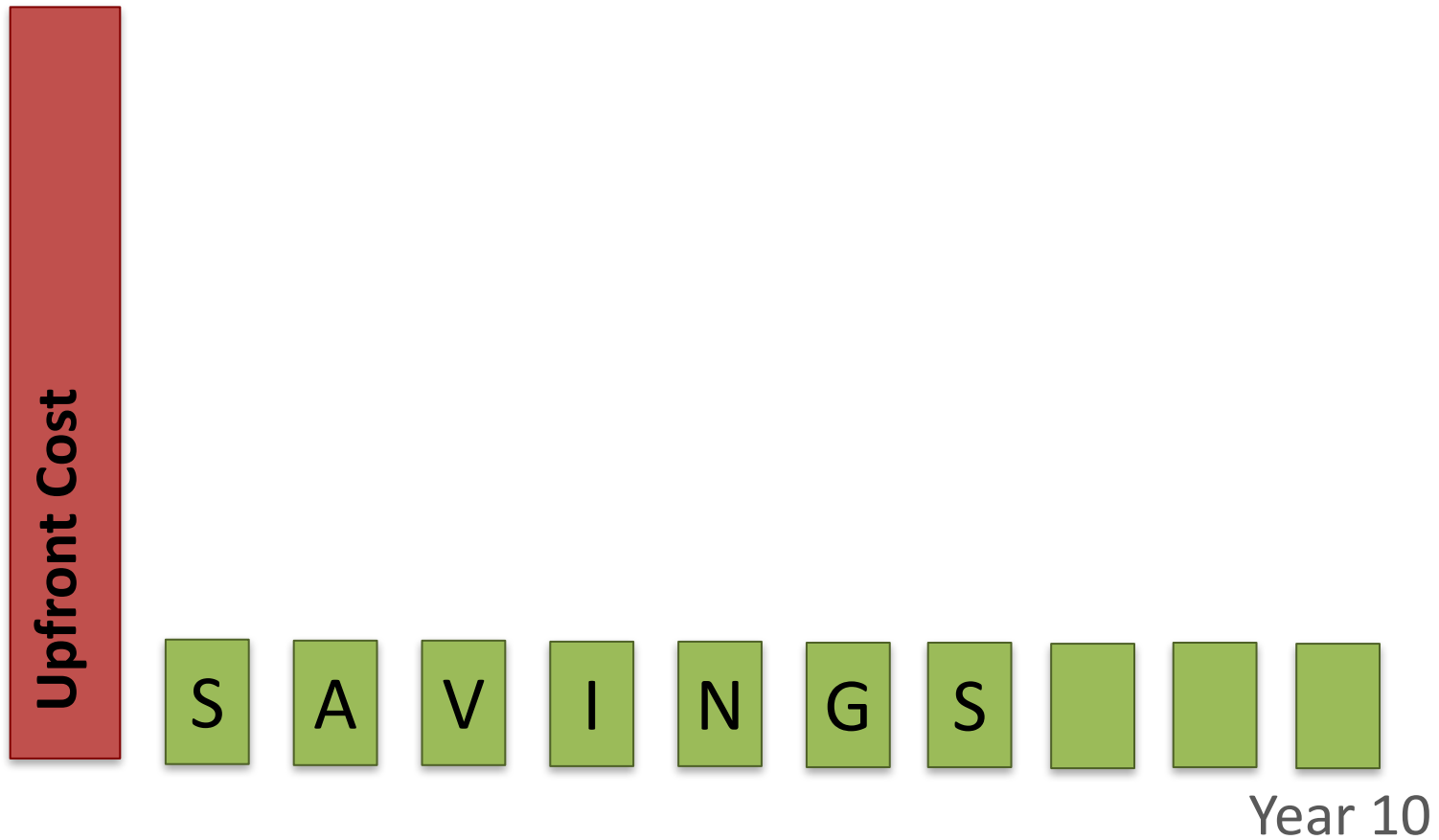


Above Median Income

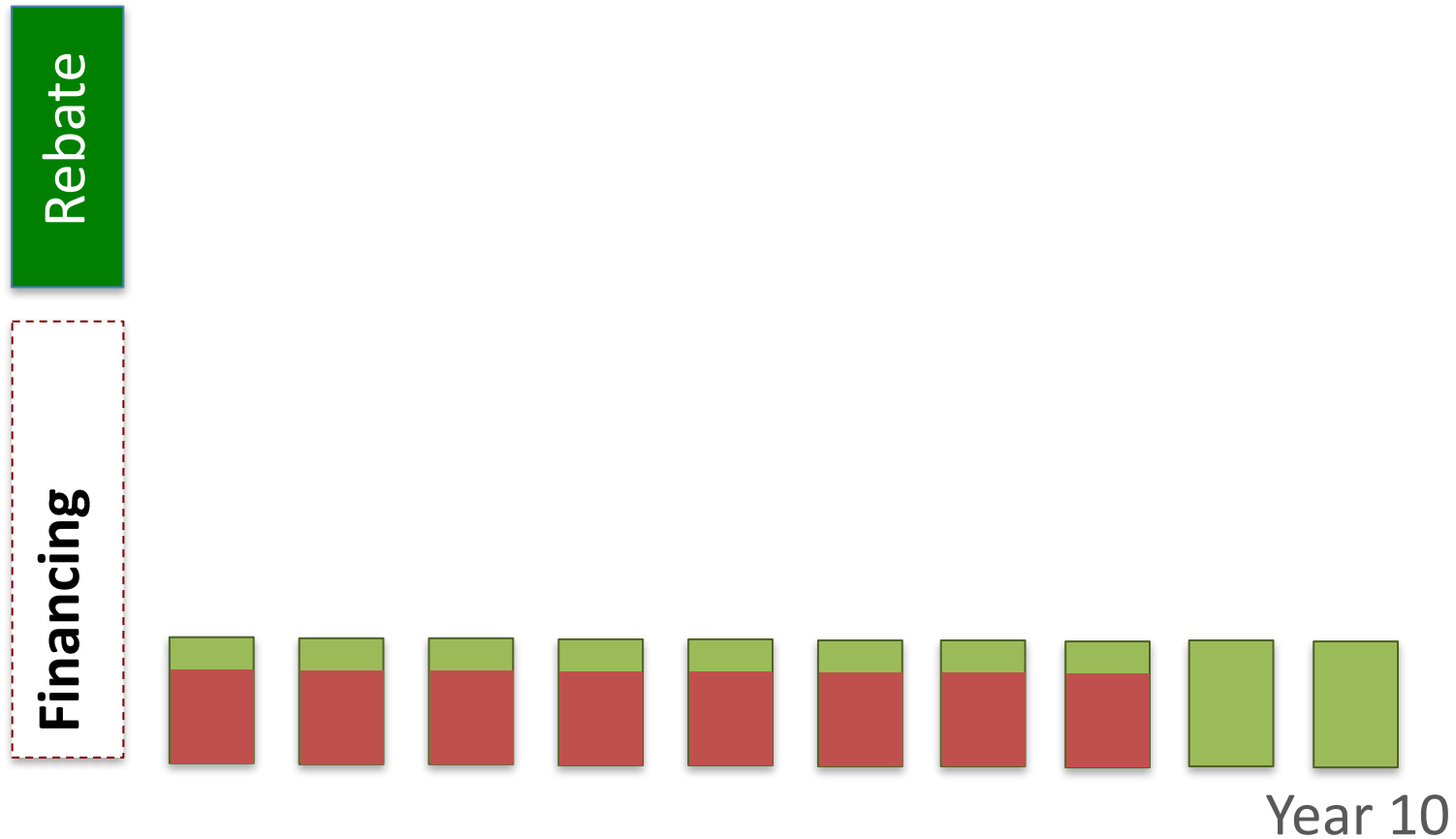


More than **1/3** of all U.S. households are not in a home they own.

Addressing first-cost barriers:



Addressing first-cost barriers with funding and financing:

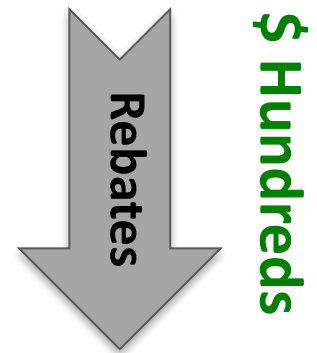


Paying for cost effective efficiency upgrades

After all rebates and public funds are applied, the remaining balance yields these options:

- ☐ Pay Cash
- ☐ Pay on Credit
- ☐ Decline the upgrades

**Rate-payer or
Public funds**



Customers

\$ Thousands

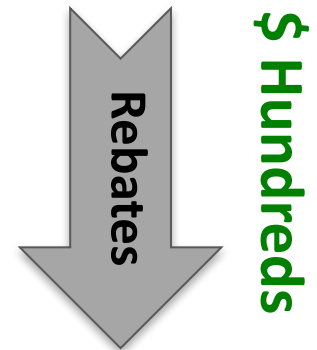
in upgrades
per participant

Paying for cost effective efficiency upgrades

After all rebates and public funds are applied, the remaining balance yields these options:

- ☐ Pay Cash
- ☐ Pay on Credit
- ☐ Decline the upgrades
- ✓ **Tariffed On-Bill Program**

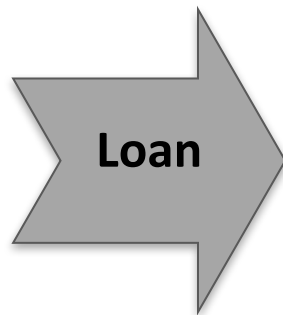
**Rate-payer or
Public funds**



**Capital
Markets**

\$ Billions

of low cost capital
available



Utility

\$ Millions

Investment
annually

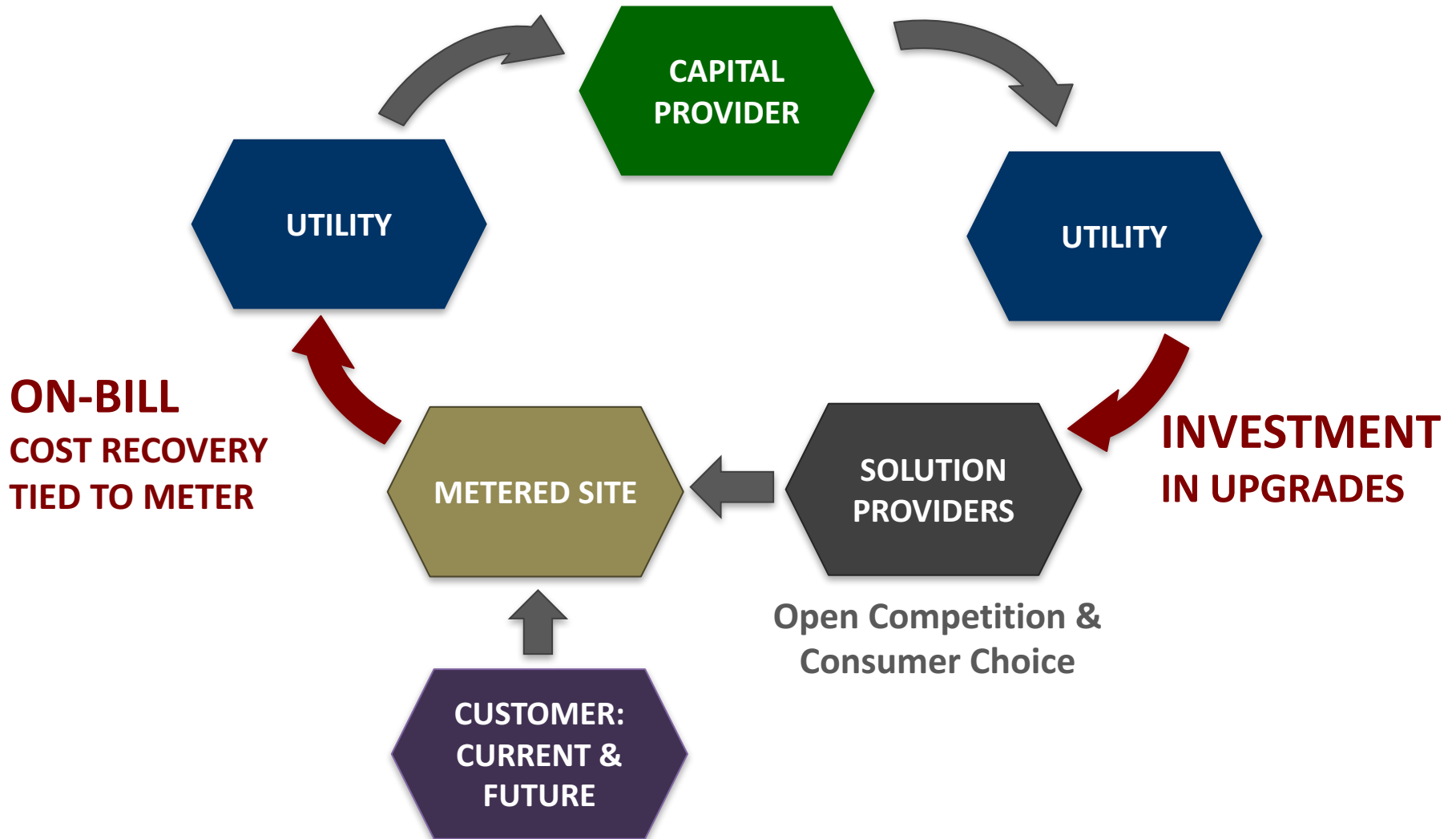


Customers

\$ Thousands

in upgrades
per participant

TARIFFED ON-BILL PROGRAM



PAYS® Offer –

Here's how it works:

- Energy saving upgrades are installed in your home or building, and you pay nothing upfront. The utility pays for the installed energy solution.
- To recover its costs, the utility puts a fixed charge on your electric bill that is significantly less than the estimated energy savings from these upgrades.
- You have no loan, no lien, and no debt associated with this transaction; just lower utility bills and a more comfortable home.
- When the utility recovers its costs, your obligation to pay ends.
- If you leave this location sooner, or if an upgrade fails and is not repaired, your obligation to pay ends if you have followed your responsibilities.

Attributes	Typical On-Bill Loan Program	PAYS [®]
• Residential participants are eligible	✓	✓
• Renters are eligible		✓
• No credit score check or no debt to income ratios	✓	✓
• No upfront participant cost	✓	✓
• Cost recovery charge capped at 80% of estimated savings		✓
• Participant signs a loan or promissory note for a debt obligation	✓	
• Participant accepts an opt-in utility tariff (NOT a debt) tied to meter		✓
• Cost recovery is through a fixed charge on the utility bill	✓	✓
• Participant accepts tariff with disconnection for non-payment		✓
• Payments end if upgrade fails and is not repaired		✓
• Tariff runs with the meter and remains in effect for subsequent customer at that location until cost recovery is complete		✓

Example Transaction:

Single story home, upgraded with insulation, air sealing, and heat pump

- **Investment:** \$10,000
- **Cost Recovery Period:** 15 years
- **Cost of Capital:** 3%
- **Estimated Savings:** \$100 / month
- **Charge:** -\$70 / month
- **Net Savings to Customer:** \$30 / month, ~30% of savings
- **Energy Savings:** 8,000 kWh / year

*Source: Briefing by MACED, the program operator for the [How\\$mart KY](#) program.
This sample has conveniently round numbers; average investment size is ~\$7500.*

Result: Surge in Investment

Comparing last (and best) 4 months of **HELP (Loan)**
with first 4 months of **HELP PAYS®: (Tariff)**

- **Doubled customers** seeking assessments, and *more than a third* were multi-family (compared to 0 previously).
- Among customers receiving assessments, **100% opt-in for multi-family rental units**, and >80% for single family.
- **Doubled the scale of capital improvements** from an average of \$3000 to above \$6000 to get deeper energy savings (~30%).

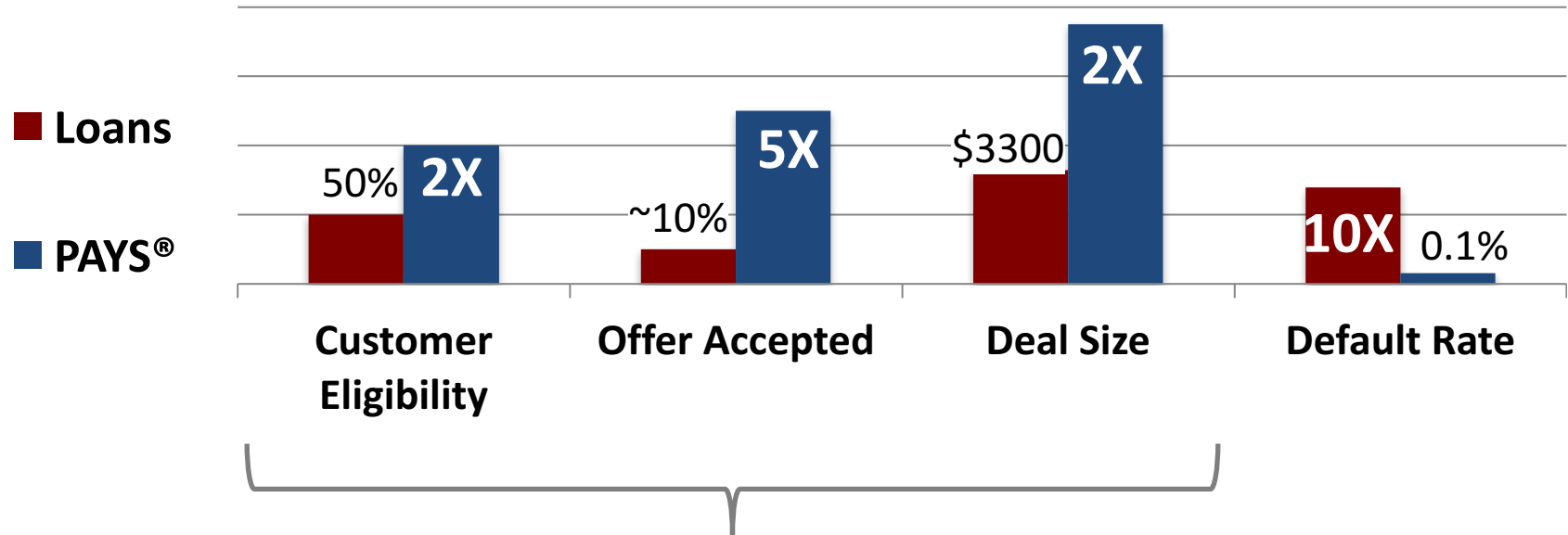
Double customers X Double project size =

- **Quadrupled investment**, soaring from \$225k to **\$1 million**.



Compared to loans, tarified on-bill programs lead to more inclusion and better market response

Comparison for building efficiency upgrades



Investment acceleration is a product of these multiples.

- ✓ No consumer loan, lien, or debt
- ✓ Reaches renters and low-income
- ✓ Higher uptake rates
- ✓ Deeper energy & carbon savings

Opt-in Tariff for On-Bill Energy Efficiency: Approved by Utility Commissions in Kansas, Kentucky, and Arkansas

PAY AS YOU SAVE® (PAYS®) ON-BILL PROGRAM MODEL TARIFF

- 1 **Engineering:** Subject to an optional and voluntary terms to any cooperative member who takes service under any rate schedule for energy efficiency improvements (upgrades) where the cooperative provides electric service to the structure. It shall not be a requirement that the structure be all-electric.
- 2 **Participation:** To participate in the Program, a member must: 1) request from the cooperative an analysis of cost effective upgrades, 2) agree to the terms of the cost effectiveness analysis fee as described in Section 2.2, and 3) review the Purchase Agreement that defines member benefits and obligations, and implement any project that does not require an upfront payment from the member as described in Section 3.3.
- 3 **Energy Efficiency Plans:** The cooperative will have its Program Operator or approved energy efficiency contractor perform a cost effectiveness analysis and prepare an Energy Efficiency Plan (Plan), identifying recommended upgrades to improve energy efficiency and lower power costs.
- 3.1 **Incentive Payment:** The cooperative may make an incentive payment for program participation that is less than or equal to the value of the upgrades to the cooperative.
- 3.2 **Net Savings:** Recommended upgrades shall be limited to those where the annual Program Service Charges (Service Charges), including program fees and the cooperative's cost for capital are no greater than 80% of the estimated annual benefit from reduction to members' annual utility charges based on current rates in electricity and/or gas costs.
- 3.3 **Copy Option:** In order to qualify a project for the Program that is not cost effective, Members may agree to pay the portion of a project's cost that prevents it from qualifying for the program as an upfront payment to the contractor. The cooperative will assume no responsibility for such upfront payments to the contractor.
- 3.4 **Cost Effectiveness Analysis Fee:** If the cost of the cost effectiveness analysis exceeds the value to the cooperative of upgrades accepted by members for installation, the cooperative will recover from participants the portion of the cost for the analysis that is greater than the value of the upgrades to the cooperative. The utility will not recover costs for the analysis if the Energy Efficiency Plan concludes that proposed upgrades are cost effective only with a copy. The cooperative will recover all of its costs for the analysis at a location from a member who declines to install upgrades identified in an Energy Efficiency Plan that does not require a copy.
- 3.5 **Existing Buildings:** Projects that address upgrades to existing buildings deemed unlikely to be habitable or to serve their intended purpose for duration of service charges will not be approved unless other funding can effect necessary repairs.
- 4 **Approved Contractor:** Should the member determine to proceed with implementing The Plan, the cooperative shall determine the appropriate monthly Program Charge as described below. The member shall sign the Agreement and select a contractor from the cooperative's list of approved contractors.
- 5 **Quality Assurance:** When the energy efficiency upgrades are completed, the contractor shall be paid by the cooperative, following on-site or telephone inspection and approval of the installation by the cooperative or its Program Operator.

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- 6 **Program Services Charge:** The cooperative will recover the costs for its investments including any fees as allowed in this tariff through monthly Service Charges assigned to the meter at the location where upgrades are installed and paid by members occupying that location until all cooperative costs have been recovered. Service Charges will also be set for a duration not to exceed 80% of estimated life of the upgrades or the length of a full parts and labor warranty, whichever is less and in no case longer than twelve years. The Service Charges and duration of payments will be included in the Purchase Agreement.
- 6.1 **Cost Recovery:** No sooner than 45 days after approval by the cooperative or its Program Operator, the member shall be billed the monthly Program Charge as determined by the cooperative. The cooperative will bill and collect Service Charges until cost recovery is complete except in cases discussed in Section 7.
- 6.2 **Termination of Program Charge:** Once the cooperative's costs for Upgrades at a location have been recovered, the monthly Program Charge shall no longer be billed, except as described in Section 7.
- 6.3 **Extension of Program Charge:** As described in Section 6 or for any other reason, if the monthly Service Charge is reduced or suspended, once repairs have been successfully effected or service reconnected, the number of total monthly payments shall be extended until the Service Charges collected equal the cooperative's cost for installation as described in Section 5. The duration of Service Charges will also be extended if there are missed payments and the current occupant is still benefitting from the upgrades in order for the cooperative to recover its costs to install upgrades at a location.
- 6.4 **Tied to the Meter:** Until cost recovery for upgrades at a location is complete or the upgrades fail as described in Section 7, the terms of this tariff shall be binding on the metered structure and any future member who shall receive service at that location.
- 6.5 **Disconnection for Non-Payment:** Without regard to any other Commission or cooperative rules or policies, the Service Charges shall be considered as an essential part of the customer's bill for electric service, and the cooperative may disconnect the metered structure for non-payment of Service Charges under the same provisions as for any other electric service.
- 7 **Repairs:** Should, at any future time during the billing of Service Charges, the cooperative determine that the installed Upgrades are no longer functioning as intended and that the occupant, or building owner if different, did not damage or fail to maintain the upgrades in place, the cooperative shall reduce or suspend the Program Service Charges until such time as the cooperative and/or its contractor can repair the upgrade. If the upgrade cannot be repaired or replaced cost effectively, the cooperative will waive remaining charges.

If the cooperative determines the occupant, or building owner if different, did damage or fail to maintain the upgrades in place, it will seek to recover all costs associated with the installation, including any fees, incentives paid to lower project costs, and legal fees.

The Service Charges will continue until cost recovery is complete.

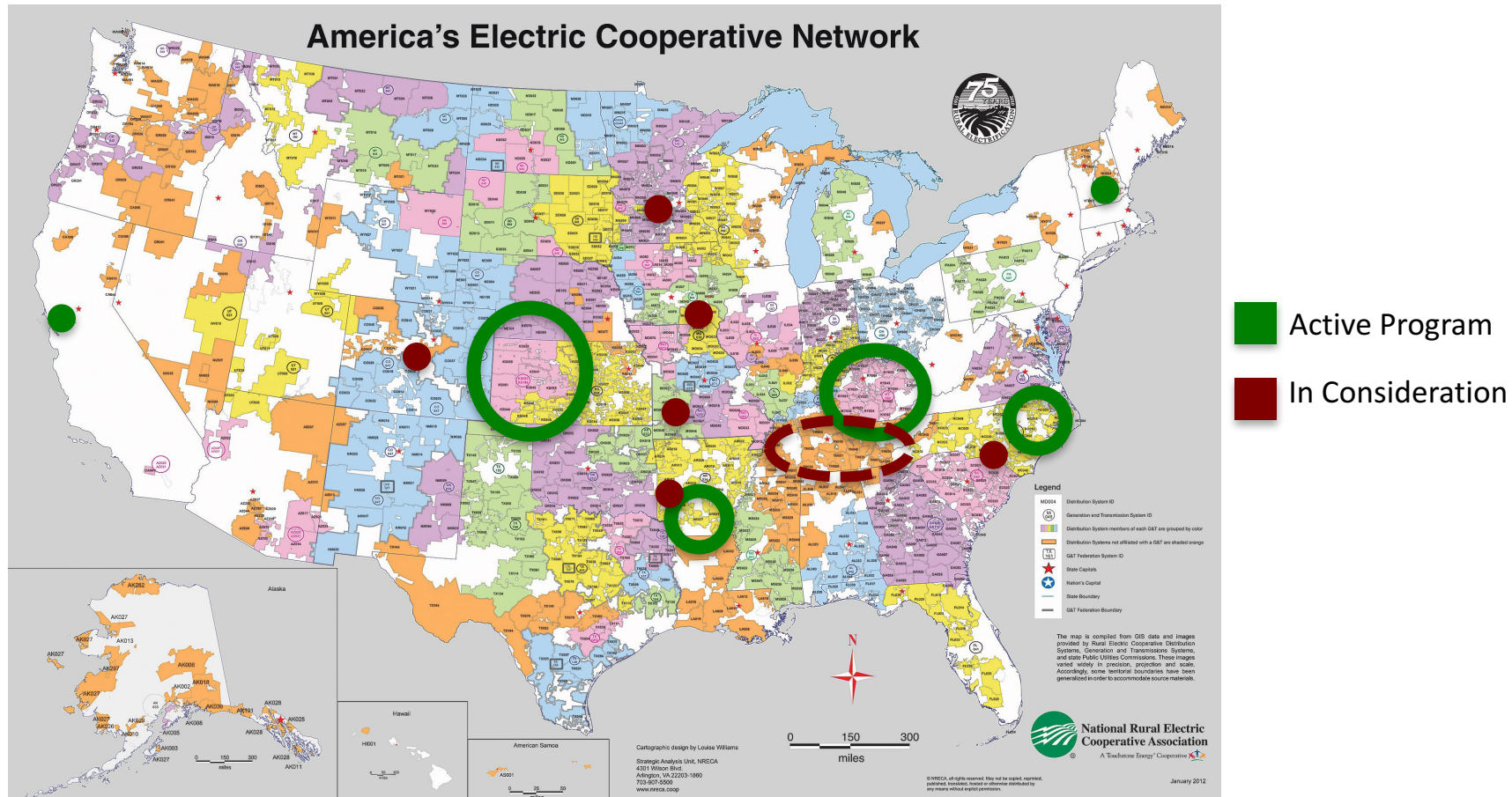
The model tariff here is based on the most recent filing, unanimously approved in Arkansas.

**Clean Energy
WORKS**

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Leaders in Inclusive Financing for Efficiency Upgrades: Electric Cooperatives

Alignment of interests between consumers and corporate boards has helped electric cooperatives lead the way on tariffed on-bill financing.



90% of persistent poverty counties in the U.S. are served by rural electric cooperatives.

Additional State Commissions Turning Attention to Inclusive Financing

- **California Energy Commission**

- SB350 Study of Barriers to Participation in Energy Efficiency & Renewable Energy by Low-Income Communities
- Its top recommendation for addressing barriers to financing is for every type of utility in the state to introduce a demonstration of tariffed on-bill financing.

- **New York**

- The Public Service Commission's Clean Energy Advisory Council formed a Low- and Moderate Income Working Group, which issued its final report in February 2017
- Its top recommendation for addressing the barriers to financing and access to capital is to introduce a more inclusive form of on-bill financing without dependence on underwriting criteria such as homeownership, credit score, and income.

- **Missouri**

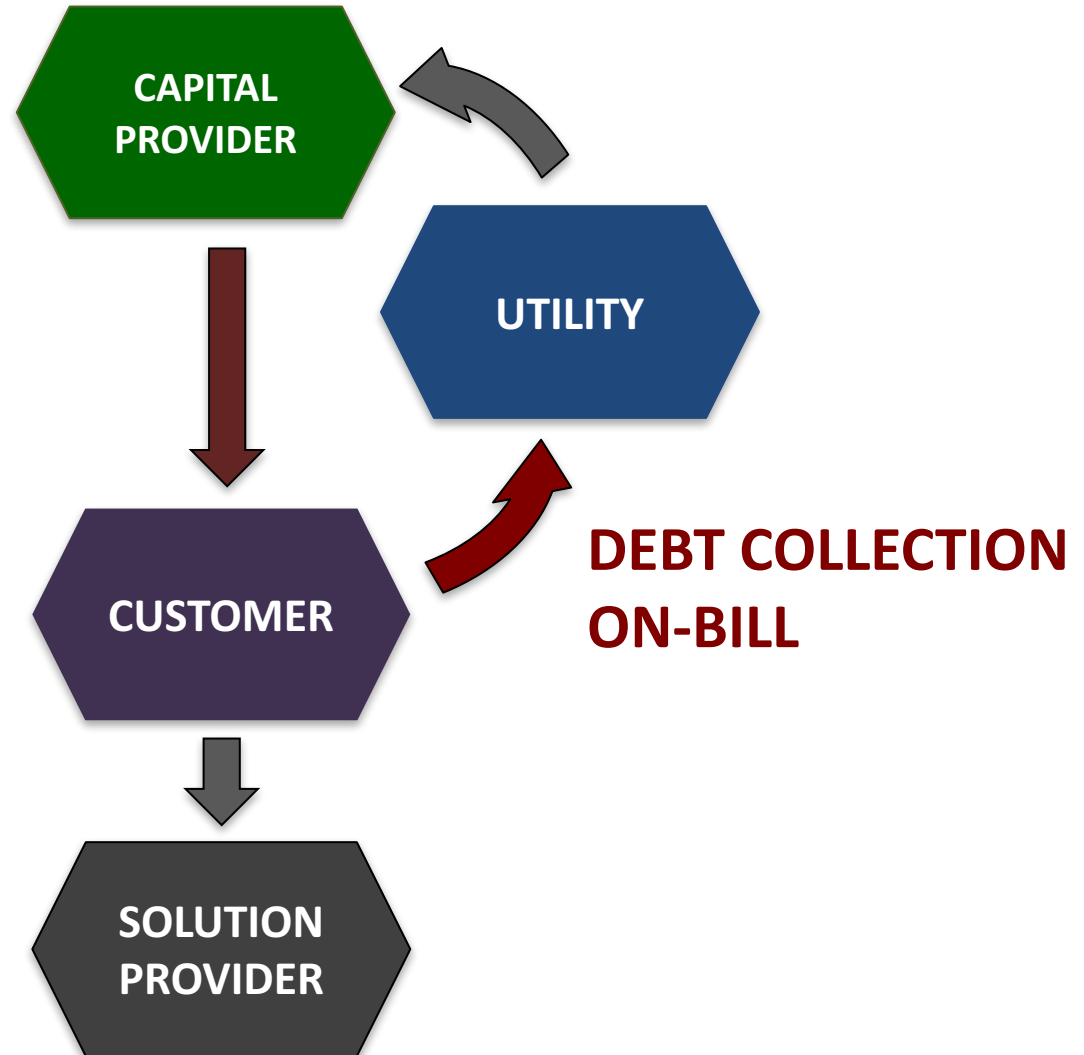
- Every IOU in the state included in its most recent energy efficiency planning cycle a feasibility study for inclusive financing using a tariffed on-bill program

Comparison of Transaction Paths for Financing Energy Efficiency Upgrades

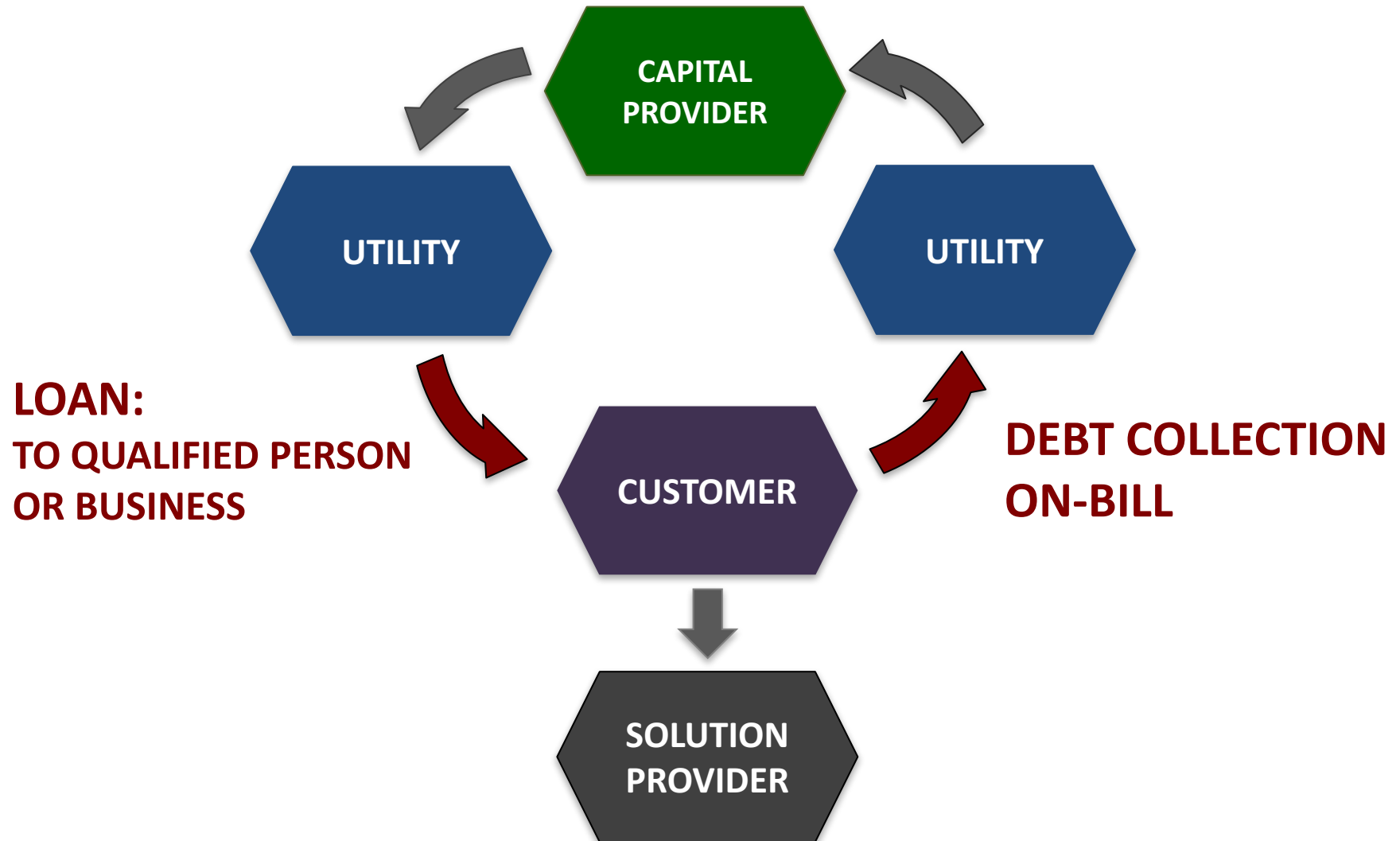
- On-Bill Repayment of a loan from a third party
 - Regions Bank program (TVA)
- On-Bill Financing with a loan from a utility
 - Home Energy Lending Program (HELP)
- Tariffed on-bill investment programs based on PAYS®
 - How\$mart (Kansas), and How\$mart KY™
- Property Assessed Clean Energy
 - HERO

ON-BILL LOAN REPAYMENT

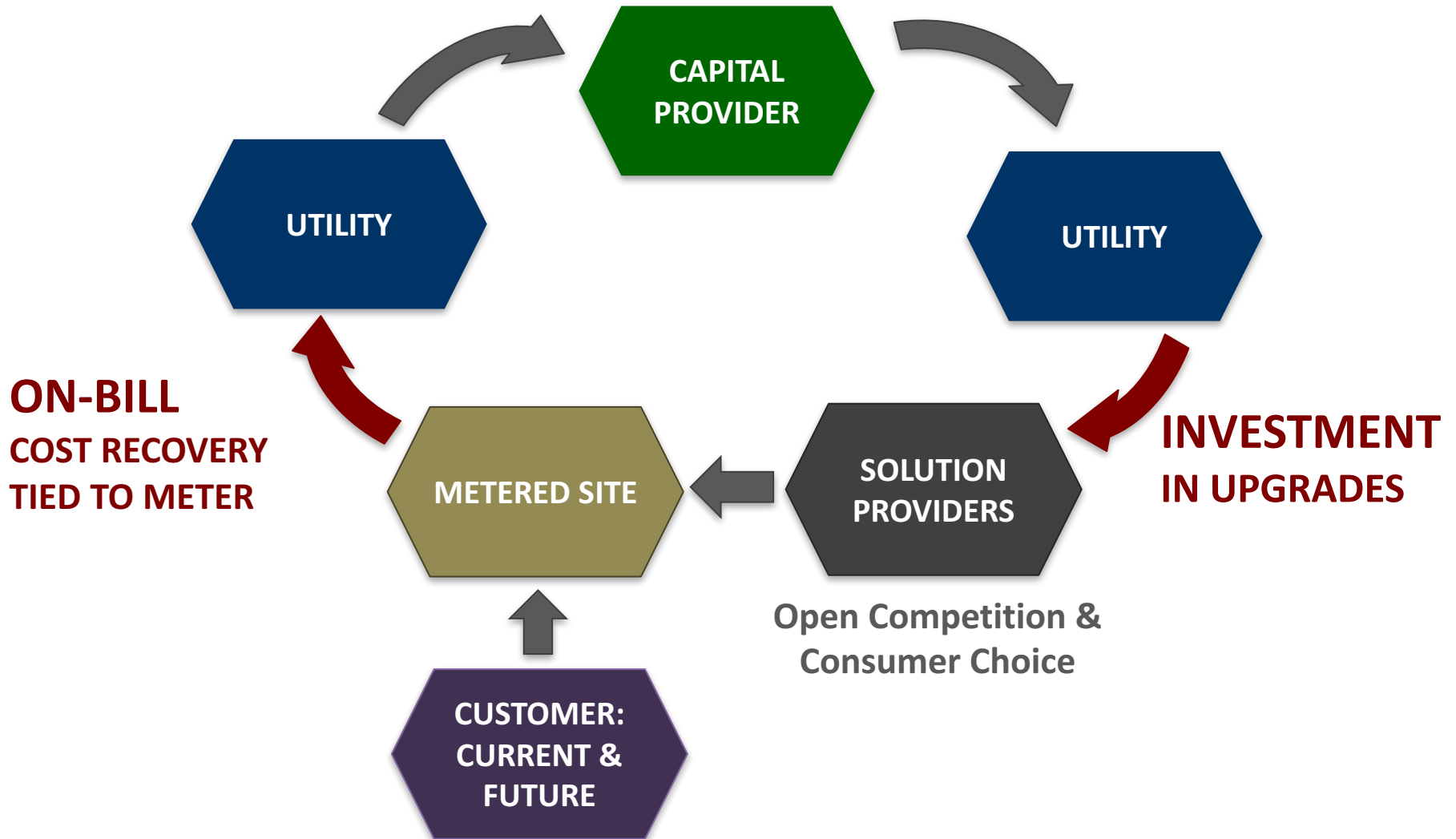
LOAN:
TO QUALIFIED PERSON
OR BUSINESS



ON-BILL FINANCING (RE-LENDING)

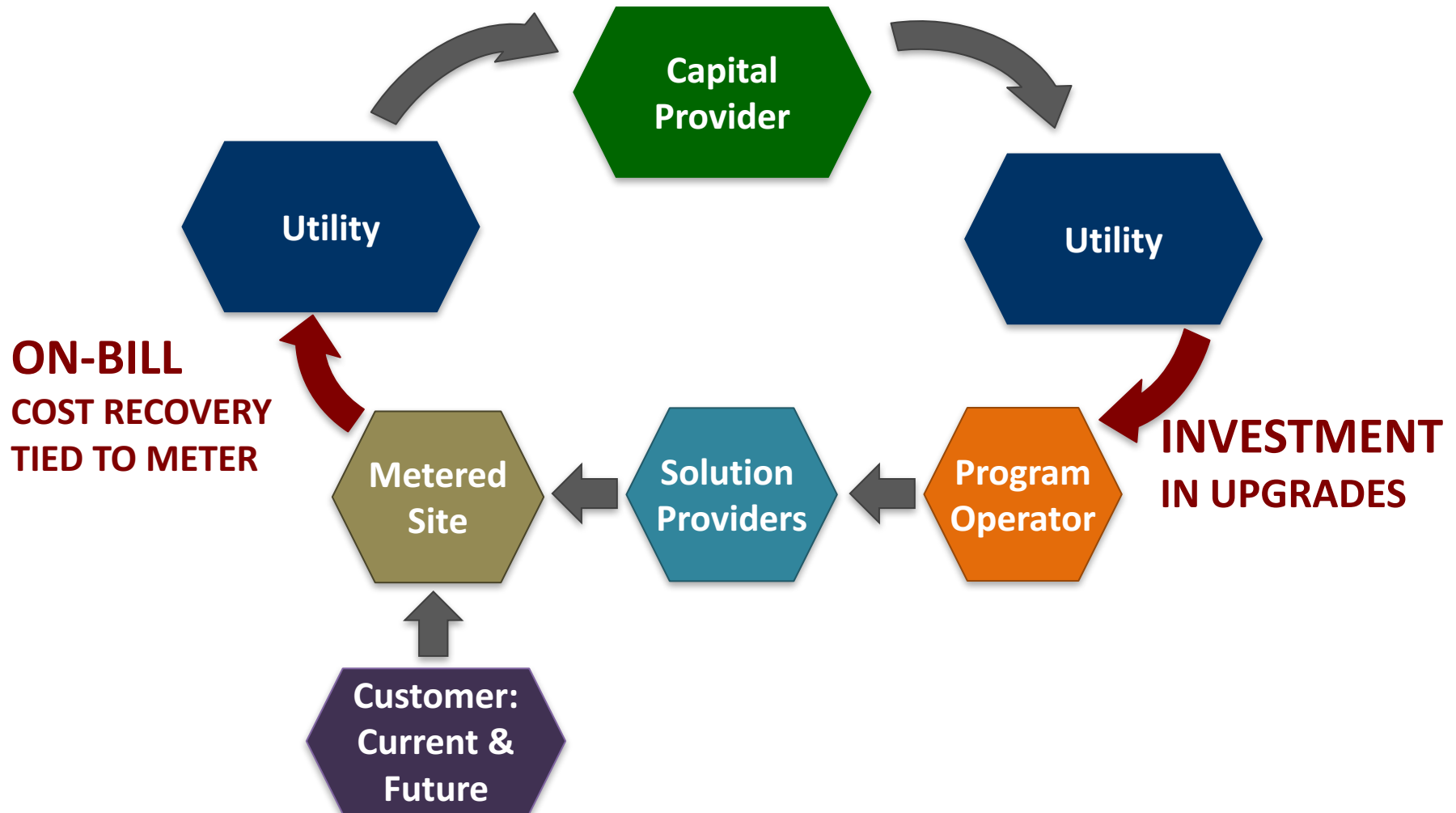


TARIFFED ON-BILL PROGRAM



Tariffed On-Bill Investment Program

PAYS® offers all utility customers the option to access cost effective energy upgrades using a proven investment and cost recovery model that benefits both the customer and utility.



LOAN REPAYMENT VIA PACE FINANCING

