Executive Summary

The Energy Return Network (ERN) exists to commoditize the Natural value of work done to protect, restore, and enhance the regenerative capacity of land and water in a given bioregion.

Energy, as we know, is by definition the ability to do work. We can think of the Natural economy as the flow of information, material, and energy with our man-made economy as a subset, albeit a toxic one nowadays, that operates within it.

Within that sub-economy, is a sub-sub-economy that functions to offset and reverse the damage done, maintain the unspoiled land, water and air, and generally enhance the vitality of what remains otherwise. In sum, it's aimed at restoring the dynamic equilibrium characteristic of the original Natural economy. Or said differently, it's a tally of the benefits arising from territorial stewardship - leaving one's place in better shape than he/she found it.

The amount of the energy spent doing these regenerative efforts does not necessarily have equal *Natural value*, i.e., their ROEI varies in the expected gains of regionally-appropriate biomass / biodiversity. But since energy is measured in units having known content, their quantity can be adjusted with a multiplier, a potency index (P) so that their expected Natural value, call it V(n), is more-or-less equal, i.e., fungible from Nature's perspective.

If we think of the Earth as a bank at which we make **regenerative energy deposits** (REDs for short), ERN's role is the clerical service that issues receipts for regenerative energy deposits just as a teller issues receipts for cash deposits at a conventional bank. They're called **regenerative energy tokens** (RETs) - a ***numerical commodity*** which are the product of the *regenerative energy deposits* (REDs) and their corresponding potency indices (P), where:

X RETs = Y REDs x P

These RET units are issued and stored by the ERN so that their owners maintain full control of their tokens, with tools to migrate them to compatible blockchains at the owner's option. The idea is to foster resilient, self-funded community sub-economies to align with Natural limits and Nature's self-healing infrastructure. In summary, ERN is designed to reconcile localized (man-made) sub-economies with the natural one.

Our mission: To demonstrate through a series of local projects that by incentivising regenerative effort, communities can conceivably slow or reverse environmental decline while also supporting populations marginalized by steadily increasing economic pressures.

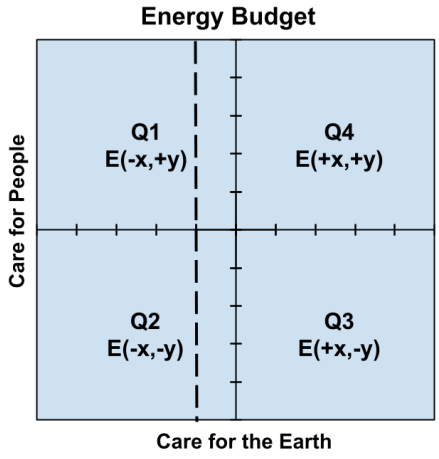
This operational description is structured to show macro-level concepts but also includes detail in the appendices to fill some of the tactical and logistic gaps.

Conceptual Framework

The core tenets of permaculture serve as the conceptual foundation for the ERN mission.

They are: 1) Care for the Earth, 2) Care for people, and 3) Returning the surplus to the system.

The first two tenets can be depicted as the axes of a cartesian coordinate layout as shown.



By dividing our energy budget into four quadrants, Q1 - Q4, we can coarsely categorize our energy expenditure with “E” meaning energy and “+” meaning a favorable ecological impact and “-” meaning an unfavorable or detrimental one with respect to the x (horizontal) and y (vertical) axes accordingly.

Quadrant one (**Q1**) shows us as **resource extractors, value-adders, consumers and waste processors** with our energies spent more-or-less for our personal and mutual benefit (+y) but too often at a cost (-x) to the vitality of our habitat and the wellbeing of co-occupants in the wild.

We must consume resources to live with any degree of health, comfort and safety, but what rate of consumption is actually needed to live comfortably?

Quadrant two (**Q2**) has our energies invested in extreme measures of **conflict resolution** with a good deal of it spent promoting, preparing for and engaging in violent conflict (war) over resources, territory, political or religious ideology, etc. Great minds have agonized over this tragic waste of energy, resources and life, and yet somehow, lasting peace eludes us.

Energy spent in quadrant three (Q3) involves efforts aimed at reducing human impact on the environment through measures that limit population growth or consumption levels, potentially benefiting the Earth's ecosystems (+x) but at a significant cost to human societies and individual well-being (-y). This category reflects ongoing debates in sustainability discussions, such as policies or initiatives focused on curbing overpopulation to align with the planet's natural carrying capacity.

Q4-grade Energy (+x,+y) is spent subsidizing the Earth’s regenerative capacity for supporting life. This broad category of work includes mental and physical energy output, and can be subdivided further into four broad categories as shown below:

General Work Category	RET Claim Code
● Environmental Damage Control (eco-activism, harm stop, etc.)	DC
● Remediation (restoring soil / water vitality)	RM
● Maintenance (wildlife / ecosystem guardian, etc)	MN
● Upgrade (Permaculture / Regenerative Ag, etc.)	UG

Regenerative projects also follow the familiar progression: Plan, Do, Check, Act (PDCA).

Given these categories we have the makings of a valuation matrix or table with sixteen cells to accommodate potency indices indicating their estimated relative value to the biosphere: The RET claim form (Appendix A) shows the distribution of these potency indices.

These potency indices serve two functions:

1) They serve as a predictor of a successful outcome for the regenerative energy spent. In that sense they are akin to one's credit score when applying for a loan from a conventional lender. A credit score is the synthesis of five component factors that correlate with the likelihood of the loan being repaid on schedule. Similarly, P values are chosen to reflect the likelihood of successful outcome for a given project.

2) P values also serve as adjustment to the raw energy output (RED) to make the resulting RET units fungible (have equal value) from Nature's perspective. The idea for P values is to adjust RED units as increased return-on-energy-investment (ROEI) in terms of regionally-appropriate biomass and biodiversity on and beneath ground level.

Appendices A thru D show how RED and RET units are calculated.

It's worth noting that RET units are *not* proposed as an alternative currency, nor are they sold by ERN, but rather are issued as a digital *numerical commodity* based on regenerative energy deposited in the Natural Economy (biome) and has a base unit defined as follows:

One (1.0) RED unit = 60 watt-hours of human-controlled energy optimally spent aiding the earth's regenerative infrastructure (soil, water, air, and sunlight).

This value is admittedly chosen as a definition, but is anchored in human physiology, representing the approximate hourly energy expenditure of the human body at rest (Basal Metabolic Rate). Also see appendix A and B.

Note that P values are subject to periodic adjustment based on expert input and participant experience accumulated in the field, however, the sum of P values in the valuation matrix must be fixed at 21. Capping node replication to 6x prevents centralization and fixing the sum of P values at 21 allows regional flexibility in RED valuation, but constrained to mitigate gaming the system.

ERN Formation

This operational plan is the basis for forming an ERN node to initially operate in Central Texas but designed to be scalable for a network of duplicate operations elsewhere.

Phase 1: Proof of Concept / Pilot Projects

- Set up a web portal / RET issue, storage, and accounting system.
- Develop infrastructure for optional RET blockchain onboarding.
- ERN will begin with co-founding members (scouts, project planners, inspectors, and clerks) to engage with existing regenerative operations but also **identify local sites for new regenerative projects** in Central Texas (Travis and adjacent counties).
- Engage local gig workers, governments, landowners, eco-activists, and investors.
- Use paper claim forms, manual, on-site verification, and smartphone tech to establish verifiable proof-of-work (PoW).

Phase 2: Digitization & Expansion

- Automate claim submission via mobile app and integrate with the web portal.
- Enable API (application programming interface) integrations with decentralized exchanges (DEXs) for RET trading.
- Cultivate partnerships with NGOs, impact investors, and local governments.
- Collect data and refine potency indices, verification / valuation protocols, and metrics. ERN's role ends at RET issuance; claimants assume full control for blockchain transfers.

Phase 3: Scalability & Policy Integration

- Demonstrate ecological impact and social / community benefits.
- Upgrade to DAO configuration (decentralized autonomous organization)
- Advocate for supportive local / regional policies.
- Expand to broader markets, ally with existing impact finance networks.
- Facilitate node replication in other regions with each node limited to 6 replications.
- ERN does not operate trading platforms or custody RETs post-onboarding. Claimants assume all tax obligations, risks for blockchain transfers, and market volatility

RET Demand and Competitive Landscape

The regional alternative economy—including markets for gold, barter arrangements, cryptocurrencies, and time banking—demonstrates a proven demand for non-standard units of value. In Central Texas (Travis and adjacent counties), the annual dollar-equivalent trade volume for these systems is estimated between $3M and $15M based on regional trends in alternative assets and community exchanges.

The local Central Texas (CTX) yearly contribution to the so-called environmental-industrial complex is estimated to be around $10 to $15M Million but often motivated by urgent environmental concerns, although they're typically challenged by high administrative costs and difficulties in verifying tangible outcomes.

.

RETs' Key Characteristics:

RETs are traceable to locally-verifiable ecological work - building trust and differentiation from other impact tokens, resource capitalization, carbon credit / offset schemes or the work of other assorted Eco-NGOs. The RED/RET System is by design founded upon verifiable evidence of measured regenerative energy output, supports decentralization, social resilience / cohesion, and real-world ecological valuation.

Barriers & Strategies to Overcome Them

- **Lack of awareness**: Implement community orientation / brainstorming / RET claim workshops, social media campaigns, and local multi-media outreach.

- **Resolve misconceptions** and conflation with other eco-proposals: Clarify RET's basis in verified effort, not merely another economist's alternative currency idea, resource capitalization scheme, or clever greenwashing tactic. Emphasize RET's basis on verifiable proof-of-work, social adhesion, and genuine, predictable ecological impact.

- **Lack of seed funding** to organize demo projects, automate the infrastructure for online peer-to-peer trading, and form alliances with parallel efforts.

Operational Model & Legal Structure: Key considerations / justification:

- Decentralization: Use blockchain/dApps to enable peer-to-peer trading of RET units minimizing reliance on unelected authorities.

- Legal status: ERN is to be an informal club with founding core team headquarters in Austin Texas. Once established, the sale of members' RET earnings will serve as their compensation making ERN a self-sustaining clerical function.

- ERN's role terminates at RET issuance and storage. All blockchain transfers and trading are claimant-managed, with ERN assuming no liability for market risks.

ERN will charge a 5% RET minting fee scaled to cover its operational cost. RETs accumulated this way will be ERN property and are subject to blockchain sales and taxation.

RETs will effectively be competing with legacy eco-NGOs and all types of non-standard units of value: gold, crypto, carbon credits, etc. The value of REDs in the natural economy V(n) does not assure RET value in the manmade economy, V(m).

A nominal amount of seed money is required to "kick start" PMA formation and initial, phase 1 operations. Scouts, project planners, inspectors and clerks as ERN members are to be engaged to sign up non-member gig workers in existing regenerative operations (agriculture, composting, pollution mitigation, eco-activism, etc.) and to identify, plan, and organize new projects (ecological damage control, natural landscaping, soil enrichment, water insoak / detox, etc.).

This document is intended as a functional description of ERN workings so the amount of seed funding is not known. However, given the idea's merit and assuming that word gets around, the trending demand for RETs can likely exceed their supply and ERN will have a self-sustaining niche in the market.

Elton Hammock
Austin, Texas: August, 2025

~~~~~~

The items listed below are attached as Appendices:

A: RET Claim Form

B: Estimation of energy output (RED) by work category

C: RET claim workflow / Instructions

D: Maintaining RET-to-RED linkage / Proof-of-Work traceability

E: Hypothetical RET value projections
~~~~~~

Appendix A:
Return Energy Network **RET Claim Form**

Please Print Legibly (Ink)

First Name:	Last Name:	Phone:
Signature:	Date: mm/dd/yyyy	email:
GPS Coordinates N	W	Project ID:

Circle the Appropriate Potency Index (P) **Sum the RED Quantity** (See Instructions)

Claim Type	Plan / Prep	Work	Check		RED Source	Rate (REDs/Hr)	Time Spent (Hrs)	Total RED (Rate x Time)
Dmg Control	2.0	4.0	2.0		**Metabolic**			
Remediation	1.5	3.0	1.5		**Animal**			
Maintenance	1.0	1.0	0.5		**Machine**			
Upgrade	1.5	2.0	1.0		Leave Blank	Leave Blank	**Total RED --->**	

P [_____] x REDs [_____] = [_____] RETs Claimed

Description of Work: Project goal / Organization name, equipment used / power source, etc.

Note:
A 5% minting fee will be charged to support ERN operations.
Check here ____if you want an additional 10% donated to support government services.

Verified by:

First Name:	Last Name:	Phone:
Signature:	Date: mm/dd/yyyy	email:

Appendix B: Claim Form Instructions

Use this table to estimate your metabolic RED output.

Exertion Level	BPM Range	REDs / Hr*	Examples
Sedentary	60 - 80	1.0	Desk work, planning, etc.
Light	80 - 100	2.0	Walking, light tool use
Moderate	100 - 120	4.0	Digging, planting, etc.
Heavy	120 - 140	6.0	Chopping wood, trenching

* Base rate assumes 150 lbs body weight. Adjust by ± 0.1 REDs/hour per 25 lbs over/under 150 lbs. *Example*: 200-lb worker: Add 0.2 REDs/hour to the table values.

Use this table to estimate animal RED output.

Ranchers often use horses and dogs in their work. Kleiber's Law is used to account for their energy output assuming a moderate level of exertion:

> **$E = S \times W^{2/3}$**, where,
> S = 0.15 (dogs), S = 0.07 (horses), W = body weight (lbs),

Use these tables to estimate powered equipment RED output.

Using mechanized equipment is often needed to do regenerative work but each type has ecological trade offs to consider when estimating their net RED values. Given the holistic scope of relevant factors, the following tables can be used to calculate the energy deposit rates based on their power rating, i.e. REDs/Hr = HP x M or KW x M.

Internal Combustion (ICE)

Class	HP Range	Multiplier (M)	Examples
Handheld	< 5 HP	0.9	Chainsaws, weed whackers, etc.
Small	5 - 25 HP	0.7	Walk-behind mowers, tillers, etc.
Mid-Size	25 - 75 HP	0.5	Lawn/garden tractors, skidsteers, etc.
Large	75 - 100	0.3	Farm-grade tractors
Heavy	> 100 HP	0.1	Bulldozers, Excavators, etc.

Battery-Powered Equipment

Class	KW Range	Multiplier (M)	Examples
Handheld	< 1Kw	0.9	Drills, trimmers, etc
Small	1 - 5 Kw	0.7	Lawn mowers, walk-behind tillers, etc.
Mid-Size	6 - 25 Kw	0.5	Small tractors, skid steers, etc.
Large	26 - 50 Kw	0.3	Backhoes, compact excavators, etc.
Heavy	> 50 Kw	0.1	Large excavators, loaders, etc.

Note: The **Voluntary** 10% donation will subdivided: 4% City, 3% County, 2% State, 1% National

Appendix C: RET Claim Workflow (Simplified)

1. ID (Potential) Regenerative Project
2. Contact ERN clerk and get Project ID assignment
3. Document the project goal and a sufficiently detailed plan
4. Establish Baseline (the “before” condition)
5. Capture Evidence of Work Done
6. Estimate the Amount of Energy Spent (RED)
7. Select P Value (Nature’s Value of the RED)
8. Calculate RETs being Claimed + Sponsor / Inspector Check
9. Indicate 10% RET Donation to Support Man-Made Infrastructure (Optional)
10. ERN Clerk Issues & Stores RETs (Your “Deposit Receipt”)
11. Export RETs to Bulletin Board / Blockchain (Optional)
12. Track / Exchange RETs at Market Value

A more comprehensive workflow is covered in the Orientation / RET Claim Workshops.

It’s worth noting that never before has there been the general accessibility to the technical toolset available to plan projects, capture and transmit evidence of regenerative work and the infrastructure to make it verifiable by the general public.

Appendix D: Maintaining RET-to-RED linkage / Proof-of-Work traceability

ERN RET Account Page (Mockup) **Account:** Jane Doe (512)123-4567)

Date	Project ID	Debit	Credit	Balance	Export
1/29/25	UG78723.1/250129		3.50	3.50	**Y**
7/25/25	DC78701.1/250712		5.30	Pending	

The Project ID's are hyperlinked to the claimant's original claim form which in turn is linked to an album of photographic evidence of the project plan and the work done to fulfill it.

Claims made prior to project's completion or under special evaluation are entered as "pending".

The ERN website will be designed to allow (prospective) RET owners to lookup RET / RED linkage from archived galleries of specific projects using the project IDs.

The perceived value for RET units hinges on their traceability to the localized regenerative work that justify their creation, i.e. their RED pedigree. Without that, the RED/RET system, indeed the ERN enterprise itself has no characteristic distinguishing itself from other well-established, but less-verifiable regenerative efforts.

Appendix E: Hypothetical impact on regional agriculture / organic food supply

For the last 75+ years, the agricultural mandate has been “Get Big or Get Out!” leaving small family-run operations at a severe competitive disadvantage. The emergence of genuine organic and regenerative agriculture has earned some consumer appreciation, but low prices still dominate shoppers’ priorities.

If truly regenerative farmers and ranchers are willing to claim the RETs due them, and if RETs reach a minimum threshold market value to supplement their regular operational income, they could match or beat their corporate competitors’ shelf price.

Most farmers and ranchers would testify they spend 50+ hrs/week (200+ hrs/mo) as food producers and land stewards. The following table shows the supplementary RET-based pre-tax income at various (**hypothetical**) RET market values.

Hypothetical Income from RET Sales at Various Market Values ($ / RET)

($/RET)	$/Mo	$/Yr	Competitive Impact
$2.50	$1,440	$17,280	RET Floor Pricing / Proof-of-Concept Established
$3.00	$1,728	$20,736	Pioneer Investors Profit (20% ROI)
$3.50	$2,016	$24,192	Closing pricing gap: Big Ag vs Local Land Stewards
$4.00	$2,304	$27,648	**Local Producers Underprice Industrial Agriculture**

Assumptions:

1. Working time 40 hrs/wk (not counting machine and animal contributions)
2. P = 2.0 (Upgrade 25%, Remediation 25%, and Maintenance 50%)
3. Metabolic exertion (REDs/hr) = 2.0
4. Producer Claims: 640 / mo x 0.99 = 633 RETs / Month

Conclusion:
Local RET demand vitalizes and localizes the food supply chain, and **adds nutrient density** without dependence on toxic chemicals or inorganic soil amendments.

The RET system enables **farmers and ranchers to earn from both food sales AND RET sales**, allowing them to reduce shelf prices while maintaining profitability.

Appendix E (con’t): Hypothetical Impact on regional employment and housing

Despite the efforts of government and NGOs to offset economic stressors affecting the lower strata of the local economic pyramid, there remains a persistent level of homelessness, chronic unemployment and family home evictions. The table below shows the number of people in CTX likely to be favorably impacted by RET blockchain sales for various RET market prices.

RET Value	Housing Transitions	Evictions Prevented	Employment Transitions	Skills Development
$2.50	75 - 125	500 - 750	750 - 1000	Appreciation for regenerative work
$3.00	100 - 175	750 - 1,100	1,000 - 1,500	Attracts further participation
$3.50	125 - 200	1,000 - 1400	1,250 - 1,850	Develop regenerative expertise
$4.00	150 - 225	1250 - 1750	1,500 - 2,200	Worthy of youth vocational training

Enabling Factors

1. **Job displacement (AI):** Creating meaningful work that cannot be automated, allowing people to supplement their income and defer economic hardship.
2. **Regenerative action increases**: Providing economic incentive for environmental restoration while maintaining work-life balance.
3. **Strengthens community resilience / social cohesion** Building local economic independence through distributed part-time environmental work connecting diverse populations through a shared regenerative purpose.