RE-X BASED CARBON CREDIT CERTIFYING DIGITAL TOOL

Loop Layer seeks to certify carbon credits for original equipment manufacturers and remanufacturing organizations. **By developing a standard methodology and digital tool to accurately quantify, value and certify the carbon emissions saved through the remanufacturing processes**, Loop Layer's research supports the hypothesis that an additional financial incentive, such as a carbon credit, could be used to offset internal operational emissions or be sold to further incentivize reverse supply chains and spur new remanufacturing business models.

PROJECT TEAM DETAILS

Business Name	**Loop Layer**
Primary Investigator	**Garr Punnett**
Company Location	**Chicago, IL**
Readiness Level	**TRL 3-4**
Type Of Innovation	**Technology & Data Analysis**

POSITIVE IMPACTS

- INCREASED CORE INCENTIVE & SUPPLY
- DECREASED MATERIAL EXTRACTION
- DECREASED CARBON EMISSIONS
- CARBON CREDIT BASED REVENUE
- INCREASED LOCAL REMANUFACTURING

IMPLEMENTATION

Feasibility Study

Baseline Assessment

Certification & Registration

Supply Chain Analysis

Marketing & Sales Strategy

Re-X Supply Chain Integration

Product Improvement

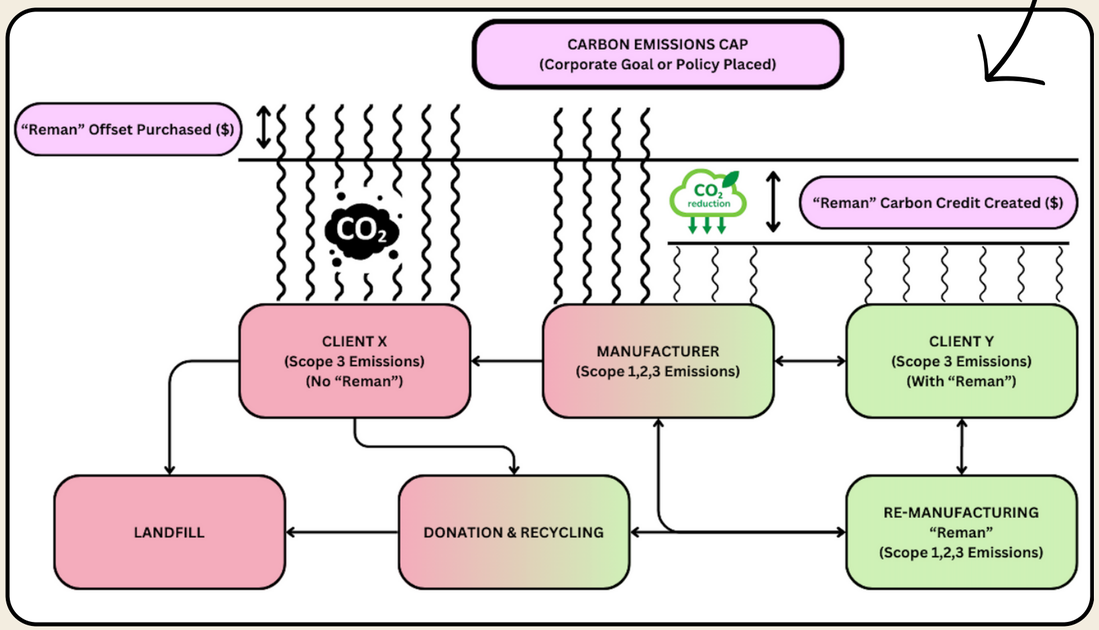
PHASE DESCRIPTION

- Client & Product Identification
- Normalize LCA Methodologies
- Carbon Credit Methodologies Development
- Supply Chain Intervention & Value Assessment
- Marketing Collateral & Value Presentation
- Broader Industry Value Alignment
- Client & Market Feedback Loop

KEY PROJECT METRICS

- Rate / Cost of Core Collection
- Core Market Evaluations
- Costs of Core Processing
- Core Processing Rates
- Entropy-Based Metric For Product Re-manufacturability
- CO2 Equivalencies Across New & Remanufactured Products
- New Material Use Avoided
- Total Recycled Material Generated
- Value of Remanufactured Product Carbon Credits
- Carbon Credit Market Rates
- Core / Product Value Ratio
- New Core Component Ratio
- Average Lifecycle Rate

REMANUFACTURING GENERATED CARBON CREDIT OFFSET DIAGRAM



$100B
Global Remanufacturing Market Size

$53B
United States Remanufacturing Market Size

$30B
Global Automotive Remanufacturing Market Size

~100B
TONS Of Minerals, Metals & Biomass Disposed Annually

ADDITIONAL REMANUFACTURING STATISTICS

9%
GLOBAL CIRCULARITY

5%
INDUSTRY GROWTH

~180,000
U.S. FULL TIME POSITIONS

85% Potential
REDUCED ENERGY USE

90% Potential
REDUCED MATERIAL USE

~500,000
AFFECTED SUPPLY CHAIN POSITIONS

"Mechanisms to increase the economic valuation of the environmental benefits and sale price of reman vs new remanufacturing must be explored and subsequently reflected in product pricing."

Technology Roadmap for Remanufacturing in the Circular Economy

Prepared by The RIT Golisano Institute For Sustainability