

Rwanda Cooling Initiative (R-COOL)



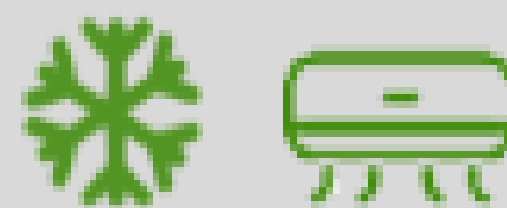
FINANCING MECHANISMS

On-Wage and On-Bill



Cooling Sector Interventions

Technology



Regulation



Financing

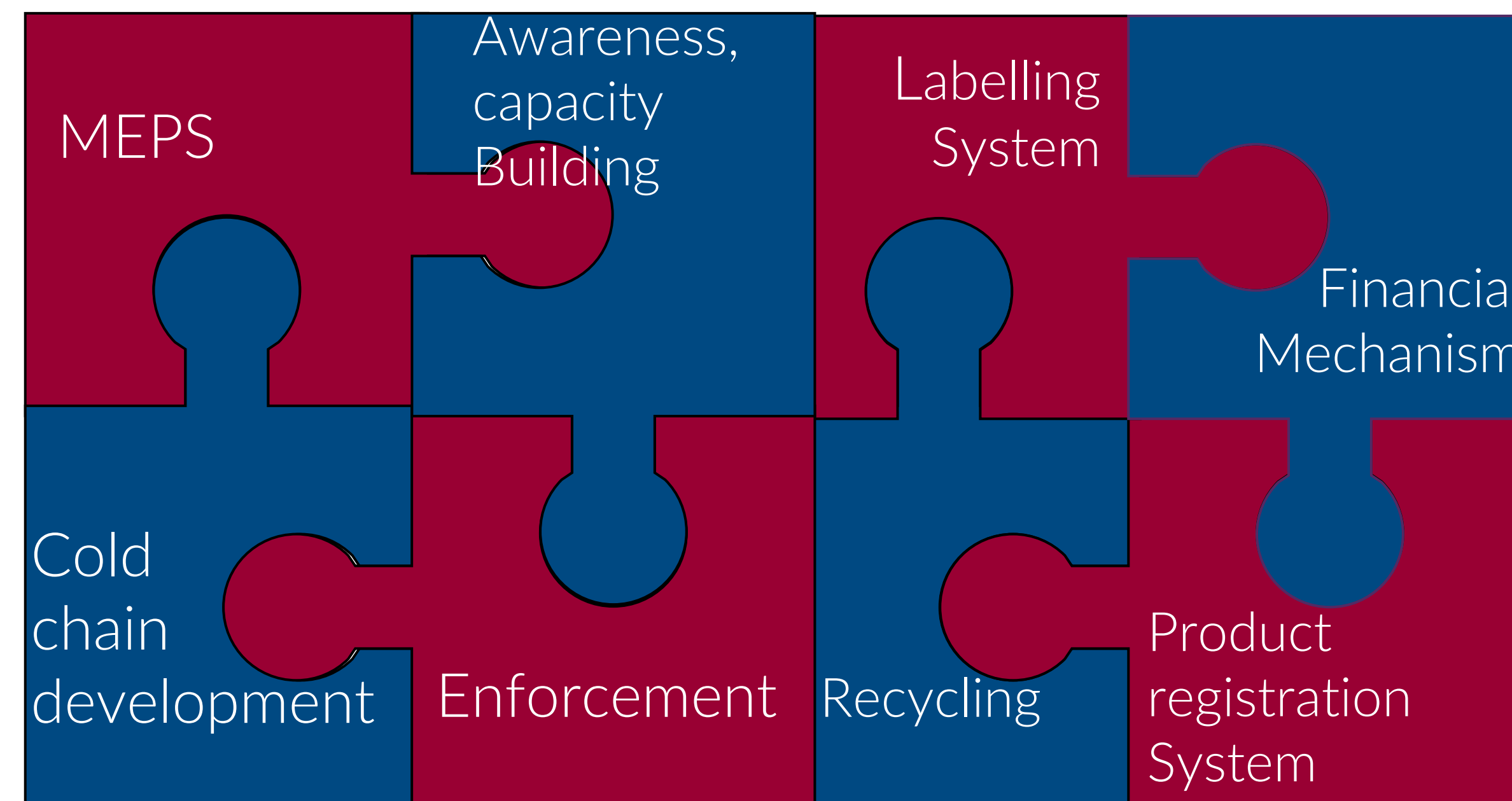


Service



National Cooling Plans

- Minimum Energy Performance Standards **(MEPS)** and **Labels** adoption for refrigerators and air conditioners
- **Financial mechanisms**
- **Communication campaign**
- **Product Registration System**
- **Take back, recycling and disposal**
- **Monitoring, Reporting and Verification**



The NCP creates a framework to guide the development of each of the above key components of the **market transformation**

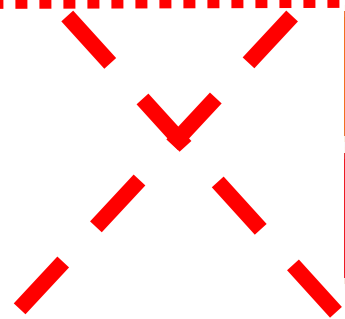
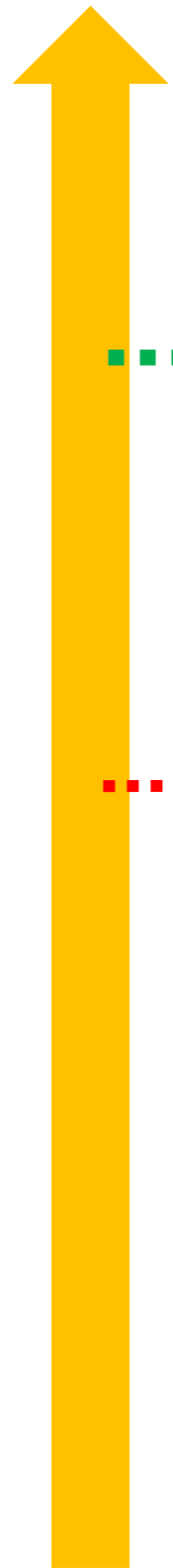
On-Wage and On-Bill Financing for Cooling Equipment

Financial incentives

- **Green On-wage financing** (Ghana and Rwanda) and **On-bill financing** (Senegal) offer flexible and simple repayment terms for the highest tier of energy efficient appliance through **salary deductions** or **electricity bill deductions**.



Energy Efficiency



Grade	Refrigerators	Refrigerator-Freezers	Freezers
A	$2.00 \leq R$	$2.00 \leq R$	$2.00 \leq R$
B	$1.75 \leq R < 2.00$	$1.75 \leq R < 2.00$	$1.75 \leq R < 2.00$
C	$1.50 \leq R < 1.75$	$1.50 \leq R < 1.75$	$1.50 \leq R < 1.75$
D	$1.25 \leq R < 1.50$	$1.25 \leq R < 1.50$	$1.25 \leq R < 1.50$
E	$1.00 \leq R < 1.25$	$1.00 \leq R < 1.25$	$1.00 \leq R < 1.25$

- They include consumer finance products designed to meet the short- and medium-term financing needs of **salaried employees of public and private institutions through local financial institutions (LFIs)** or **solvent power utility customers**.

Criteria for ACs

	ACs		
Type of products:	Ductless split air conditioners		
Age:	Only new products.		
Product size:	Nominal cooling capacity up to 16 kW.		
Refrigerants	GWP limit of 750. ODP limit of 0.		
Foam Blowing Agents	N/A		
Safety certification	Conform to safety regulations of both the manufacturing country and Rwanda (e.g. IEC 60335-2-40:2010 or subsequent revision)		
Energy Efficiency	Capacity	Fixed	Variable
	Rated Cooling Capacity ≤ 4.5 kW	3.80	4.60
	$4.5 \text{ kW} < \text{Rated Cooling Capacity} \leq 9.5$ kW	3.50	4.30
	$9.5 \text{ kW} < \text{Rated Cooling Capacity} \leq 16.0$ kW	3.20	3.90

Criteria for Refrigerators

	Refrigerating Appliances		
Type of products:	Household refrigerators, refrigerator-freezers and stand-alone freezers.		
Age:	Only new products.		
Product size:	Between 200L to 600L ¹		
Refrigerants	GWP limit of 20, maximum charge of 0.15kg. ODP limit of 0.		
Foam Blowing Agents	GWP limit of 20. ODP limit of 0.		
Safety certification	Conform to safety regulations of both the manufacturing country and Rwanda (e.g. IEC 60335-2-24:2010 /AMD:2017, or a subsequent revision)		
Grade	Refrigerators	Refrigerator-Freezers	Freezers
A	$2.00 \leq R$	$2.00 \leq R$	$2.00 \leq R$
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Main barriers for key stakeholders

Households (HHs)

- High upfront-cost of new EE and climate-friendly RAC systems
- Limited knowledge and lack of trust in EE
- Often other investment priorities than the acquisition of new EE RAC systems
- Limited credit capacity or access to finance for the majority of households

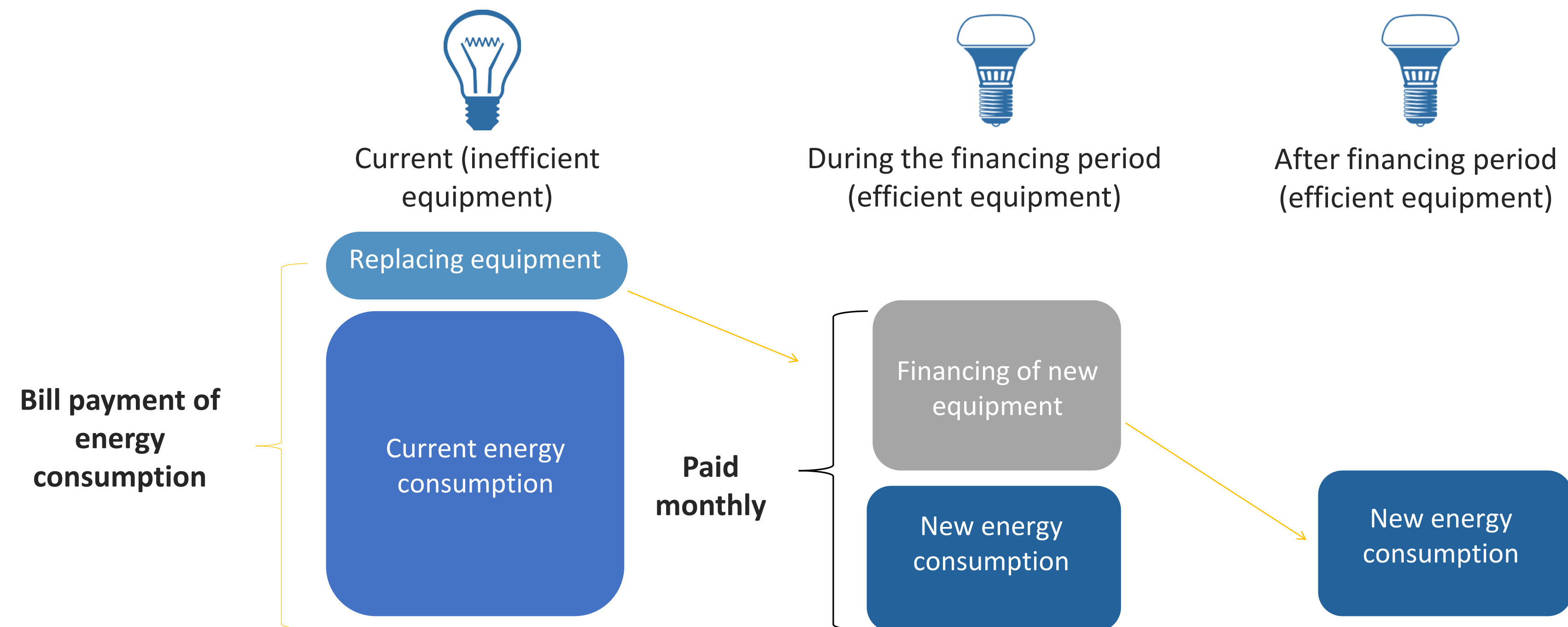
RAC technology providers (TPs) and technicians

- Unfair competition with companies selling second-hand or sub-quality RAC systems in Rwanda
- Hard to sell a promise of future benefits (energy savings) to households (HHs)
- Lack of innovative financial mechanisms and low-risk credit recovery mechanisms for HHs clients

Financial institutions (FIs)

- Low financial inclusion – cash is the prominent payment method for many HHs
- High-risk perception on credit defaults and thus high collateral requirements for consumer seeking unsecured loans (consumer loans)
- No or very seldom innovative low-risk credit recovery processes (employer loan)
- Limited visibility of green investment opportunities

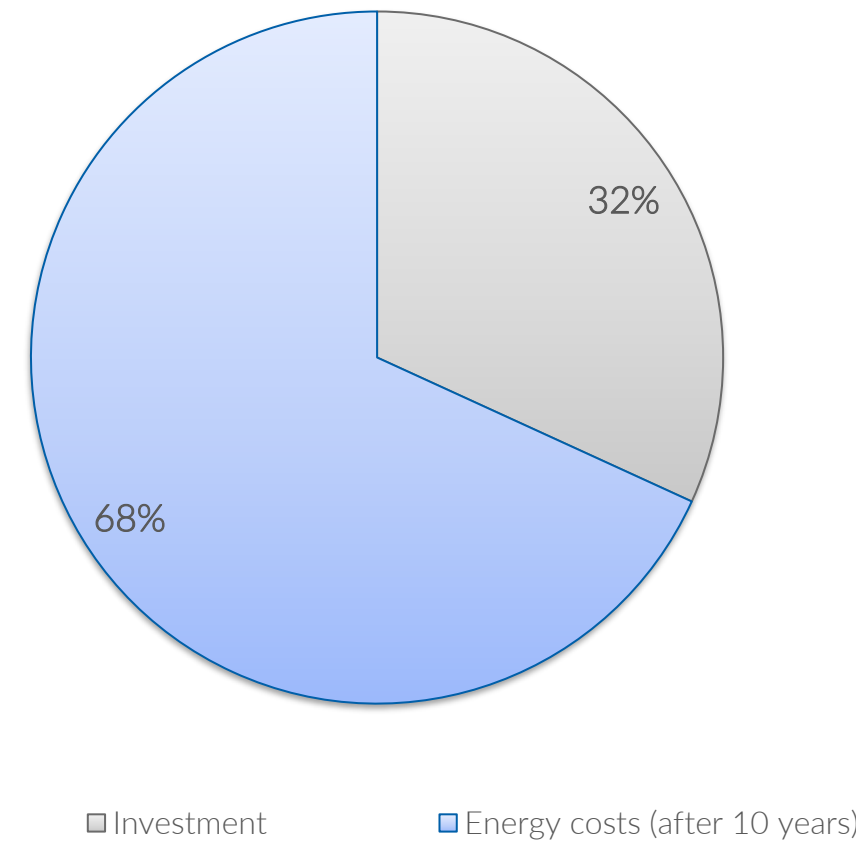
PRINCIPLE OF BILL NEUTRALITY



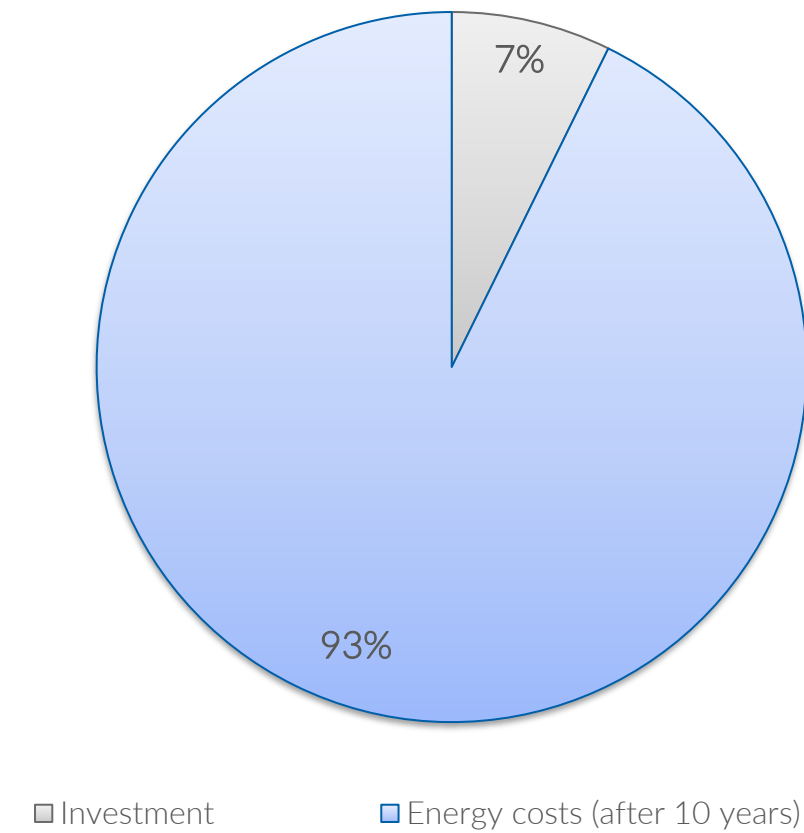
Cost benefit analysis – domestic refrigeration

- ✓ Standard loan at 17% interest rate
- ✓ Tenor of 2 years
- ✓ Commercial price
- ✓ Payback 2.7 year

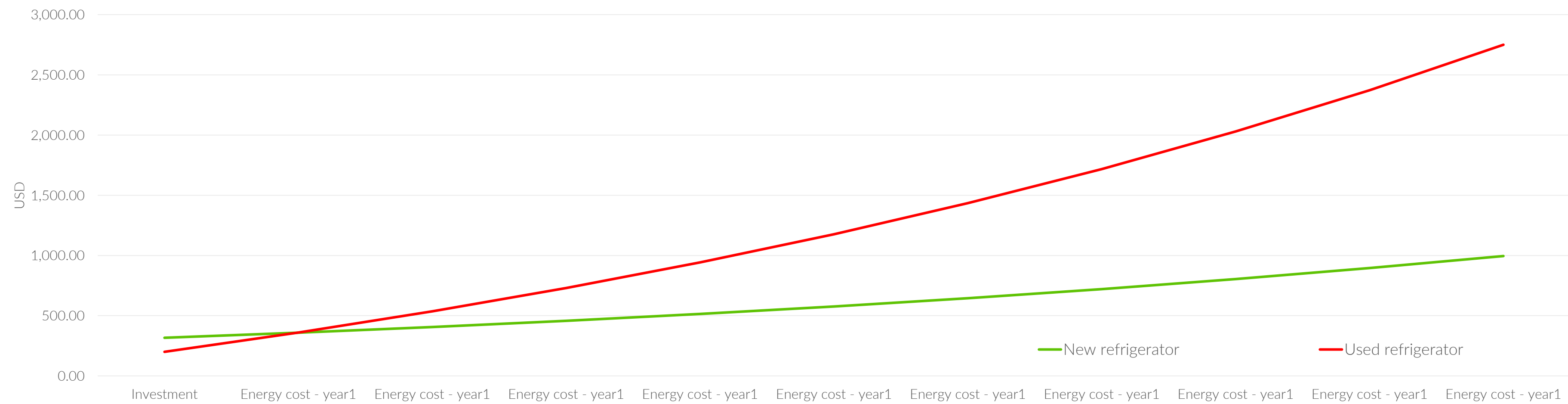
New energy-efficient refrigerator



Used refrigerator



Life cycle cost of a refrigerator for 10 years (new vs used)



Market size – refrigerators and ACs (estimates) Rwanda Case

Years	2020	2021	2022	2023	2024
Number of refrigerators replaced (end of life time)	6'501	7'391	8'404	9'555	10'864
Additional number of refrigerators acquired (market growth)	13'359	15'189	17'270	19'636	22'326
Total of market for refrigerators per year	19'860	22'581	25'674	29'192	33'191
Total stock of refrigerators	117'372	139'953	165'627	194'819	228'010
Households with refrigerators (%)	3.8%	4.4%	5.1%	5.8%	6.6%

Table 4. Estimates of market size for refrigerators in Rwanda per year, economic and financial analysis of the on-bill financing mechanism, 2019

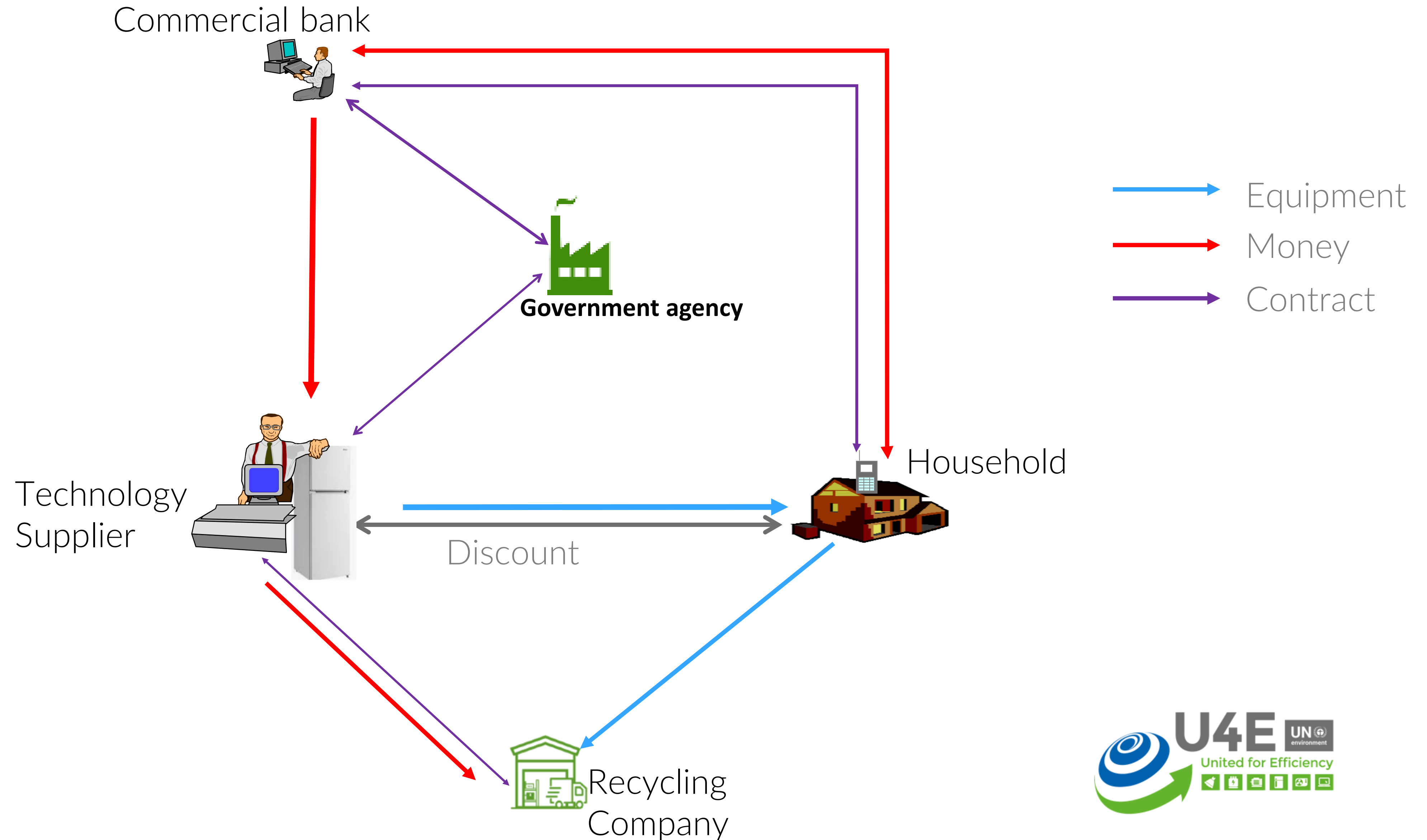
Years	2020	2021	2022	2023	2024
Number of ACs replaced (end of life time)	116	131	149	170	193
Additional number of ACs acquired (market growth)	238	270	307	349	397
Total of market for ACs per year	353	402	457	519	519
Total stock of ACs	2'087	2'489	2'945	3'464	4'055
Households with ACs (%)	0.07%	0.08%	0.09%	0.1%	0.12%

Table 5. Estimates of market size for ACs in Rwanda per year, economic and financial analysis of the on-bill financing mechanism, 2019

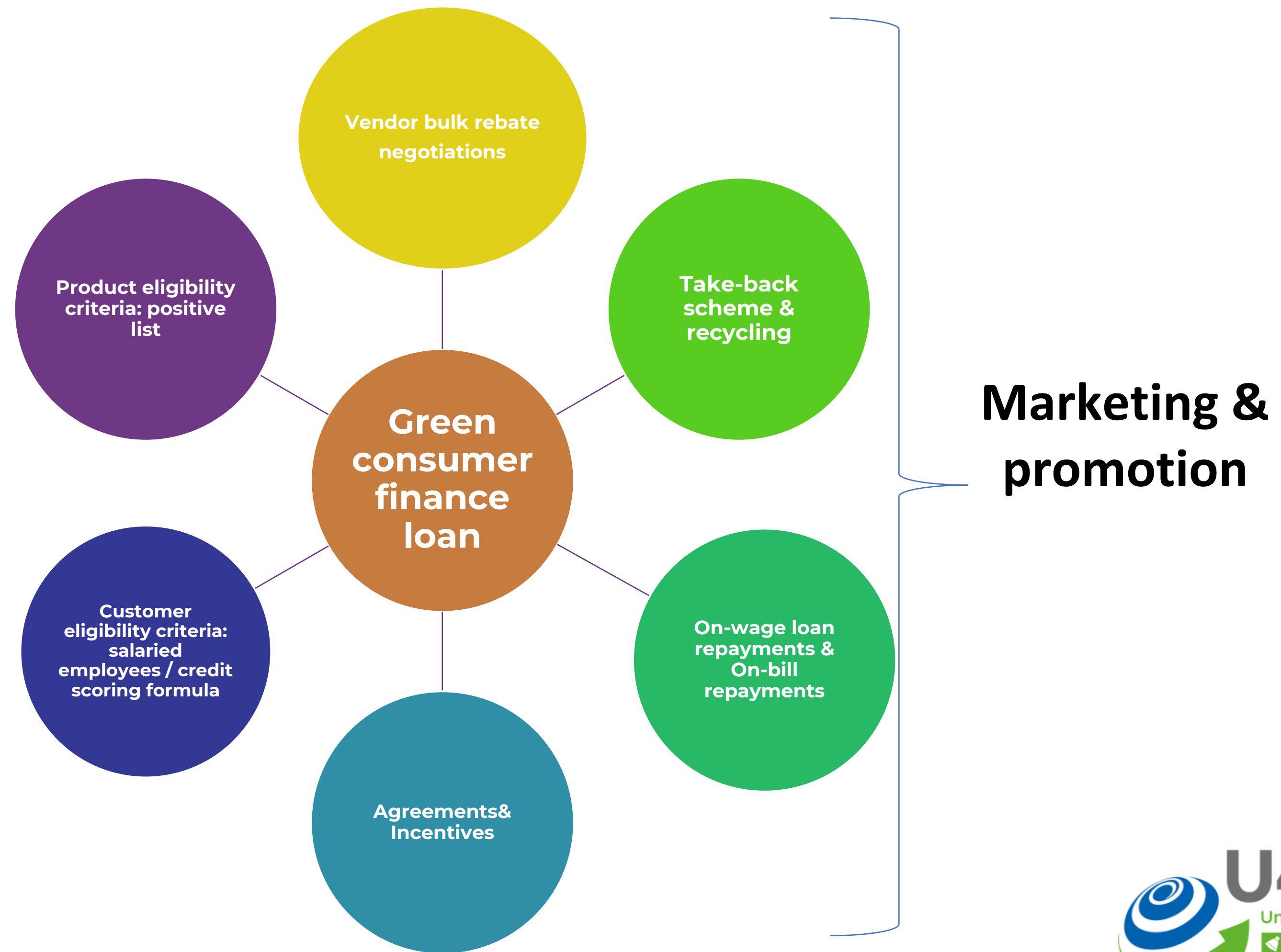
FINANCING MECHNISMS

GREEN ON WAGE (GO)

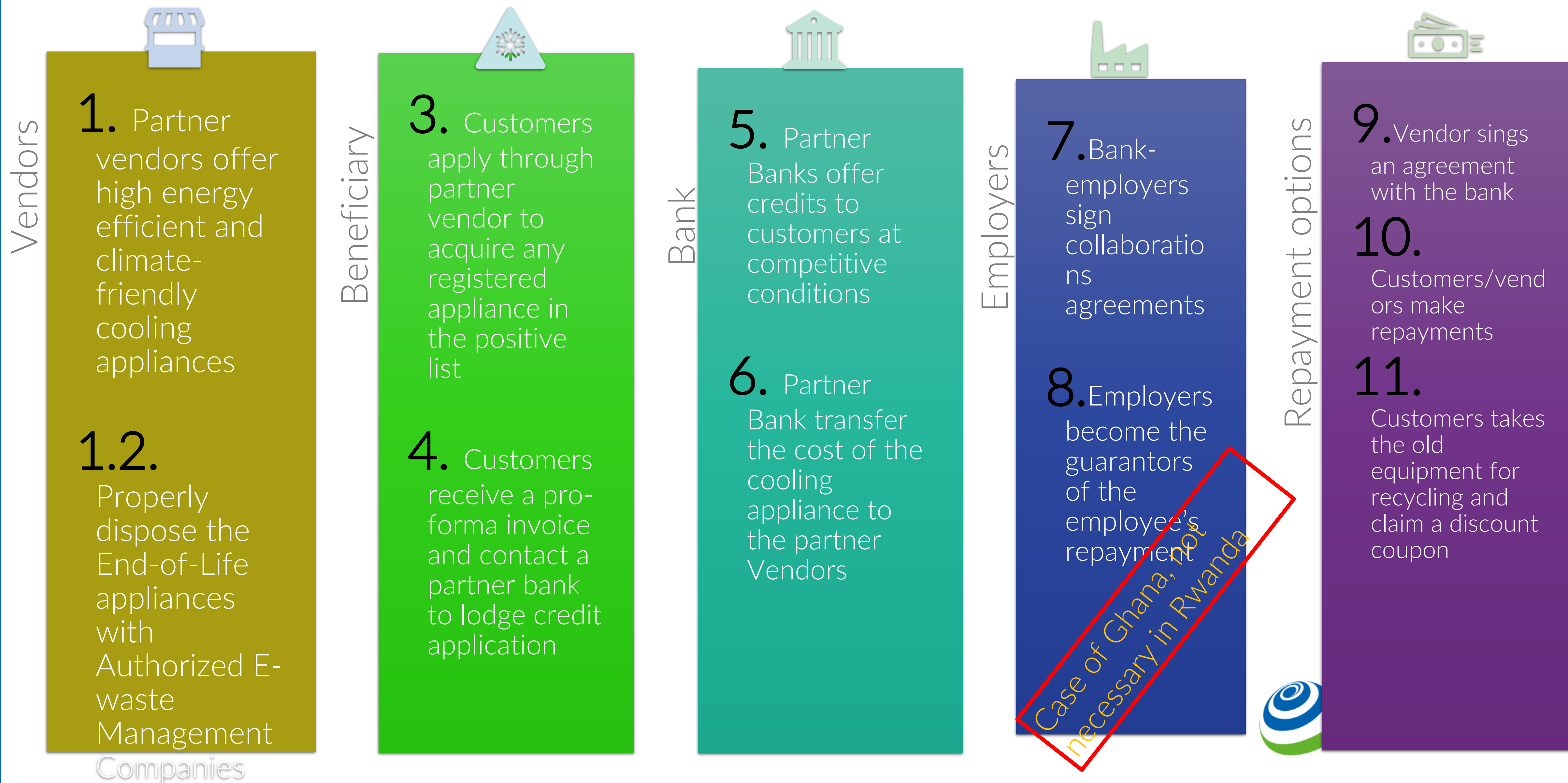
Summary



Key Components Of On-wage Mechanisms



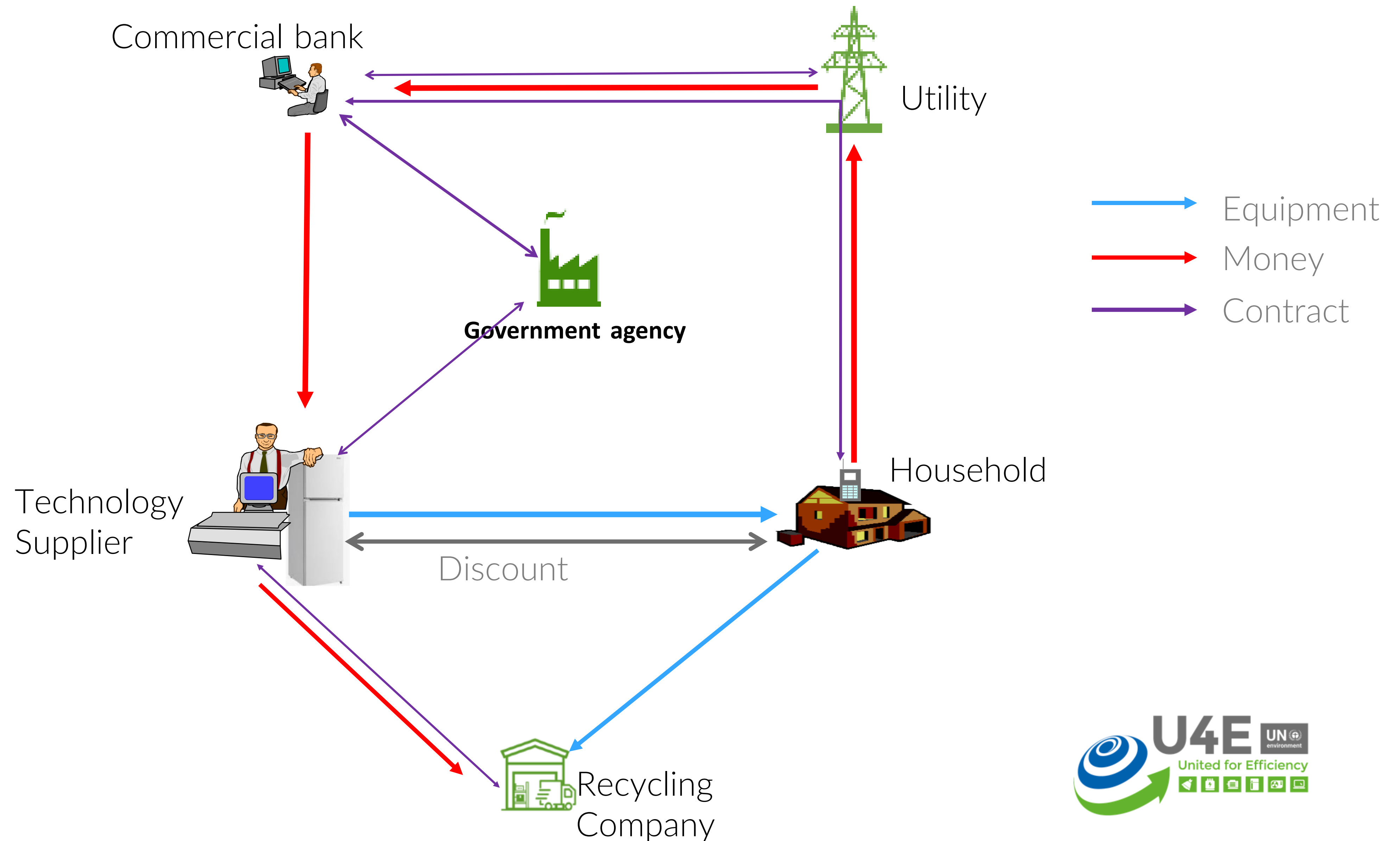
On-wage Business Model Key Stakeholders And Roles



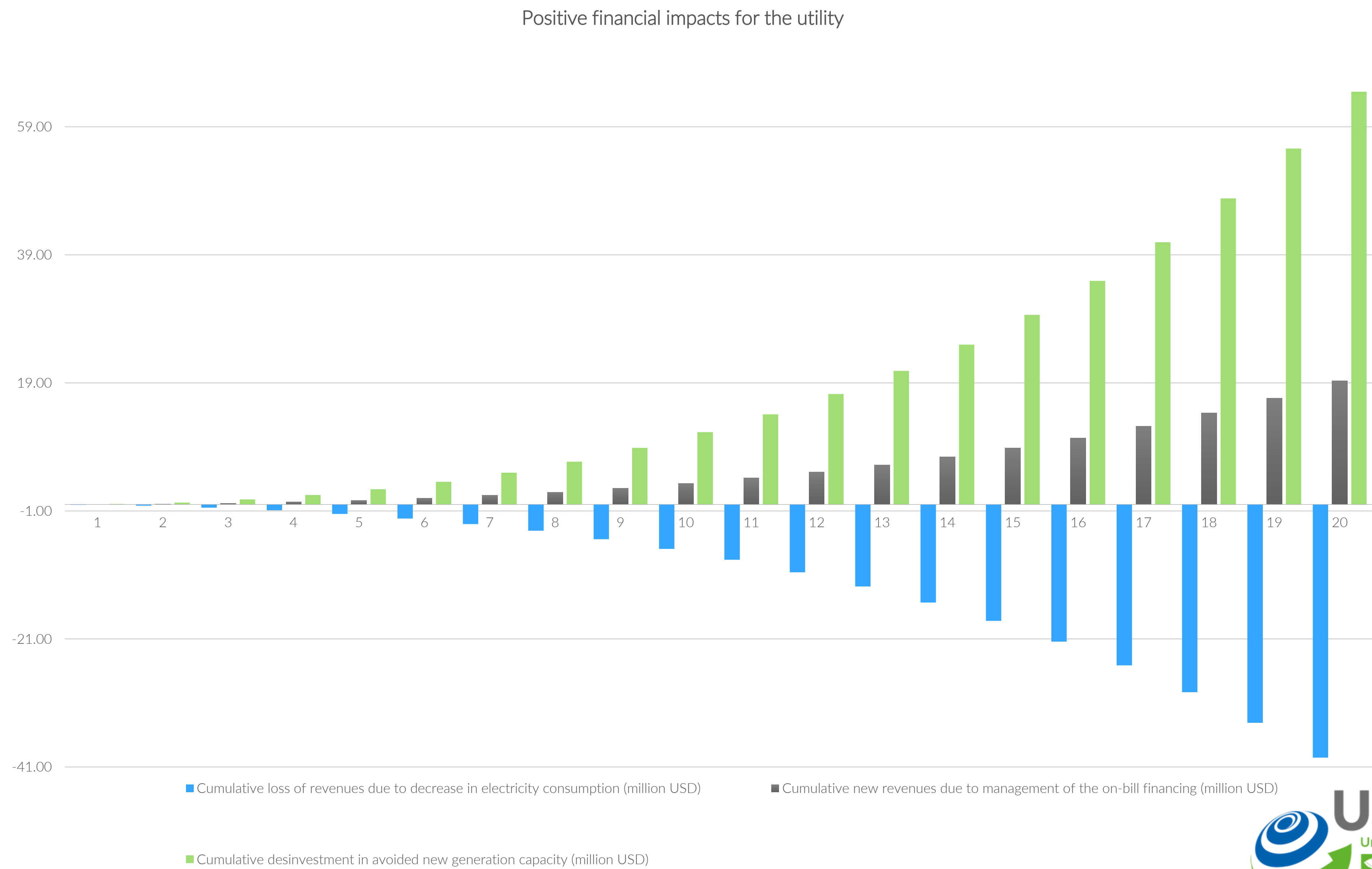
FINANCING MECHANISMS

ON-BILL FINANCING

Summary







High savings potential for the utility





Contact

TRANSFORMING MARKETS TO ENERGY-EFFICIENT PRODUCTS

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