WEN（Weber Energy Chain）

white paper

Prologue: The Metaphor of Energy, the Transference of Consensus

_ Since ancient times, human civilization has regarded "fire" as a symbol of enlightenment and power. From the myth of Prometheus stealing fire to the steam engine of the modern Industrial Revolution, energy has always been metaphorically regarded as the driving force behind social evolution. In the field of blockchain, the consensus mechanism is like the "spark" in the digital world, burning computing resources in exchange for a trustworthy order. Bitcoin has pioneered the proof that only irreversible real input can create an unalterable digital ledger.

_ "Irreversible real input" means that every kilowatt-hour of electricity and every joule of energy dissipated in blockchain consensus becomes part of history, irrevocably anchoring the reliability of the records on the chain. Philosophically, this reflects the solemnity of a sunk cost - just as the ancients offered precious sacrifices to obtain the blessings of the gods, miners in the PoW consensus offer electricity and computing power as "sacrifices" to obtain network trust. This approach inherits the simple consensus in human society regarding cost and reputation: only when a real cost is paid is the result of an

action trustworthy. Economist Nic Szabo refers to this as "unforgeable costliness", meaning that by consuming a large amount of resources, the cost of forgery becomes prohibitively high, thus endowing digital tokens with credibility. 。

_ The concept of WEN (Weber Energy Chain) is derived from this metaphorical integration of energy and consensus. Its name pays tribute to the sociologist Max Weber's interpretation of authority and legitimacy. Weber believed that the order of modern society is based on rational and legal authority. However, in the world of blockchain, what we pursue is a kind of authority - free consensus: not relying on the prestige of any individual or central institution, but making "energy consumption" itself the source of trust and the substitute for authority. In WEN, the competition of computing power and the burning of the EI energy index are endowed with philosophical significance: the EI energy index condenses into an indelible "fire of consensus" on the chain, illuminating the truth jointly recognized by participants. This transference of consensus gives abstract digital credit a concrete and objective material mapping, establishing the originally ethereal trust on physical laws. As some commentators have said, "The energy consumed in the Bitcoin network gives the ledger immutability. This characteristic is irreversible, and the consumed energy cannot be recovered." The WEN Energy Chain also takes this as its creed, transforming irreversible consumption into a guarantee of on - chain order.

_ In summary, the prologue aims to clarify WEN's core belief: The fire of consensus stems from irreversible investment. Energy is no longer just a metaphor but a direct participant in the consensus algorithm; consensus is no longer just a game within the code but a reflection of real - world physical behavior in the digital world. In the following chapters, we will further elaborate on the technical implementation and philosophical basis of this concept, demonstrating how WEN comprehensively reconstructs the blockchain paradigm from the consensus mechanism, currency forging, system architecture to the governance model.

Chapter One:

Positioning of the Chain —— Paradigm Shift from Consensus to Minting Mechanism

_ The WEN Energy Chain is first and foremost a rethinking of the positioning of blockchain: it is not just a public chain, but also a paradigm shift from the consensus mechanism to the logic of currency minting, and a testing ground for Weber's ideas. Traditional blockchains focus on how the consensus algorithm enables distributed nodes to reach an agreement on the transaction order, while WEN further focuses on the fairness and legitimacy of the minting mechanism itself, elevating it to the starting point of consensus design. This shift means that consensus is no longer just a technical issue, but also an economic and philosophical one, that is, who is eligible to mint currency and at what cost.

_ Looking back at the previous public blockchains, the consensus mechanisms have generally gone through paths such as PoW and PoS. PoW (Proof of Work) competes for the right to record transactions by consuming computing power and electricity, ensuring a high degree of decentralization and security. However, it has also been highly controversial due to its huge energy consumption. PoS (Proof of Stake) attempts to replace the computing power competition with the weight of coin holdings to reduce energy consumption, but it introduces the risk of "coin power means right to speak", which may lead to excessive concentration of power among early large holders.

The exploration of "hybrid consensus" has thus emerged, hoping to integrate the advantages of various mechanisms. However, most hybrid models (such as PoW+PoS) are still limited to combinations at the technical level and do not touch on the deep - seated changes in the coin - minting paradigm.

_ The positioning of the WEN Energy Chain is as follows: Based on irreversible consumption as the foundation of fairness, it integrates the reliability of Proof-of -Work and the efficiency of Proof-of-Authority to reconstruct the paradigm of currency issuance. Compared with traditional consensus which focuses on the

security of bookkeeping, WEN goes one step further. It regards the on-chain tokens as the proof and crystallization of physical resources (electricity, equipment), thus endowing the token issuance with a meaning similar to "energy standard". In Bitcoin, Proof-of-Work is regarded as digital mining, which is analogous to gold mining: people invest labor and energy through "mining" to obtain scarce Bitcoins. WEN accepts and develops this analogy, but emphasizes that this kind of mining is not a waste, but a process of value endorsement: just as the currency issuance in the past gold standard era required gold mining as support, the token issuance of WEN also requires the actual consumption of hardware, thus endowing the tokens with objective cost support.

_ This paradigm shift is also reflected in the repositioning of the consensus role. In a typical PoW chain, the role of miners is limited to packaging transactions, competing for bookkeeping, and profiting from block rewards. In a PoS chain, validators obtain rights based on the tokens they hold. In WEN, however, miners and nodes are given the identity of "coin minting agents" - while they burn EI to obtain the right to record transactions, they are actually minting new coins and determining the rhythm of currency issuance and the cost structure. This makes the consensus mechanism of WEN go beyond the traditional "order maintenance" and rise to become part of the governance of the monetary system itself.

_ The positioning of the WEN Energy Chain lies in: taking irreversible consumption as the basis of fairness, integrating the reliability of proof - of - work and the efficiency of proof - of - authority, and reconstructing the paradigm of currency issuance. Compared with traditional consensus which focuses on the security of book - keeping, WEN goes a step further. It regards the on - chain tokens as the proof and crystallization of physical resources (electricity, equipment), thus giving the token issuance a meaning similar to "energy standard". In Bitcoin, proof - of - work is regarded as digital mining, which is analogous to gold mining: people invest labor and energy through "mining" to exchange for scarce Bitcoins. WEN accepts and develops this analogy, but emphasizes that this kind of mining is not a waste, but a process of value endorsement: just as the issuance of currency in the gold standard era in the past required gold mining as support, the token issuance of WEN also requires the actual consumption of hardware, thus endowing the tokens with objective cost support.

_ Specifically, WEN adopts a hybrid consensus of PoW+PoA. However, different from general hybrid consensus, the PoW part not only serves security but also

undertakes the functions of measuring input and ensuring fairness. The PoA part not only provides efficiency but also ensures that power is not abused and token issuance is not manipulated by a few people through rule - setting. It can be said that WEN is positioned as an energy public chain that exchanges physical input for credit, attempting to achieve a "currency issuance mechanism without a central bank" - the production of currency is determined by the resources actually invested by the whole network, rather than by a central institution or a few interested parties. This is a paradigm shift: from relying on artificial rules to following natural laws, and from relying on subjective reputation to burning objective energy.

This positioning complies with the higher requirements of blockchain development for fairness and anti-monopoly. PoW provides opportunities for barrier-free entry and competition. However, with the emergence of professional mining machines and mining pools, the mining rights of networks such as Bitcoin are also becoming centralized. PoS essentially acknowledges the privileges of wealth holders. WEN hopes to prevent the monopoly of pure computing power or pure coin-holding by introducing resource constraints in the physical world. For example, even if a node has a large amount of capital, if it lacks corresponding energy input (or has low energy input efficiency), it cannot easily dominate everything in the WEN network. This design concept reflects a kind of "minting justice": the creation of currency requires real effort as a cost, and this cost is equal and transparent to everyone - regardless of personal background or initial wealth, one can obtain a return commensurate with their efforts by investing energy and equipment, and no one can create currency out of thin air above the rules.

In conclusion, the WEN Energy Chain redefines the role of blockchain in the economic system - it not only maintains the consensus of the ledger but also serves as a decentralized money - minting machine. Through a paradigm shift, WEN expands the concept of "consensus" from a simple technical protocol to a comprehensive mechanism that encompasses economic, physical, and philosophical elements. In the next chapter, we will delve into the technological and philosophical foundations that support this positioning, and clarify how sunk costs ensure the authority - free fairness of money - minting.

Chapter Two：

Fundamentals of Philosophy of Technology —— Sunk Costs and the Justice of Decentralized Coinage

The design of the WEN Energy Chain is deeply driven by philosophical thinking of technology. In this chapter, we will explore how the two core concepts of sunk cost and decentralization of authority lay the foundation for the fairness of the WEN minting mechanism, and cite relevant philosophical concepts to justify the value proposition therein.

▷ 2.1 Sunk Cost: Commitment of Irreversible Investment

▪ Sunk cost refers to the cost that has been paid and cannot be recovered. In traditional economics, sunk costs should not affect future decisions; however, in the consensus system, sunk costs precisely endow commitments with weight. The PoW mechanism makes use of the principle of sunk costs: the extensive hash calculations carried out by miners to compete for the right to record transactions, as well as the electricity consumed and hardware wear and tear resulting from this, are all unrecoverable investments. Once the investment has occurred, miners can only ensure that the network operates according to the rules and that the rewards obtained remain valuable, so that the investment makes sense. Therefore, this mechanism ingeniously binds the interests of participants to the overall security of the network - the higher the sunk cost, the lower the motivation to disrupt the network, because that would render the previous investment in vain.

▪ Philosophically, it can be analogized to the sense of ritual of "pledging a token": just as in ancient oaths, all parties would make symbolic sacrifices to show their determination. In PoW, miners use energy consumption as a pledge of their integrity. This kind of pledge has inherent non - falsifiability: unless one actually expends equivalent resources, it is impossible to "forge" this sincerity out of thin air. As a result, the network has formed an incentive - compatible

order: only those who work honestly and follow the protocol can continuously obtain rewards, while those who attempt to cheat not only find it difficult to succeed but also lose real money. As someone commented: "The energy consumed by Bitcoin makes the ledger unforgeable. This feature is irreversible, and the consumed energy cannot be released and recovered" - the energy is sunk in it, in exchange for the immutability of historical records.

- WEN Energy Chain inherits and carries forward this idea. We introduce the Energy Index (EI) as an abstract measure of miners' resource consumption, to reflect the actual resource input behind each unit of tokens. The calculation of EI takes into account factors such as the electricity consumed by miners (e.g., kilowatt-hours) and equipment depreciation. For example, EI can be defined as the sum of the product of the average power consumed by miners within a unit of time and the time:

$$EI = \sum_{i=1}^{N} P_i \Delta t_i$$

Among them, Pi represents the power of the i-th mining machine, and Δti is the working duration. Summing them up gives the total energy consumption of the entire network during a certain period. The EI indicator changes in real time with the computing power and energy consumption of the entire network, reflecting the irreversible investment "burned" by the on-chain consensus. One of the main functions of this index is to provide an objective scale for the cost of coin minting: for every certain increase in the number of tokens, a certain amount of EI needs to be consumed, indicating that a corresponding amount of investment has been irreversibly invested in the chain's consensus. In this way, tokens are no longer numbers generated out of thin air, but more like a kind of "energy voucher". Just as in the gold standard era of currency, 1 US dollar could be exchanged for a certain number of grams of gold. In WEN, the generation of each token means a corresponding energy consumption as support. This is not an exact

anchoring relationship, but it creates a similar effect macroscopically: the value of tokens is backed by the objective energy cost required for their production.

▷ 2.2 Decentralization of Authority: Fairness and Justice in Consensus Algorithms

▪ One of the original intentions of blockchain is decentralization, that is, to avoid reliance on a single authority. However, different consensus mechanisms vary significantly in achieving this. "Removing authority" does not mean there are no rules, but rather that the rules apply equally to everyone, and the cost of violating the rules is high for any entity. Through the mechanism design of sunk costs, WEN has formed a concept of minting justice: no one can obtain tokens cost - free above others. Each coin needs to be "minted" at the cost of corresponding resources. This is just like in the social contract theory, where justice means impartially giving each person their due share. In WEN, the "due share" is determined by objective input - if you invest X% of the effective energy of the entire network, then you should receive approximately X% of the block rewards, regardless of whether you are an ordinary individual or a large - scale institution. Irreversible real input becomes the sole criterion for measuring contributions, thus eliminating the space for human manipulation and rent - seeking of power.

▪ Max Weber's analysis of legitimate authority can also be drawn upon here. Weber distinguished among traditional authority, charismatic authority, and legal-rational authority. Among them, modern society places a higher value on rational-legal authority, that is, the legitimacy of governance obtained through established rules and procedures. The consensus of WEN can be said to be a kind of "rational-physical" authority: It does not stem from the charm of a person or an organization, but from the obedience to and application of energy and algorithmic rules. Miners do not obtain the right to record accounts by virtue of their status, but by virtue of their real investment of energy and winning the right to record accounts according to the algorithm. Such authority is cold and fair, because the laws of nature show no favoritism.

▪ Furthermore, this de - authoritative minting mechanism also avoids the risk of centralized abuse of power. In a centralized monetary system, the right to mint

coins often belongs to authoritative institutions such as governments or central banks, and problems such as over - issuance and manipulation are inevitable. Even in some blockchain projects, the token issuance controlled by foundations or super - nodes has also sparked controversy. WEN, on the other hand, distributes the right to mint coins to thousands of mining nodes through distributed energy consumption and restricts their behavior with strict mathematical and physical rules. This brings "justice" to the field of coin - minting: no one can issue tokens out of thin air by virtue of special privileges, nor can anyone arbitrarily change the issuance rules. All changes must be achieved through a new game of energy and computing power of the majority of the whole network, and the consensus process itself ensures the due process of the change.

- Philosophically, Rawls' metaphor of the "veil of ignorance" can be used: Miners participating in the WEN consensus do not know which block's reward they will surely win before entering the competition. Everyone is equal in the face of algorithms and energy consumption. This uncertainty requires them to obtain returns based on probability and long-term investment, thus leveling the space for human manipulation and making the results approach fair distribution in a statistical sense. It is precisely this fairness in the process that shapes the relative fairness in the results.

- Finally, it should be pointed out that sunk costs and decentralization complement each other: the former provides constraints and leverage, making participants take rules seriously, while the latter ensures the universal application of rules, preventing exceptions and privileges. Together, they form the pillars of the technological philosophy of the WEN Energy Chain - exchanging real sunk investments for a decentralized and just order. This coinage justice is not a fantasy; it has been preliminarily verified in pioneer systems such as Bitcoin. Bitcoin's more than a decade of secure operation shows that the collective energy input of honest nodes under proof-of-work far exceeds that of malicious actors, making attacks extremely difficult. Moreover, Satoshi Nakamoto's issuance plan also follows fixed rules that no one can modify privately. These practical experiences have provided confidence and inspiration for WEN.

- However, WEN does not stop at the existing framework of PoW. On this basis, it further combines PoA elements, introduces a hierarchical structure and other improvements to achieve both performance and fairness. This leads to the

theme of the next chapter: how to integrate various concepts in a specific system architecture to achieve a fission - type network structure design.

Chapter Three：

System Structure Design - Construction of Network Incentives

_ After understanding the concept of WEN, we turn our attention to its specific system architecture design. The WEN Energy Chain adopts a structural network architecture to achieve a balance among decentralization, fairness, and performance. The three - layer network means that nodes are divided into three levels according to functions and roles, forming a bottom - up collaborative relationship. This chapter will introduce in detail these three - layer structures and their fission characteristics, including the positioning and responsibilities of nodes at each level, as well as the interaction mechanisms among them.

▷ 3.1 Node Hierarchy Division: Micro Nodes, Full Nodes, and Master Nodes

▪ In the WEN network, nodes are divided into two main categories: Micro Nodes and Full Nodes, which form the basis of a three - layer architecture. Among them, Micro Nodes are a large number of basic participants, equivalent to the "capillaries" of the network; Full Nodes are relatively few backbone nodes, undertaking the main accounting and verification functions of the network. Above the Full Nodes, there is an abstract Master Node, which can be regarded as a global consensus network formed among the Full Nodes. The three - layer structure is as follows :

The first layer: Micro-node layer. This layer consists of a vast number of micro -nodes. Micro-nodes are usually individual nodes running simple mining devices or Internet of Things devices. They have weak computing and communication capabilities, but they are numerous and spread all over the

place. The main functions of micro-nodes are to store part of the mainnet data and perform PoW mining calculations, providing proof of work (computing power) for the network. However, unlike miners in traditional public blockchains, the micro-nodes of WEN do not directly generate blocks independently. Instead, they submit their calculation results to the full nodes to which they belong. Micro-nodes can be understood as "lightweight miners" or "work units". They each execute hash operation competitions to find solutions (a set of hash values under a difficulty target) that meet the requirements of the consensus algorithm. Micro-nodes do not need to store the complete blockchain. They only need to save information such as the headers of the most recent blocks related to mining, thus minimizing the hardware requirements. This enables anyone to act as a micro-node through a small mining machine or a modified device, greatly reducing the participation threshold and truly achieving the decentralization and wide participation of the network.

The second layer: the full node layer. Full nodes are the pillar nodes of the WEN network, equivalent to the "hub" of the network. Each full node has complete blockchain data and state, and is responsible for packaging transactions, proposing and validating blocks. Full nodes collaborate through a consensus protocol (which contains PoA components) to form a consistent recognition of the blockchain state. The full nodes of WEN assume a dual role: on the one hand, they collaborate with micro nodes to collect PoW calculation results to propose new blocks; on the other hand, they run a lightweight Byzantine consensus or confirmation process among themselves to quickly reach a final consensus on a certain block. The number of full nodes is relatively limited to ensure network communication and consensus efficiency. These full nodes can be assumed by participants in the community who have sufficient resources and reputation. They need to meet certain computing power thresholds and staking thresholds (for threshold requirements, see the following text) to ensure that they have the ability and motivation to honestly fulfill their duties.

The third layer: Master Nodes. This is a logical concept referring to the top - level network composed of master nodes. At this level, full nodes communicate with each other and run a hybrid consensus protocol (PoW + PoA) to generate a unique main chain. Each full node produces and validates blocks from others, jointly forming the main chain of the WEN blockchain. Master nodes are responsible for maintaining the final ledger state of the entire network. They hide the complex work of micro - nodes from the lower level and provide a

unified chain service interface to users and applications at the upper level. Another main function of the main chain layer is to generate the EI Energy Index through the "Origin Contract". Therefore, WEN introduces a certain degree of permission stratification (PoA elements) in the main chain layer to avoid potential fork propagation and confirmation delay problems that may occur in pure PoW. Full nodes confirm blocks through rapid negotiation (such as block signature voting), so that once a block is generated on the main chain, it can be signed and endorsed by the majority of master nodes, approaching final certainty.

▷ 3.2 Micro Node Mounting and Fission Mechanism

▪ The mounting mechanism refers to how a micro - node attaches (registers) to a full - node, as well as how this relationship is established and dissolved. In WEN, before a micro - node starts mining, it needs to select a full - node to mount, which is equivalent to joining the camp of that full - node. This is somewhat similar to the concept of traditional combined production, but in WEN, it is a native network mechanism rather than an off - chain protocol. Once the mounting is successful, the micro - node will obtain information about the block to be mined currently from the full - node (such as the block header, Merkle root, and difficulty target), and then independently execute the PoW calculation. If a hash solution that meets the difficulty is found, the micro - node immediately submits this solution to the full - node to which it belongs. The full - node then constructs a complete block based on this (including the packaged transactions), signs the block, and broadcasts the proposed block to other full - nodes.

▪ The design of the mounting mechanism takes into account incentive compatibility: Full nodes benefit from the achievements of the micro nodes they mount (because finding a block means the full node gets the block production right), so it will motivate micro nodes to work for it; Micro nodes rely on full nodes to convert their work into actual blocks and rewards, so they also have the incentive to faithfully submit solutions to the full nodes. To prevent possible cheating or private agreements between micro nodes and full nodes, WEN adopts the rule of on-chain reward distribution to ensure the transparency of the interests of both parties. Specifically, the block reward will be distributed between the block-producing full node and the micro node that provides a valid PoW solution according to a pre-agreed proportion. For example, it can be set that the full node (as the bookkeeper) receives a fixed basic reward b, and the

micro node (as the miner) obtains the main part of the reward according to the effective computing power it contributes. If multiple micro nodes find different solutions almost simultaneously, only the solution submitted first may be adopted; however, to encourage widespread participation, a "computing power points" mechanism can also be introduced to give certain compensatory rewards according to the contribution probability of micro nodes over time.

- The fission mechanism is a distinctive dynamic scaling method of the WEN network. The so - called "fission" means that as the network scale and load increase, a node cluster can split into two or more clusters, thereby increasing the number of full nodes and improving the system capacity. This is similar to the process of cell division or organizational expansion, reflecting the network's self - evolving ability:

1. When the number of micro - nodes mounted under a certain full - node is too large and the total computing power is too strong, two problems will arise. Firstly, this full - node occupies too high a weight in the consensus, potentially threatening decentralization. Secondly, the full - node needs to manage too many micro - nodes, resulting in an excessive burden on communication and management, which affects efficiency. At this time, the protocol will encourage or trigger the fission of this huge cluster.

2. The realization of fission can be achieved through two approaches: automatic fission and autonomous fission. Automatic fission means that when the protocol layer detects that the number of micro-nodes or computing power of a single full node exceeds a preset threshold, it allows or designates a split. For example, when the number of micro-nodes mounted on full node A reaches the upper limit N, the full node can increase the mounting capacity by increasing the amount of staking. Autonomous fission refers to some participants within the existing cluster deciding to initiate a new full node. For example, some senior micro-node operators of full node A jointly raise sufficient staking coins and hardware resources. They can apply to become a new full node B and transfer some of the micro-nodes originally mounted on A to the name of B, thus sharing the computing power of A.

3. During the fission process, new full nodes need to meet the specified entry conditions, including: submitting a certain amount of native tokens

as collateral (collateral token threshold) to show sincerity and bear the risk of punishment, as well as proving that they have sufficient computing power support (computing power threshold) and a stable operating environment. This is similar to the requirements for validator identities in the PoA consensus. However, in WEN, these requirements are more reflected in objective indicators (such as the amount of collateral, proof of computing power) rather than subjective review, in order to avoid reintroducing authoritative approval.

4. Once fission occurs, the full node B joins the main chain consensus layer and becomes a new accounting node. At the same time, the network automatically adjusts the mounting relationship of the micro nodes, and some of the micro nodes are transferred under the name of B. To ensure a smooth transition, a strategy combining voluntary selection of micro nodes and load balancing can be adopted: the micro nodes in the original cluster can freely choose to stay with A or move to B. If the selection is unbalanced and a certain cluster is still overloaded, the protocol can randomly assign some micro nodes to migrate to ensure that the cluster sizes are roughly balanced.

- Through the above fission mechanism, the WEN network can adaptively expand. In the early stage, when the network is small, the number of full nodes may be limited, and all micro-nodes can be mounted under a few clusters. As the number of participants increases and the computing power improves, the network will gradually fission into more full-node clusters, ensuring that the management scale of each full node remains within a reasonable range and preventing a single point of excessive computing power from damaging decentralization. This fission process is continuous and gradual, equivalent to the network continuously self-replicating according to the "energy pressure", similar to the evolution of biological systems from simple to complex.

- It should be emphasized that fission does not change the consistency of the main chain. After new full nodes join, they participate in block proposal and verification through the established consensus protocol, and the main chain still maintains a single extension. Fission only adds branches to the network in the physical topology, but logically all full nodes still maintain the same chain.

▷ 3.3 POW + POA Hybrid Consensus Process

▪ Under the above architecture, the block generation process of WEN integrates elements of PoW and PoA. We will illustrate the hybrid consensus process with a typical block generation cycle:

1. **Transaction collection:** The transactions of users across the network are first broadcast to the network and collected by each full node into their respective memory pools (mempools). Full nodes will organize the transactions to be packaged into candidate blocks. Since full nodes need to reach an agreement in the end, each full node will select a similar set of transactions as alternatives to avoid generating completely different block contents.

2. **Micro - node PoW Competition:** The full - node distributes the block header information (previous block hash, candidate transaction Merkle root, timestamp, current difficulty target, etc.) to all the attached micro - nodes. After receiving it, the micro - nodes start to search for a nonce for this block header and calculate the hash value. If the hash value meets the difficulty target (i.e., the first several bits are zero and other conditions), it is regarded as finding a valid PoW solution.

3. **Submit and assemble the block:** When a micro-node finds a hash that meets the conditions, it immediately submits necessary information such as the Nonce to the full-node it belongs to. Based on this, the full-node fills the solution of the micro-node into the block header, generates a complete block (including the block header and transactions), and adds its own signature or proof to the block (as the block proposer). At this time, the full-node becomes the temporary block producer.

4. **Full Node Quick Consensus:** The block - producing full node broadcasts the new block to other full nodes through the main chain layer network. Other full nodes first verify the validity of the PoW solution (check if the hash is lower than the target). Since the correctness of the solution is determined by mathematics, the verification is quickly completed. Next, quick consensus is carried out among full nodes through the PoA mechanism: specifically, a simplified Byzantine Fault Tolerance protocol or multi - signature

confirmation can be adopted. For example, each full node votes and signs on the block. When more than 2/3 (or > 50%, depending on the rules) of the full nodes' signatures of consent are received, the block is regarded as finally confirmed (Finalized).

5. **Blockchain Update:** When the full-node network reaches a consensus on a block, the new block is added to the main chain. Each full node updates the state of its local ledger and applies the transactions within the block. The micro nodes also obtain the new block header through their respective full nodes to start the next round of mining.

6. **Reward Distribution:** Finally, based on the preset revenue model, the system distributes the mining rewards for this block. The block-producing full nodes and the micro nodes that provide valid Nonces will proportionally receive the newly issued token rewards and transaction fees. If the cumulative points system is adopted, other micro nodes that participate in the competition but do not win may also receive a small amount of rewards to encourage continuous participation.

▷ 3.4 Node Role Differences and Collaboration

▪ Under this architecture, micro nodes and full nodes each have their own strengths and cooperate with each other. The differences and connections between the two are summarized as follows:

1. **In terms of storage and communication:** Full nodes save the complete chain data, directly connect to other full nodes peer - to - peer, and undertake the main communication and broadcasting tasks. Micro nodes only require limited storage, communicate with their affiliated full nodes, and have low network bandwidth requirements. This model ensures that a large number of micro nodes will not overload the entire network communication, and full nodes act as communication convergence relays.

2. **In terms of computing:** Micro-nodes focus on PoW hash operations and continuously consume energy for "mining"; full nodes, on the other hand,

need to handle transaction verification, block construction, and signatures. The consensus load is relatively high, but they do not participate in large-scale hash operations. The division of labor between the two separates the computing tasks: energy-consuming computing is delegated to micro-nodes, which significantly saves the resources of full nodes and improves the overall computing power; full nodes, in turn, use their own computing and processing capabilities to maintain the ledger and run smart contracts, etc.

3. **Entry threshold:** The threshold for micro-nodes is extremely low. A smart device connected to the network can participate without the need to hold a large amount of coins or expensive equipment (of course, the better the performance, the higher the computing power). The threshold for full-nodes is relatively high. It requires a high-computing-power server, a stable network, and token staking to ensure that they have sufficient credibility and ability to maintain the network. It can be seen that micro-nodes represent the participation of the general public, while full-nodes represent the "powerful" participants selected through screening.

4. **Reward mode:** Micro-nodes mainly obtain rewards based on the amount of work done; full nodes, as bookkeepers, receive basic rewards and additional transaction fees. The income of full nodes is also proportional to the total computing power of the micro-nodes within their cluster - the more computing power, the higher the probability of block generation. Therefore, full nodes have the incentive to attract more micro-nodes to attach (by providing good services or sharing part of the revenue). Conversely, micro-nodes will also tend to choose full nodes with good reputation and reasonable profit-sharing for attachment, forming a virtuous competitive ecosystem.

5. Upgrade Path: The WEN design allows the upgrade from micro-nodes to full nodes. That is, ordinary participants can start by running micro-nodes. As they accumulate hardware and funds, they can upgrade to full nodes in the future. This ensures that the network management power does not constantly lie in the hands of a small group of people, but is dynamically open. Such an upgrade needs to meet the aforementioned thresholds for pledged coins and computing power. The existence of the upgrade channel reflects the open liquidity of the WEN ecosystem: a grassroots miner also has the opportunity to grow into a core maintainer of network consensus,

evolving from a member of the micro-node civilization to a member of the energy rights governance.

▪ Through the above mechanisms, the system structure of the WEN Energy Chain achieves a balance between decentralization and performance. The massive underlying micro-nodes ensure the security and openness of the proof-of-work, while the full nodes guarantee the efficiency and stability of consensus reaching through the proof-of-authority component. The fission-type network enables the structure to scale according to the load, ensuring that the degree of decentralization increases synchronously with the growth of the network. The entire architecture aims to verify the proposition that the truly invested energy and resources can serve as a fair and efficient consensus foundation.

▪ In the following chapters, we will explore higher - level designs such as token economy and governance, further demonstrating how this architecture serves a robust monetary system and an autonomous ecosystem.

Chapter Four:

Token economic structure and currency stability mechanism

_ The technical mechanism of blockchain ultimately needs to serve its economic goals. This chapter focuses on the token economy design of the WEN Energy Chain, including the issuance and distribution structure of tokens, the value support logic, and the mechanism for maintaining currency stability. Guided by the concept of "energy standard", the token economy of WEN closely links the resource consumption in the physical world with the value of digital currency, aiming to establish an inherently stable and inflation-resistant economic system.

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▷ 4.1 Gold Standard Coinage Logic: Tokens Endorsed by Equipment and Electricity

▪ Under the traditional gold standard system, the issuance and value of currency are supported by physical gold, ensuring the foundation of the currency's intrinsic value. The WEN Energy Chain draws on this concept and proposes the "energy standard" coinage logic: the generation of each WEN token is accompanied by irreversible cost consumption (power consumption and equipment investment), which is equivalent to providing a "endorsement" similar to gold for the token.

▪ As mentioned above, WEN quantifies the network-wide resource consumption through the Energy Index (EI). When EI is consumed, it means that more inputs and hardware have used up their irreversible lifespan to换取 on-chain output. Therefore, the consumption of EI can be linked to the increase in tokens to measure the energy content of each token. For example, if the network consumes 1000EI and produces 100 WEN tokens within a certain period, then on average, each token corresponds to a consumption of 10EI. This correspondence is not fixed, but under the market mechanism of free-competition mining, a dynamic equilibrium will be formed, that is, the market value of tokens ≈ the marginal energy cost of producing tokens. Miners will only be driven by profit to mine when the token price is higher than the mining cost (electricity cost + equipment depreciation), otherwise, they will shut down. This market adjustment mechanism makes the token price fluctuate around the production cost, thus providing an anchor point for the value support of tokens.
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▪ To some extent, this logic endows the WEN token with the attributes of a "commodity currency", which can be analogized to a storage medium for a special commodity - energy. Just as gold can be regarded as storing a large amount of labor and energy consumed during mining, the WEN token embodies the energy actually consumed in the mining process. It can even be foreseen that in extreme cases, the WEN token can be directly exchanged for energy: some researchers have already put forward the concept of directly linking the cryptocurrency token to electricity, so that the value of one token represents one kilowatt - hour of electricity. The E - Stablecoin proposed by the Lawrence

Livermore National Laboratory in the United States is such an example: one token is minted by consuming 1 kilowatt - hour of electricity, and in the future, this token can be burned to exchange back 1 kilowatt - hour of electric energy, making the token price stable and equivalent to the electricity price. Although WEN does not have a directly reversible energy exchange designed (because the consumed electricity has been converted into hash calculations and cannot be recovered), the concept is very similar: the value of the token is anchored to energy. The more expensive the energy is, the more valuable the token is; if the energy depreciates (or becomes easier to obtain), the value of the token is adjusted accordingly. This is different from stablecoins pegged to fiat currencies, but it provides an idea of pegging to real assets (energy). More importantly, this pegging is decentralized and formed spontaneously, rather than maintained by an institution. Based on physical laws and market supply and demand, it does not rely on trust intermediaries, so it has a high anti - risk ability.

▪ The combination of equipment and energy is called the two elements of the gold standard logic: equipment (mining machines) provides the upper limit of computing power, and electricity provides the continuous driving force. The investment in equipment is equivalent to fixed capital. After miners purchase hardware, they must recover costs through continuous power - on computing. The benefits brought by this model are as follows: The issuance of WEN tokens is subject to dual constraints - the computing power threshold limits the upper limit of the token output speed, and the energy cost ensures that each token is backed by physical objects. When the advancement of cutting - edge technology leads to a decrease in the energy consumption per unit of computing power, the increase in computing power will increase the mining difficulty, automatically offsetting the tendency of "cheap coins"; when the energy price rises, the increase in mining costs will reduce the supply, thus supporting the coin price. This dynamic balance makes the WEN system exhibit stronger value stability than ordinary cryptocurrencies. It can be said that WEN internalizes the supply - demand laws of the real - world economy into the blockchain issuance mechanism to prevent disorderly inflation and value emptiness.

▷ 4.2 Method of Reducing the Issuance Quantity

▪ The token issuance of WEN follows the principle of a constant total supply. The total supply is 210,000,000. 10,000,000 tokens are pre - issued to launch the

"Origin Contract" and algorithmic stablecoins. Combining mining rewards and the staking mechanism to achieve long - term stability of the currency supply. A typical design is a halving curve similar to Bitcoin or other convergent curves. However, unlike Bitcoin, the WEN curve is not a halving curve but a linearly decreasing one, eventually approaching 0 :

- **Base issuance rate:** Referring to Bitcoin, WEN can set an initial base reward per block, such as X WEN, and decrease it according to a formula every certain number of blocks. This ensures that in the long run, the token issuance rate gradually declines and inflation is under control. The base issuance reflects the part of the system that issues currency according to algorithmic rules.

▷ 4.3 Currency Stability Mechanism and Value Anchoring

▪ The term "stability" for cryptocurrencies involves two aspects: the long - term stability of the currency's value relative to purchasing power, and the mechanism to counter short - term violent fluctuations. In terms of design, WEN mainly achieves the former through anchoring its intrinsic value, and buffers the latter through market - based adjustments.

▪ First, as mentioned above, the intrinsic value of the WEN token is anchored to the energy index cost. This means that in the long term, the actual purchasing power of WEN coins will not deviate too far from their production cost. Suppose the mining cost of one WEN coin is $50 in electricity bills. If the market price is much higher than $50, it will attract more miners to invest until the increased issuance drives down the price. If the market price is much lower than $50, miners will shut down due to losses, and the reduced supply will prompt the price to rebound. This spontaneous feedback mechanism is similar to the economic law of commodity prices fluctuating around the production cost, giving WEN coins a natural value regression effect. If traditional fiat currencies are not anchored, they are likely to depreciate due to over - issuance. However, since the increased issuance of WEN coins requires real costs, no one is willing to over - issue them for free. Therefore, the inflation has an upper limit and is transparent.

▪ Secondly, regarding short-term fluctuations, WEN could introduce some buffering mechanisms. For example, establish adjustment funds or reserves: use them to stabilize the market during drastic market fluctuations (such as

repurchasing or subsidizing miners). Another approach is dynamic difficulty and reward adjustment: the difficulty itself adjusts automatically with the computing power, which is already a stabilizing mechanism to some extent - when the coin price surges, leading to a sharp increase in computing power and faster block generation, the difficulty increases to curb the growth of supply; when the coin price is low and computing power withdraws, the difficulty decreases to maintain the block time, thus preventing the chain from stalling. This unique negative feedback of PoW ensures that the currency supply does not get overly out of control due to market sentiment, maintaining the stability of the system. In addition, WEN's governance system (see Chapter 5 for details) also provides a human - friendly adjustment channel for stability. If extreme abnormalities occur (such as an external attack causing the token price to collapse or a sharp drop in computing power threatening security), the community can decide to take extraordinary measures through on - chain voting, such as adjusting reward parameters, mobilizing reserve funds, etc. Although this implies the possibility of some form of human intervention, with the constraint of the governance mechanism, its transparency and democracy far exceed the black - box operations of traditional central banks.

- It is worth mentioning that the "stability" emphasized by WEN mainly refers to the stability of its intrinsic value, rather than a fixed exchange rate pegged to fiat currencies. It is not a stablecoin and does not promise to be pegged to the US dollar or others. However, through the above design, we have reasons to believe that the WEN coin can become a hard currency that resists inflation and has low depreciation. Its long - term purchasing power evolves slowly with the change of energy value and will not experience a cliff - like collapse of credit like unanchored assets.

- From a historical perspective, the stability of any monetary system is inseparable from anchoring to some kind of value carrier that people generally trust, such as gold, land, foreign exchange reserves, etc. In the 21st century, with the advent of the digital age and the energy transition era, energy itself has gradually become one of the core assets of the global economy. If "petrodollar" is a metaphor for fiat currency anchoring to oil, then WEN attempts to establish a new paradigm of "energy tokens", taking the abstract energy EI as the cornerstone for currency anchoring. As research has pointed out, those digital tokens supported by physical assets are expected to achieve both

decentralization and value stability. WEN is not a fully-fledged energy stablecoin, but it has taken a step forward in this direction.

- In conclusion, through the gold - standard - like coin - minting logic and multiple stability mechanisms, WEN aims to build a token economic system with clear intrinsic value and transparent inflation rules. In such a system, participants' confidence in the currency does not rely on the credit of a central institution, but on the trust in objective energy input; currency issuance is not subject to human manipulation, but follows the dual regulation of algorithms and the market. This provides a solid financial foundation for decentralized applications and broader economic activities on WEN.

- Next, we will turn to the governance model of WEN, explore how the network achieves coordinated management under the premise of decentralization, and how the energy rights play a role in governance.

Chapter Five:

Decentralized governance model - Dynamic energy rights structure

Decentralized systems not only require a technical consensus mechanism but also an effective governance model to reach consensus in aspects such as rule evolution, parameter adjustment, and community decision - making. The governance design of the WEN Energy Chain revolves around the "dynamic energy rights", aiming to give greater influence to those participants who have invested the most energy and made the greatest contributions to the network. At the same time, it ensures that governance power does not become rigid, maintaining the vitality and fairness of the system.

▷ 5.1 Governance Participants and Sources of Power

- WEN's on-chain governance adopts a model that combines representative democracy and direct democracy. The main participants include:

1. **Full nodes (validators):** As network maintainers and stakers, full nodes naturally play an important role in governance. They are usually the group that knows the protocol best and has the most investment. Full nodes have the right to vote on proposals such as protocol upgrades and parameter adjustments, and exercise certain autonomy in daily operations and maintenance.。

2. **Token Holders:** A large number of WEN token holders also participate in decision - making through the governance mechanism. They can vote on major proposals or elect representatives (such as an election committee) to perform specific functions. Token holders form the mass base of governance, embodying the principle that tokens represent rights and interests.。

3. **Micro - node Miners:** In traditional on - chain governance, miners and token holders are often regarded as two categories. However, in WEN, since micro - nodes may not hold a large amount of tokens, their voices may be ignored. To address this, WEN considers introducing an indicator of "Energy Right" to incorporate miners' contributions into the governance weight. The Energy Right can be calculated based on the proportion of the effective workload of miners (including micro - nodes and full - nodes) within a certain period in the past. For example, if a miner has contributed 1% of the computing power in the past 1000 blocks of the entire network, then its Energy Right can be equivalent to 1% of the voting rights. This gives pure computing power contributors a certain say and prevents governance from being monopolized purely by capital (the amount of tokens held).

4. Developer Committee (Optional): In terms of the technical assessment of protocol upgrades, the community can elect a committee of developers or experts to provide non-binding opinions on the technical feasibility and security of the proposals for voters' reference. The members of this committee can be elected through a combination of energy rights and token-holding rights to ensure professionalism and representativeness.

_ The source of power determines the legitimacy of governance. In WEN, power mainly stems from two aspects: one is holding tokens (representing economic

rights and interests), and the other is contributing energy (representing work contributions). Thus, a "dual - power structure" is formed. To achieve a balance between the two, WEN adopts a dynamic composite voting right mechanism: when voting for governance, the voting weight of each participant = token - holding weight * α + energy weight * (1 - α), where α is a parameter between 0 and 1, which can be set by the protocol or adjusted through governance. For example, if α = 0.5, the token - holding amount and energy contribution each account for half of the weight. If someone holds a large number of tokens and participates in a lot of mining, their voting power will be high; conversely, those who only hold tokens without contributing or only mine without holding tokens will have relatively limited weights. This mechanism encourages stakeholders to take both long - term holding and actual contributions into account, reducing the phenomena of "only taking benefits without contributing" or "only focusing on mining without caring about governance".

_ It should be noted that the "energy right" is dynamic. Its calculation window can be set as the cumulative workload of the past few months or a certain number of blocks, and it decays over time. This means that the energy rights of nodes that contributed in the past but later stopped mining will gradually decrease; conversely, the influence of newly joined miners who continue to contribute will increase. This can prevent power from being solidified in the hands of early miners, similar to the problem in PoS where early large holders always have an advantage. Governance power must be maintained through continuous input - this is particularly evident in WEN, which is in line with the dynamic competition spirit of the PoW consensus.

▷ 5.2 Governance Processes and Mechanisms

▪ The decentralized governance of WEN usually includes the following processes:

1. **Proposal Initiation:** Any entity with a certain threshold of energy rights or token holdings can initiate a proposal on the blockchain. The content of the proposal can include modifying protocol parameters (such as block size, reward distribution ratio), upgrading the consensus algorithm, or other matters that affect the entire network. To prevent spam proposals, it is also a common practice to set a small proposal deposit (refundable) or a threshold for supporters (for example, at least 5% of the voting rights are required for support).

2. Discussion and Deliberation: Any entity with a certain threshold of energy rights or token holdings can initiate a proposal on the blockchain. The content of the proposal can include modifying protocol parameters (such as block size, reward distribution ratio), upgrading the consensus algorithm, or other matters that affect the entire network. To prevent spam proposals, it is also a common practice to set a small proposal deposit (refundable) or a supporter threshold (for example, at least 5% of the voting rights are required for support).

3. Voting: After the discussion period ends, the proposal enters the voting cycle. All eligible governance participants vote according to the aforementioned composite weights. Voting can adopt a simple majority system or a supermajority (such as 2/3 approval) depending on the importance of the matter. The voting process is executed by a smart contract to ensure one person one weight and prevent cheating. To encourage voting, a small reward can be given to those who participate in the voting to avoid community apathy.

4. Result execution: If the proposal is passed, it will enter the execution phase. Based on the content of the proposal, there are several ways of execution:

5. Automatically execute: For matters such as parameter adjustment that can be programmatically executed, the governance contract will directly modify the relevant on-chain parameters. For example, for inflation rate adjustment, once it is passed, the block reward calculation formula will be updated.

6. Delayed effect: Resolutions involving changes to consensus rules or hard fork upgrades generally set a delay window (such as X blocks or Y days) to allow for the preparation of node software upgrades. After the delay period, the new rules come into effect. Full nodes need to update their clients before this time; otherwise, they will be phased out of the network.

7. Manual execution: Some tasks require human operation, such as allocating funds to a project team. In this case, multi - signature trustees may need to execute the transfer according to the voting results. In such

scenarios, the governance vote authorizes a specific multi - signature account to perform the operation, and there can be a penalty mechanism if it fails to act. In either case, the execution process should be completed or verified on the chain as much as possible to prevent opacity.

8. **Supervision and Accountability:** To prevent governance from becoming a "tyranny of the majority" or being manipulated by a few whales, WEN introduces certain supervision measures. For example, a reconsideration mechanism can be set up: when a minority (such as 25%) of the voting rights strongly oppose a passed proposal, they can jointly initiate a reconsideration and submit the proposal for a second vote or arbitration. If the reconsideration is successful, the implementation of the proposal can be blocked or postponed. This is similar to the effect of a bicameral system or referendum in the real world, preventing hasty or one-sided decisions. There is also a revocation mechanism that allows the punishment of governance participants who engage in improper behavior (such as full nodes deliberately not implementing the results), such as reducing pledges, revoking voting rights, etc., which shall be decided by another community vote.

▪ The above process reflects the coexistence of the democracy and complexity of WEN governance. The dynamic energy rights structure runs through the whole process, making the governance not a static one-token-one-vote or one-computation-one-vote, but a combination of the two and continuous evolution. The philosophy behind this is that in a system without a central manager, the governance power should be given to those who continuously contribute to the system. Contributions include both capital investment (holding tokens indicates a commitment to economic risks) and labor input (miners burn energy to maintain the network). Neither can be lacking, and they jointly shape the justice of the community.

▷ 5.3 The Philosophical Implications of Decentralized Autonomy

▪ WEN's governance model attempts to achieve a state of "energy democracy" or "meritocratic republic" self - governance. This also has interesting parallels with traditional political philosophy and organizational theory:

1. **Dynamic Energy Rights vs. Meritocracy:** Classical theories often discuss whether a country should be governed by the virtuous and capable (Plato's philosopher-king) or by the people themselves. WEN's approach is to recognize "merit" and measure it with energy rights - those who invest more resources, demonstrate greater commitment and ability naturally gain more say; but at the same time, it ensures that this is not hereditary or monopolistic, but obtained through dynamic competition. It avoids the pure plutocratic rule caused by one - coin - one - vote and is superior to one - CPU - one - vote (because the latter is vulnerable to Sybil attacks). It can be said that WEN governance is a competitive meritocracy: the elites are determined by the degree of energy contribution, and the seats change with the change of contributions. This has similarities to what Weber called "legal - rational authority": selecting governors through formally stipulated procedures and standards, rather than based on traditional status or personal charisma.

2. **Energy is power:** Here, energy is not just a physical concept but is also endowed with political and ethical connotations - by investing energy, one obtains corresponding rights. This coincides with a utilitarian or meritocratic value system: those who contribute more to the public system should have a greater share in decision - making. This follows the same logic as the modern - day concepts such as "taxpayers have a greater say" or "shareholders vote according to their shareholdings." However, WEN unifies the two measures of "tax - paying" (energy consumption) and "share - holding" (holding currency) into a composite indicator. Such an arrangement is morally persuasive to a certain extent because it encourages individuals to invest in the collective interest and ensures that their investments are not in vain - at least they will be transformed into corresponding influence. This seems like a new social contract: network participants promise to consume energy to maintain the network, and the network rewards them with the power to participate in governance.

3. **The Evolution of Decentralized Autonomous Organizations (DAOs):** Broadly speaking, the WEN community can be regarded as a DAO, and its governance mechanism reflects the concept of DAO 2.0: breaking through single - dimensional token voting and introducing multi - dimensional contribution measurement to make self - governance more sustainable. In the past, some DAOs were inefficient or even failed due to large - holder manipulation or voting apathy. WEN attempts to overcome these problems

through dynamic energy rights. Granting miners the right to vote has stimulated broader participation enthusiasm, and requiring staked tokens for voting has also enhanced decision - making responsibility. The energy - right structure has enabled the DAO to evolve: it is no longer a static rule but an organizational form that can adapt to the community ecosystem.

4. **Checks and balances of power:** In the WEN governance model, token holders and miners constrain each other, preventing any single - sided group from becoming overwhelmingly dominant. Full nodes may have relatively large weight due to both having computing power and staking possibilities. However, full nodes themselves are a dynamic and open set, generated through multi - party competition. Coupled with the participation of the micro - node group and the ordinary token - holding group, a pattern of multiple forces is formed. This is similar to Montesquieu's "separation of powers" idea projected on the blockchain - although the powers here are not divided into legislative, executive, and judicial powers, but rather resemble an equilibrium where the power of capital, the power of work, and the power of nodes are intertwined. This balance helps prevent extreme behaviors in the governance process and makes decisions tend towards the overall interests of the community.

- In summary, the decentralized governance model of the WEN Energy Chain takes dynamic energy rights as the core, embodying a governance philosophy of obtaining continuous rights through continuous contributions. In concept, it extends the blockchain's "proof of work" to the social level: not only proving the validity of transactions, but also demonstrating who has made more contributions to the community and thus should participate more in decision - making. Through this governance model, the WEN network can achieve effective management of its own rules and evolution without centralization, providing an institutional guarantee for the long - term prosperity of the entire ecosystem.

- In the next chapter, we will further explore how WEN simulates the order of the real - world energy economy, as well as its construction logic in the digital power network, and deepen our understanding of the interaction between energy and the economy.

Chapter Six:

The Simulation Order of Energy Economics — The Construction Logic of the Digital Power Network

_ The WEN Energy Chain is not only a technological system but also a digital simulation of the energy economy. This chapter discusses how WEN reproduces the order of energy production and consumption on the chain. Through the construction logic of the digital power network, the laws of the physical world's energy economy are integrated into the blockchain ecosystem. This simulated order is of great significance: it makes the blockchain a testing ground for understanding real - world energy utilization and optimizing energy allocation, and provides a prototype for the future energy society.

▷ 6.1 Blockchain as an Energy-Information Converter

▪ As mentioned earlier, blockchain (especially PoW chains) can be regarded as an entropy-increasing engine or energy-information converter: it irreversibly consumes the input energy (electricity) and outputs a highly ordered information product - namely, a distributed ledger. This process is similar to the phenomenon in thermodynamics where entropy increase is accompanied by the formation of local ordered structures. When Bitcoin is called the "Entropy Engine", it is pointed out that this system increases entropy by generating random hashes and waste heat, while establishing a stable and ordered record. The WEN Energy Chain strengthens this energy-information conversion to a greater extent, maintaining the lasting order of the digital world through the continuous input of real simulations.

▪ In the physical world, the core of the energy economy lies in the transmission, conversion, and consumption of energy. In the traditional power system, power plants convert fuels, or wind, solar, and thermal energy into electrical energy, which is transmitted through the power grid to user loads for consumption. Inefficiency losses are inevitable throughout this process, following the second law of thermodynamics. The process on the WEN chain is similar: miners

(similar to power generators) input electrical energy into mining machines. The mining machines perform hash operations, generating heat and random numbers. These random numbers are converted into blockchain updates (i.e., "useful information work") through the consensus mechanism, ultimately manifesting as token rewards (similar to electricity revenue). In this loop, miners obtain tokens, just as power generators sell electricity to obtain currency. Tokens can be used for on-chain transactions or to realize real-world value. Energy becomes digital currency on the chain, while information becomes valuable energy off the chain, forming a corresponding relationship between the two.

▪ This corresponding relationship means that WEN has created a prototype of a digital value network: the nodes involved play the roles of both a power network and a financial network. On the one hand, micro-node miners are like countless small power generation units, inputting their respective energies into the system; full nodes and the entire chain are like the power grid and dispatching system, responsible for aggregating numerous discrete energies into unified "electricity" to drive the chain to operate. On the other hand, the circulation and trading of tokens form a financial network, distributing the tokens obtained from mining to various economic activities, similar to the circulation of electricity sales revenue in the economy. The concept of the digital value network reflects the on-chain reproduction of input-value transformation: where the input generates EI, where it flows, and how much is consumed are all reflected in the form of tokens and blocks on the chain. This provides us with a new dimension for studying the energy economy - to establish an economic system sensitive to physical energy consumption in the digital space without geographical restrictions.

▷ 6.2 Simulate the Energy Market Mechanism

▪ The operation of WEN essentially also simulates a global energy market. In reality, the prices in the energy (especially electricity) market fluctuate under the influence of supply and demand. Producers adjust their output according to the price, and consumers adjust their demand according to the price. Similarly, there exists a "computing power - electricity market" in WEN's mining ecosystem:

1. **Miners are energy providers:** Each miner supplies computing power to the network, which essentially means supplying energy (since computing

power is proportional to power consumption). When the cryptocurrency price is high, it is equivalent to an increase in electricity prices, and miners are motivated to invest in more machines (increase the supply of computing power). When the cryptocurrency price drops, some miners shut down their machines, which is equivalent to some energy supply withdrawing from the market. This dynamic process simulates the response of energy production to market prices.

2. **Blockchain networks are energy consumers:** The blockchain consensus consumes a certain amount of hash calculations per second, similar to a constant electricity load. In fact, the energy demand of the blockchain is not fixed, but is determined by the output target adjusted by the difficulty. The difficulty can be regarded as the "demand curve": the higher the difficulty, the more computing power (energy) is required for a unit block, and the greater the consumption of the entire network. The difficulty is adjusted according to the全网 supply (computing power), which exactly simulates the balance mechanism of the electricity market: when the supply is excessive (computing power is too high), the difficulty rises to increase the "power consumption requirements" and absorb the excess computing power; when the supply is insufficient, the difficulty decreases to reduce the power consumption requirements and lighten the burden on the entire network. The law of difficulty adjustment has the same effect as the automatic market clearing, except that the balance variable here is not the price but the mining difficulty, but the two are indirectly related through the token price.

3. **The token price is the energy index price:** In the simulation, the WEN token serves as a unified unit of account. If we assume a fixed exchange relationship (for example, during a certain period, 1 WEN coin is equivalent to the electricity consumption of X kilowatt-hours), then the token price can be converted into the miner's electricity bill income, thus corresponding to the real - world energy price. Although there is no direct exchange, as mentioned above, in the long run, the token price fluctuates around the mining cost (electricity price). Therefore, the WEN chain actually implies an "energy price signal": By observing the market price of the token and changes in computing power input, it is possible to infer the current average electricity price cost and profit margin of miners. This makes the blockchain a mapping instrument for the energy market.

▪ Through the above mechanism, WEN has largely reproduced the core dynamics of the energy market. More significantly, it has eliminated geographical barriers, bringing together miners (energy suppliers) from all over the world and global investors (energy demanders, reflected through holding and trading tokens) on a unified platform to conduct "energy transactions" at a unified price - that is, the mining revenue determined by the token price and difficulty. For example, if the electricity price in a certain country is particularly low, miners in the WEN network will be more profitable than those in regions with high electricity prices. As a result, more miners will flock to low - electricity - price regions or adopt cheap energy sources, leading to an increase in the overall network computing power and an upward adjustment of the difficulty. Finally, the mining profit margin will reach a new balance. This process is similar to how energy companies in the real world migrate to regions with low costs, and the energy market tends to reach an equilibrium price through global trade.

▪ Interestingly, this energy market of WEN does not require central dispatching at all. It is the manifestation of the invisible hand on the chain - each miner makes independent decisions to start or shut down their machines, but when aggregated, it achieves a balance between supply and demand and an optimized allocation of resources. This verifies Hayek's idea of "spontaneous order": without a central authority, the actions of decentralized individuals can form an orderly social structure through price signals. WEN uses token prices and difficulty as signals to achieve global optimal energy distribution, which is exactly an example of the effective operation of a decentralized market.

Chapter Seven:

Fission Ecosystem and Micro-node Civilization

_ If the WEN Energy Chain is regarded as an organism, then its ecosystem is a life form that can fission and grow. With the increase of participants and the expansion of the structure, the WEN ecosystem does not expand linearly, but continuously gives birth to new subsystems through "fission", forming a self - expanding civilization network. This chapter focuses on the evolutionary characteristics of the WEN ecosystem and the "micro - node civilization"

phenomenon nurtured by a large number of micro - nodes, and explores the possible impacts of this technological ecosystem on society.

▷ 7.1 Self-Expansion of the Fission-Type Ecology

- The expansion of the traditional blockchain ecosystem usually relies on external impetus: more miners need to join, more developers need to develop applications, etc. However, due to the fission characteristics in its architectural design, WEN has a certain self - expansion ability. The so - called fission ecosystem means that whenever the network reaches a certain critical scale, new ecological units will spontaneously fork out. These units are both independent and collaborative, jointly forming a larger network.

Specifically manifested in:

1. **Full-node fission drives ecological expansion:** As described in Chapter 3, when there are too many micro-nodes, the full-node cluster fissions into new full-nodes. This is not only an expansion of the technical network but also means the proliferation of ecological roles: every new full-node means a new set of potential community leaders or service providers. These new full-nodes may come from different regions and community backgrounds, bringing their own resources and influence into the WEN network. For example, a full-node fissioned by African miners may attract more local African micro-nodes to join, forming a geographical or cultural circle within the community. This is similar to urban expansion in reality, where the emergence of new cities drives more people to gather. Once a new full-node gains a foothold, the next node can further fission around it. The fission process continuously extends the ecological reach to a broader population, achieving exponential growth in network scale.

2. **Application and Sub-chain Fission:** Besides the core consensus network, the application ecosystem on WEN can also adopt a fission strategy. For example, as WEN supports the deployment of smart contracts, popular DApps can expand through vertical sharding or creating sub-chains when there is congestion. WEN's consensus philosophy encourages multi-centralization, so there can be multiple sub-chains/side-chains serving different application scenarios, all anchored to the same energy consensus

main chain. This architecture is like a tree that keeps branching: the main chain is the trunk, and each application chain is a branch and leaf, sharing the root (the soil of energy consensus). When an application community expands to a certain extent, it can become an independent chain to handle its own affairs, but its security and value still rely on the endorsement of the energy consensus of the main chain. This not only alleviates the load on the main chain but also allows the ecosystem to present a diverse fission: financial applications form financial side-chains, IoT data on-chain forms IoT side-chains, and game NFTs form NFT sub-chains... Each sub-ecosystem has its own micro-civilization, but macroscopically, it is constrained by the unified energy law. The fission ecosystem allows for the evolution of diverse sub-cultures and economies within a unified framework.

3. Organizational and Cultural Fission: As the network expands, the participant groups will also fission into different sub - organizations based on interests, regions, concepts, etc. For example, miners may form a mining alliance according to geography, developers may form a technical guild, and users may form interest - based DAOs according to the types of applications. These organizations have the space for independent operation and even governance, but they are interconnected through WEN tokens and on - chain governance. It can be foreseen that many small autonomous organizations (also a type of micro - nodes) will be born on WEN. They each promote projects or issues and interact at the main - chain governance level. In this way, the entire ecosystem is like a federal society, where local autonomy and global collaboration coexist. Each fissioned group can be regarded as a "cell" or "tribe" of the ecosystem, jointly forming a rich jigsaw puzzle of the WEN civilization.

- The advantages of a typical fission ecosystem lie in its resilience and innovation: as it is distributed among numerous independent units, no local problem can destroy the whole; and as different units try different paths, innovation can proceed in parallel. WEN is designed to embrace fission - not worried about the "domination" being disrupted, but rather believing that the health of the system lies in continuous metabolism to generate new nodes and new organizations. Each fission is an opportunity to create new possibilities, which keeps the WEN ecosystem full of vitality all the time.

▷ 7.2 Micro-node Civilization: A New Social Form in the Decentralized Era

▪ In the WEN ecosystem, the largest and most active group is undoubtedly the micro-nodes. The so-called micro-node civilization refers to the autonomous collaborative network and its cultural characteristics formed by thousands or even millions of individual micro-node participants. Compared with the traditional social order dominated by countries and companies, micro-node civilization represents a new social form in the era of decentralization and has the following characteristics:

1. Individuals are autonomous and equal: Each micro-node represents an individual or a small organization, and they independently participate in the network with their respective resources (equipment, electricity). There is no need for hierarchical subordination among them, and they only collaborate through protocols. Anyone can become a micro-node, regardless of their background. This provides an unprecedented equality of participation on a global scale. Just as the Internet connects everyone, WEN connects the energy contributions of each person into a value network, enabling individuals to obtain benefits without intermediaries. This autonomy and equality are the fundamental concepts of the micro-node civilization.。

2. Collaboration is loose yet efficient: Micro-nodes are not isolated islands. Although there is no central command, an emergent collaboration is formed through protocols and incentives. They jointly mine to ensure the security of the blockchain and jointly vote to determine the direction of the network. This kind of collaboration is loose, without mandatory obligations, but precisely because of this, it can be adjusted flexibly. In a sense, this reflects a kind of "leaderless cooperation": No single miner can dominate the overall situation, but everyone fulfills their respective responsibilities under the price signals and consensus rules, and instead achieves a highly efficient overall order. This reminds people of the colonies of bees or ants. Each individual takes simple actions, yet intelligent group behaviors emerge.

3. The values of decentralization: The micronode civilization emphasizes the values of decentralization: doubting authority, advocating self - organization, and open - source transparency. In this civilization, traditional power (whether it is the government or monopolistic enterprises) cannot unilaterally control the entire system because

computing power and tokens are dispersed among thousands of households. Information is also publicly and transparently recorded on the chain. As a result, participants develop a strong sense of ownership, believing that the network belongs to everyone rather than an individual. This value system may spill over into the real world, leading more people to recognize the importance of decentralized organizational methods and democratic participation. It can be predicted that the WEN community will form its own unique culture, such as advocating "real input", "fair competition", technological rationality, and philosophical speculation (because this project itself integrates technology and philosophy). These cultural elements will unite the micronode civilization, making it another ideological trend in the Internet era after geek culture and open - source culture.

4. **Responsibilities of Micro - node Citizens:** As a member of the micro - node civilization, every participant enjoys rights and assumes responsibilities. They contribute computing power to maintain network security and, at the same time, must abide by the consensus rules and not cheat (because non - compliance means no rewards). They participate in governance voting to determine the rules and are responsible for the consequences of their decisions. This is similar to a new type of "digital citizen" role. Due to the low threshold, almost anyone can become such a digital citizen and directly participate in "on - chain public affairs" by running nodes and holding tokens. This expands the concept of civil society - no longer limited to geographical countries, but a virtual society spanning the globe based on like - mindedness and common interests. The micro - node civilization provides humanity with a stage to practice citizen responsibilities and co - governance in the digital space.

5. **Decentralized Prosperity:** The significance of the micro - node civilization also lies in the fact that it proves that prosperity and complex social functions can be achieved even without a central institution. Traditional ideas hold that large - scale collaboration requires hierarchical organizational management. However, the blockchain community has achieved many functions that once relied on managers - payment systems, asset issuance, contract execution, etc. - through code and incentives. With the development of WEN, this decentralized prosperity will be more comprehensively demonstrated: people can establish various activities such as chambers of commerce, education, and public welfare on the

chain without the leadership of a central government or large enterprises. A series of "mini - societies" will emerge, such as energy - sharing communities (neighbors jointly build small power - generation and mining stations and distribute profits together), technical mutual - assistance communities (miners provide hardware maintenance support to each other), and even a micro - financial system (lending and insurance products based on WEN coins). The prosperous scenes of these self - organizing communities mark the maturity of a micro - node civilization: they not only come for mining profits but also develop rich socio - economic activities on this basis, forming a complete autonomous ecosystem.

- It can be said that the micro-node civilization indicates a new paradigm that human society may evolve into - a highly distributed yet orderly civilization form. In this civilization, power is held by a network composed of countless tiny units, wealth is distributed fairly through transparent rules, and innovation emerges rapidly through collective wisdom. It is different from the past tribal societies (because of its larger scale and more advanced technology), and also different from the state monopolies in the industrial era (because it is completely networked and decentralized). Instead, it is an unprecedented hybrid: a fusion of technological utopia and autonomous democracy.

- Of course, the micro-node civilization is not a utopia either. It will also face challenges such as network coordination problems, public goods management (such as conflicts during parameter adjustments), and how to coexist with the existing centralized system. However, WEN provides a test field that allows us to observe how such a civilization grows in a relatively isolated digital environment. It may accumulate valuable experience for humanity and guide us in promoting self-governance and distributed collaboration in the real society.

▷ 7.3 The Impact of the Fission Ecology on Reality

- The WEN fission ecosystem and micro-node civilization are not isolated from reality. They will feed back and influence the real society through various channels. :

1. Technology Diffusion: The development of WEN will drive progress in related technologies, such as low-power computing chips, more efficient

energy utilization methods, and distributed system security. These technological breakthroughs can be applied to other fields (IoT, smart grids, distributed AI computing), benefiting the entire technology community. This is similar to how Bitcoin mining in the past promoted the improvement of chip manufacturing processes and the perfection of the supply chain, and later AI chips also benefited from it.

2. **Business model:** The business model of the fission ecosystem may be referenced by real-world enterprises. For example, enterprises may imitate the micro-node mounting model to integrate consumers' idle resources and provide services; or adopt token incentives for community co-creation of products (somewhat like fissioning countless user organizations to develop and improve products together). The sharing economy and the platform economy may be replaced or integrated by decentralized versions.

3. **Social organizations:** The business model of the fission ecosystem may be borrowed by real-world enterprises. For example, enterprises may imitate the micro-node mounting mode to integrate consumers' idle resources to provide services; or adopt token incentives for community co-creation of products (somewhat like fissioning countless user organizations to develop and improve products together). The sharing economy and the platform economy may be replaced or integrated by decentralized versions.

4. **Conceptual Change:** When more and more people participate in the WEN Micro Node Civilization, their ideology will change, which in turn will affect reality. They will emphasize personal autonomy and collaboration rather than hierarchical commands, and trust code and mechanisms more than personal commitments. This may prompt the government to increase transparency and enterprises to adopt more open management, etc. Even people's perception of the source of wealth will change: they will realize that wealth can come from contributions rather than exploitation, because every coin rewarded by WEN clearly corresponds to the efforts of a certain participant.

- In conclusion, the WEN fission ecosystem and the micro-node civilization present a microcosm of future society. In this microcosm, we see the integration of technology and social organization: the technical protocol is embedded with

value concepts, and social collaboration relies not on coercion but on consensus incentives. If such an ecosystem is successful, it will provide an operating sample for the real society, proving that large-scale decentralized collaboration is not only possible but can also thrive with a sense of justice.

▪ In the next chapter, we will continue to delve deeper into how the algorithmic system behind the WEN ecosystem achieves self - evolution, and what this self - evolving protocol body means, in order to improve our understanding of this future landscape.

Chapter Eight:

Algorithm system and self-evolving protocol body

_ As the WEN Energy Chain ecosystem continues to grow and expand, its internal algorithmic system is also evolving and improving. This chapter will discuss how WEN, as a self - evolving "protocol life form", achieves self - improvement and environmental adaptation at the code rule level. At the same time, we will explore the significance of this "self - evolving protocol entity" in institutional design, and how it breaks through the limitations of traditional human institutions and moves towards a higher level of self - governance.

▷ 8.1 The Algorithmic and Institutional Attributes of Blockchain

▪ First of all, it is necessary to clarify the concept of the algorithmic system. Compared with the systems in human society that are composed of laws, organizational charters, etc., the blockchain system exists in the form of algorithms and protocols, which is known as "Code is Law". The consensus rules, economic model, and governance process of WEN are all written into the code and run on distributed nodes, forming an objective, neutral, and enforceable institutional system. Its characteristics are:

1. **Transparent and open:** All rule codes are open-source and transparent, and anyone can check and verify them. This eliminates information

asymmetry in traditional systems and reduces the possibility of backroom deals and abuse of rules.

2. **Automatically execute:** When the conditions are met, the smart contract executes automatically without human intervention. This ensures consistent enforcement of the rules and prevents selective enforcement due to personal relationships or power.

3. **Immutable:** Once the protocol is deployed, unless modified according to the established governance process, no individual can unilaterally change it. This ensures the stability and credibility of the system, and in the long run, enhances expectations.

▪ These features make blockchain a highly rational institutional carrier. Just as Max Weber talked about the rational bureaucracy of administrative management, blockchain pushes rationality to the extreme: algorithms are like bureaucrats, executing loyally and tirelessly. Of course, its drawback is that it is rigid and lacks flexibility, so governance is needed to upgrade and adjust.

▪ The algorithmic system of WEN is not just an isolated consensus rule, but also encompasses all aspects of the economy and governance. It can be regarded as a "constitution" embedded in an artificial environment, constraining and guiding the behavior of all "citizens" within the ecosystem. This system integrates technological rationality and philosophical values (such as the concept of sunk - cost justice), and becomes the legal foundation of WEN civilization.

▷ 8.2 Self-evolving Protocol Life Forms

▪ An excellent system cannot remain unchanged and needs to self-improve according to the environment and goals. WEN has achieved the ability of self-evolution through on-chain governance and a modular architecture, making it a "protocol life form". What is a protocol life form? It means regarding the entire blockchain system as something similar to an organic life, which can self-adjust, self-reproduce (fission), and adapt to the outside world.

1. **Version Upgrade and Forking:** The code of WEN will be upgraded according to community decisions. The upgrade process is like the metabolism of life, introducing new functions by replacing old code. For example, to improve the energy index calculation model, the community may vote to upgrade the consensus algorithm to make the EI calculation more accurate or add new resource indicators. During the upgrade, the old and new versions may run in parallel briefly (similar to biological gene mutation experiments), and eventually only one will survive. If there is a serious divergence of opinions in the community, a chain fork may occur, which is similar to species differentiation: part of the community continues to follow the old rules (the old species), while the other part follows the new rules (the new species), evolving separately. Although forking may split the community, it is also a way for the protocol to self-evolve. Just as coexistence in the evolutionary tree is not necessarily a bad thing.

2. **Parameter self-tuning:** Some protocol parameters can be automatically adjusted by algorithms without human intervention. The difficulty adjustment and money supply adjustment mentioned earlier both belong to the self-tuning mechanism of the protocol. This is similar to the homeostasis function of organisms: automatically adjusting internal parameters to maintain balance according to environmental changes (computing power, market). This self-tuning ability enables the system to cope with a certain range of changes without crashing, reflecting its resilience. In the future, WEN may introduce mechanisms such as machine learning, allowing certain governance parameters to be optimized by algorithms based on historical data, such as dynamically adjusting the staking threshold and dynamically allocating the block reward ratio to achieve the best incentive effect. This will make the protocol more "intelligent".

3. **Ecological Self-expansion:** The fission ecology in Chapter 7 is actually a form of reproduction of protocol life forms. Through the proliferation of micro-nodes and the fission of full-nodes, WEN continuously expands its "body". Each fission brings new characteristics and combinations - for example, new full-nodes may introduce different strategies and preferences, enriching the diversity of decision-making. All of these count as the self-evolution of protocol life. In nature, gene mutations and natural selection drive biological evolution; on the blockchain, protocol modification proposals + community voting play a similar role, while

miners, token holders, etc. act as the "selection environment". Successful proposals are accepted and written into the chain code, while those that are not satisfactory are rejected, just like the survival of the fittest.

4. **Environmental interaction:** The evolution of life forms is inseparable from environmental pressure. The environment of the WEN protocol includes, first, the external technological environment (when new attack methods emerge, security needs to be strengthened; when quantum computing rises, cryptography needs to be upgraded, etc.), second, the economic environment (macro - economic changes, regulatory policies, etc. may require the protocol to respond), and third, the internal environment (changes in community values and goals). The WEN has interfaces for interacting with the environment - for example, the community can change certain privacy or compliance settings in response to regulatory requirements; if there is a huge change in the real - world energy situation (such as a sharp drop in electricity prices due to large - scale new energy generation), the community can adjust its mining strategy to avoid a collapse. This ability to interact with the environment and adjust is the key to maintaining the long - life of the protocol. Chains that refuse to change are often phased out by the times.

▪ In summary, WEN shows the embryonic form of a self-evolving protocol entity: It has self-management (regulating itself through governance), adaptation and variation (through upgrades and forks), and reproduction (fission and expansion) like life. Of course, after all, it is an artificial life designed by humans and currently still requires human participation in decision-making to evolve (unlike real organisms that are completely spontaneous). However, we have already seen a certain progressive trend: humans are gradually giving way to algorithms. Many decisions are handed over to on-chain voting (algorithm counting) or even automatic optimization by algorithms, reducing subjective arbitrariness.

▷ 8.3 The Future and Limits of Algorithmic Systems

The self-evolving algorithm system of the WEN Energy Chain not only serves itself but also inspires us to think about the broader institutional possibilities in the future:

1. **Autonomous Economy:** When a blockchain protocol can evolve autonomously, manage its own economic system, and connect to real - world resources, it can almost be regarded as an autonomous economy, even similar to an artificial intelligence organization. In the future, there may be a scenario like this: A blockchain ecosystem (such as WEN) operates largely independently, providing services and rules to participants without the need for traditional government management. This is like an AI city - state in science fiction, except that the "AI" here is composed of a consensus algorithm and collective wisdom. People voluntarily become its citizens and live and trade according to its systems. This will pose challenges to national sovereignty and corporate governance: When people have more trust in the fairness and efficiency of algorithm - based systems, will it weaken their dependence on traditional institutions? We have already seen the impact of decentralized finance (DeFi) on banks. Such autonomous economies may pose similar impacts on national currencies and regulatory frameworks. What WEN represents is a kind of institutional competition: challenging human - made institutions with algorithm - based systems to see which is better.

2. **Collaboration between Protocols and Humans:** In the short term, the protocol body still requires human participation in regulation. However, with the integration of machine learning and AI into blockchain governance, the evolution of protocols may become increasingly automated in the future. For example, AI can observe on-chain data and external information, propose upgrade plans, and humans only need to choose whether to accept them. This is similar to the doctor's assisted diagnosis, where the patient or their family makes the final decision. This kind of human-machine collaboration may make governance more professional and efficient while retaining the human value judgment vote. Under the extreme assumption, some simple matters may be completely decided by AI - for example, adjusting a certain parameter to optimize TPS. It is difficult for humans to grasp the optimal value, so it can be handed over to the algorithm to find the optimal solution according to the simulation and the objective function, and then implement it on the chain. Therefore, the algorithm system will gradually take over specific technical decisions, and humans will be more responsible for value and directional choices.

3. Institutional Evolution Theory: In social theory, there is the Institutional Evolution Theory, which holds that institutions will survive the fittest in competition. Blockchain provides a platform to accelerate institutional evolution: different chains adopt different institutions, which is equivalent to conducting social experiments in parallel. WEN's hybrid consensus governance system is also competing with the PoS, PoW, and DAO governance models of other chains. If WEN proves to be superior to them in terms of stability, fairness, and efficiency, its model may be replicated or even replace traditional institutions. Vice versa. This evolutionary speed is much faster than real - world social change because the cost of trial - and - error in the virtual world is low and the cycle is short. The improvement cycle of a chain is calculated in months, while the reform of national laws often takes years or even longer. Protocol evolution may lead the way in institutional evolution. It can be foreseen that in the future, some governance mechanisms verified by blockchain will be transplanted into real - world legislation or corporate management. For example, ideas such as incremental democracy and compound voting rights (similar to WEN's energy rights) may all influence real - world institutional innovation.

4. **Ethics and Risks:** Of course, self-evolving protocols also come with risks and ethical issues. Entrusting algorithms with power may lead to value biases or indifference. If the majority decisions in a community are short-sighted or selfish, could it result in a rule that oppresses the minority? How can we correct the deviation if the code-executed decisions go wrong? These issues require the embedding of "brakes" and error correction mechanisms in the design. WEN tries to prevent such situations through measures like multi-party participation in governance and reconsideration. However, whether more advanced protocol AIs in the future will always serve the interests of humanity remains an unknown proposition. Perhaps we need to set certain principles for protocols similar to "the Three Laws of Robotics". Fortunately, the blockchain is transparent with a low participation threshold, making it relatively easy to detect and correct errors. Additionally, the token economy binds the interests of all parties to a positive prospect, giving a natural impetus to counteract malignant evolution. WEN will serve as a case to provide experience: how a chain completely controlled by participants can avoid going astray or even self-destructing (such as a malignant hard fork tearing apart the community).

Overall, the WEN Energy Chain demonstrates a new type of institutional life. Its self-evolving ability gives us the first opportunity to observe how a rule system co-shaped by humans and algorithms grows. This is not only a technological experiment but also a social experiment, with profound significance for political economy. In the long run, the blockchain may become the third form of evolution after biological evolution and cultural evolution: protocol evolution, leading human society into the "Setter Civilization".

- Next, in Chapter 9, we will further elaborate on this future scenario and explore how the so - called "Setter Civilization" and the on - chain energy laws within it might reshape future society.

Chapter Nine:

The Future Social Landscape —— The On-chain Casting Rules in the Setter Civilization

Looking ahead from the present, we can place the WEN Energy Chain and similar systems within a broader framework of civilizational evolution for consideration. The so - called "Setter Civilization" can be understood as a civilizational form dominated by rule - setters or highly dependent on rule - setting. In such a civilization, digital rules (such as blockchain protocols) and energy laws are closely intertwined, and the energy consumption on the chain is integrated with the operation of society. This chapter attempts to outline this future scenario and consider how the on - chain energy laws represented by WEN will affect the structure and values of future human society.

▷ 9.1 The Connotation of the Setter Civilization

The concept of "the setting civilization" can be interpreted from multiple perspectives:

1. **Rule setters:** Traditional civilizations have their rules shaped by history, culture, leaders, etc., while future civilizations have their basic rules set more by technology designers. Blockchain developers, protocol designers, and AI algorithm formulators, these emerging "setters", influence and even determine the ways of a large number of social activities by creating digital rule systems. Therefore, to a certain extent, future civilizations are shaped by a group of people who master code and energy. This does not imply elite monopoly, but rather that the right to speak has shifted from force/capital to the design and control of rules. In the civilization of setters, "rule by code" replaces "rule by man". Whoever can formulate widely adopted protocols is the legislator of the new era. The emergence of WEN illustrates this point: The Bitcoin rules designed by Satoshi Nakamoto have a profound impact, and the energy consensus philosophy formulated by WEN designers is expected to lead a trend. If WEN is successful, there may be countless imitating energy chains in the future, and they will jointly give birth to a new ecosystem based on energy laws.

2. **Self - setting, self - governance:** The Setter Civilization can also be understood as each social unit becoming its own rule - setter. Through decentralized technology, people no longer completely submit to top - down laws, but participate in co - creating consensual rules. Everyone has a share of the "setting" power and responsibility. The civilization formed in this way has the characteristics of self - governance. Macroscopically, there is no single ruler, but a network in which countless individuals/groups jointly formulate and abide by the rules. This is consistent with the Micro - node Civilization discussed in Chapter 7. It can be seen that the Setter Civilization may be a further expansion of the Micro - node Civilization: citizens are legislators, and each person shapes the social system through keyboards and mining machines rather than ballot boxes or violence.

3. Integration of the On-chain Society and Reality: The Civilization of Setters also implies a blurred boundary between the real world and the digital world. Part of people's lives, work, and transactions shift to the blockchain, governed by on-chain rules. Over time, the digital order in turn

influences the real-world order. The rule setters in the virtual world begin to sway the direction of real society, which can be regarded as a scene of "Metaverse Governance". For example, if the energy pricing and distribution system formed on the WEN chain is far more efficient than the real electricity market, people will increasingly rely on on-chain electricity transactions, and real electricity prices and even policies will have to be adjusted accordingly. At this time, real laws may have to recognize the validity of on-chain contracts and the asset status of on-chain tokens. The on-chain energy rules gradually become one of the basic rules for the operation of the entire society's energy, and traditional energy management regulations may take a secondary place or need to be aligned with them. This is a two-way integration: real resources go on-chain, and on-chain rules govern the real world.

▷ 9.2 Pillars of the On-chain Energy Law

▪ In the civilization of the Setter, there may exist a certain "On-chain Energy Law", and its pillars may include:

1. **Irreversibility:** Just as the laws of physical energy cannot be violated, the consensus on the blockchain supported by energy cannot be arbitrarily overthrown. Once the records on the blockchain based on PoW are written, it requires a huge energy cost to tamper with them. This means that integrity and contracts are guaranteed with unprecedented strength. Contract execution, asset registration, etc., due to the guarantee of the blockchain backed by energy, will become almost unbreakable ironclad rules. The credit foundation of social operation will be greatly strengthened, and the costs of fraud and breach of contract will be prohibitively high beyond imagination.

2. **Principle of Real Cost:** The Energy Law will emphasize that any value acquisition must involve an input of real cost. Profit-making with zero cost will be regarded as unfair (unless innovation significantly improves efficiency, which essentially is a change in the cost structure). The penetration of this principle into the economic system will reduce the tendency of speculation and bubbles. Financial markets, derivatives, etc. may all need to follow some mechanism similar to Proof of Work to prove

the authenticity of their transactions and profit sources. For example, in the future, when issuing stocks, a company may need to prove that it has invested sufficient energy/carbon indicators as credit guarantees to avoid shell companies raising money fraudulently. This is an expanded application of the concept of "unforgeable cost". People may use an "energy index" to measure the credibility of an enterprise or project - the more energy invested, the higher the credibility. This will change the capital evaluation system and give due attention to the real economy and innovation.

3. **Energy Balance and Sustainability:** When energy consumption is directly linked to social value, it will inevitably lead to a high degree of attention to energy efficiency and sustainability. In the Setter civilization, energy waste is subject to collective regulation because it means that more energy is needed to reach the same consensus, increasing the cost of the whole society. Therefore, on-chain rules will encourage the improvement of energy efficiency and the development of clean energy. Perhaps at that time, on-chain protocols will mandatorily stipulate carbon emission caps, reward low-carbon computing power, etc., and write sustainability into the consensus mechanism. A system like WEN, which takes energy as the core, will naturally drive the optimal allocation of resources and is conducive to environmental protection in the long run: because every kilowatt-hour of electricity costs money, no one is willing to waste it for no reason, and it will be guided to do the most important things. Energy economics and blockchain mechanism design will be integrated to form a new discipline to design a low-entropy and high-order social system..

4. Dynamic Equilibrium Governance: The on-chain energy law embodies the governance concept of dynamic equilibrium - both rigid rule stability and flexible adaptive adjustment are required. WEN has been making attempts in this regard, maintaining the network through both automatic algorithms and manual governance. In the future, the entire civilization will be the same: there will be a set of fundamental and inviolable on-chain constitutions (laws based on physics and consensus), but people can continuously adjust the details through consensus, enabling the system to keep pace with the times. Thus, civilization will be as stable as a rock and full of vitality. This will go beyond the drawbacks of many rigid systems or

overly frequent reforms in the past and move towards the unity of stability and change.

▷ 9.3 The Reconstruction of Human Society

The full implementation of the designer civilization and the chain - based energy law will bring changes to all aspects of human society:

1. **Economic form:** Currencies may fully shift to an energy standard or a similar form. If fiat currencies cannot adapt, they may decline. People's wealth will be stored more in crypto assets. The government's macro - control methods need to be adjusted. It may influence the economy by participating in on - chain governance rather than through traditional central bank means. For example, the government may become a large miner or token holder and adjust the currency value through market operations instead of printing money. Economic activities will be made transparent and recorded on the chain. Evasion of taxes and other illegal acts will be difficult to hide due to the on - chain records. Wealth distribution may become more equitable because the token issuance mechanism is public and everyone can participate in work to obtain tokens, rather than through closed - door decision - making. The global economy may move towards true integration due to a unified energy value scale.

2. **Political structure:** The concept of national sovereignty may be weakened, especially in terms of currency and economic governance, giving way to a global consensus network. There may emerge "blockchain city - states" or "protocol alliances": People choose which blockchain to join based on the on - chain rules they identify with, similar to choosing a nationality. Governance voting on the chain replaces some real - world elections. Politicians need to understand code and energy and become rule negotiators rather than just power brokers. International relations may transform into a collaborative game between different blockchains, and war may evolve into a battle of computing power or an economic war of attrition, rather than relying mainly on armaments (because physical warfare is costly and does not conform to the principle of energy efficiency. Although computing power warfare consumes energy, it is

more controllable in the virtual realm). In short, politics will become a competition for the power to formulate rules and regulate consensus.

3. **Social culture:** Values will place a higher premium on honest labor and rational investment. "Work is glorious" will be quantified and rewarded on the chain, making it more easily recognized. New ethics may emerge. For example, wasting energy may be regarded as shameful (similar to today's environmental ethics), because it is equivalent to eroding the foundation of public trust. People may have more reverence for science and engineering, as both rules and energy stem from the knowledge in these fields. Traditional religions may incorporate new elements. For instance, some thinkers may regard energy as the new "sacred" - after all, all values are supported by it, and "the fire of consensus" becomes a spiritual metaphor (similar to the metaphor of fire mentioned in the prologue). Of course, there are also dangerous trends: excessive rationalization and technological worship may lead to the neglect of human nature. Therefore, the Setter civilization needs to find a balance between technological rationality and humanistic care. Fortunately, blockchain communities often have strong demands for freedom and equality, and the combination of the two may give rise to a new spiritual system. Perhaps people in the future will believe in an "energy philosophy" - believing that justice comes from real efforts and that freedom is based on objective constraints.

4. **Personal life:** Everyone will face a highly digitalized and precisely regulated living environment. There may be a blockchain - based identity record from birth, and energy consumption indicators will accompany education and work. The choice of occupation may be closely related to energy, and green and low - consumption industries will be favored. Life decisions and even daily consumption will be influenced by blockchain - based incentives. For example, if you use energy - saving equipment, you may automatically receive blockchain - based token rewards (because reducing carbon emissions is in line with the consensus goal), which is similar to today's carbon credits but more directly valuable. In their spare time, people may participate in blockchain - based community activities, such as contributing computing power to do public welfare projects. A part of the entire human vitality will be guided to solve "problems" on the blockchain - for example, contributing computing power to scientific research projects through Proof - of - Work, or verifying the authenticity of

public data. These are all consensus - based tasks that may be expanded, so that energy is not wasted on meaningless calculations but serves social needs. In this way, personal life is truly integrated with public value, and everyone is a generator and regulator of social operation.

▷ 9.4 Start from WEN

▪ Although the above - mentioned scenario sounds advanced, as a starting point, the WEN Energy Chain is gradually verifying the feasibility of its elements: energy - anchored value, fair coin - minting, autonomous governance, and self - evolving protocols. If these elements succeed, they will be reused in more fields and on more chains, ultimately piecing together the full picture of the civilization envisioned by the designers.

▪ The significance of WEN lies in demonstrating to the world the power of the concept that "the fire of consensus comes from real investment." Once people realize that a reliable trust order can be constructed through real energy, they will re-examine the necessity of many traditional practices. Why does the central bank need to issue currency? Why should we obey the invisible hand of the market instead of participating in consensus-making personally? The practice of WEN will give a powerful answer: everyone can directly participate in creating value currency by contributing energy, and everyone can jointly formulate rules and share benefits, without hidden exploitation or black-box operations. This undoubtedly poses a challenge to the existing social paradigm. If the Industrial Revolution brought humanity into the "era of massive energy utilization," then the blockchain revolution may bring humanity into the "era of energy-consensus integration."

▪ In the long-term vision of the Designer Civilization, the WEN Energy Chain may be just one of many infrastructure components, but its philosophical core will endure: genuine energy input is the cornerstone of building a reliable society. This "On-chain Energy Law" will, like the laws of physics, become the underlying logic for the operation of the civilization and be deeply inscribed in humanity's new social contract.

Final Chapter: The Fire of Consensus, Stemming from Genuine Commitment

▪ The ancient proverb says, "A single spark can start a prairie fire." What the WEN Energy Chain has ignited is a fire of consensus fueled by real energy. At the end of this white paper, we review the overall context, further clarify the significance of this concept, and look ahead to the future path it illuminates.

▪ WEN has chosen a difficult yet firm path: taking Proof of Work (PoW) as the root and Proof of Authority (PoA) as the wings, integrating them into a unique hybrid consensus mechanism. It has resisted the temptation of creating value without cost, insisting that every token should be obtained through the wear and tear of equipment and the consumption of electricity. It has abandoned the centralized shortcut, believing that the energy gathered from numerous micro - nodes is sufficient to support the edifice of trust. Such a choice may seem out of place in today's wave of pursuing efficiency and maximum capital returns. However, it is precisely this "going against the trend" that reflects WEN's original intention: only the consensus derived from real input has long - lasting and vigorous vitality.

▪ Looking back at the entire white paper, we started from the energy metaphor and philosophical foundation, explaining how the sunk cost ensures the fairness of coinage; we elaborately designed the fission - type three - layer network, enabling micro - nodes and full - nodes to give full play to their capabilities and form an expandable collaborative system; we established an energy - based token economy, shaping a stable value anchored by physical costs; we designed a dynamic energy - rights governance, allowing continuous contributors to lead the network forward; we saw how the prototype of the digital power network simulates the real - world energy market and promotes energy optimization; we depicted the diverse prospects of the micro - node civilization and felt the power of the decentralized human community; we analyzed how the algorithmic system evolves by itself and looked forward to a new form of rule - based governance in the future; finally, standing on the threshold of the future - setter civilization, we faintly saw that the on - chain energy law will profoundly change the world.

▪ All these chapters, when summed up, point to the motif proposed at the beginning of this article: "The fire of consensus comes from real and irreversible investment." This is not just a slogan, but a thread of truth running through technology, economy, philosophy, and society. It tells us:

- Trust and value do not arise out of thin air. Just as thermodynamics requires an input of energy to do work, the blockchain world also requires irreversible sacrifice to build trust.

- When everyone adds fuel to the fire of consensus, the light and heat obtained will illuminate everyone. The security and prosperity of the network are built on the electric energy silently consumed by countless miner nodes. This kind of dedication deserves to be seen and respected.

- Attempts to reap without sowing and generate profits without investment will be exposed in the face of this flame, because the consensus mechanism naturally guards against the free lunch. Corrupt authorities and speculative bubbles cannot compete with a system supported by real input in the long run.。

- As the foundation of human civilization, energy is the best cornerstone of on-chain consensus. Through WEN, for the first time, we have integrated the laws of physics and social contracts so closely, enabling the objective laws of all things in the universe to safeguard the right path in the digital world.

- The WEN Energy Chain is still a young spark, but we believe it has the potential to start a prairie fire. It positions itself as a paradigm shift in the public chain field, not only providing performance or functional improvements, but also leading the way in consensus philosophy. The fire of consensus ignites the adherence and further deepening of the original intention of blockchain: decentralization is not an empty talk; it requires sacrifice and effort to achieve. Fairness and justice are not just slogans; they need mechanisms to guarantee and fulfill. WEN is willing to be that fleeting torch, awakening more projects and communities to think about the relationship between energy and consensus, and jointly exploring the bright path for the future development of blockchain.

- We are also acutely aware that the road ahead is not smooth. WEN will face technical challenges (such as ensuring that the energy consumption of PoW is ultimately used for beneficial work and resisting new types of attacks), economic tests (such as maintaining a virtuous cycle of the token

economy and coping with drastic market fluctuations), and the difficult problems of community governance (such as balancing different interest groups and continuously iterating the consensus). However, we firmly believe that with the guidance of the right concepts and the genuine input and intellectual contributions of all participants, these problems can be overcome one by one. As the saying goes, "The continuous and genuine input will ultimately forge an ever - lasting consensus fire."

- The fire of consensus comes from genuine commitment. As we conclude this white paper, we write this statement once again with solemnity. It serves both as an initiative to all readers and as a self - exhortation. Let us invest our sincere energy, converging it into a blazing fire of trust. May the WEN Energy Chain become a lighthouse of the era, illuminating the blockchain world in the next decade and even in the more distant future.

- Bitcoin: The Entropy Engine
https://bitcoinmagazine.com/technical/bitcoin-the-entropy-engine
- Bitcoin and Entropy : r/Bitcoin
https://www.reddit.com/r/Bitcoin/comments/1encocq/bitcoin_and_entropy/
- Why is the POA consensus mechanism of blockchain more... in consortium chains than the mainstream PoW and PoS mechanisms ...
https://www.hellobtc.com/kp/kc/11/2407.html
- Five questions to thoroughly understand the PoA consensus algorithm: How does it compare with PoW and PoS? - Feixiaohao
https://www.feixiaohao.com/news/4497436.html
- What Is Proof of Work? How Crypto Mining Achieves Consensus - DailyCoin
https://dailycoin.com/what-is-proof-of-work-how-crypto-mining-achieves-consensus/
- Physics-based cryptocurrency transmits energy (not just information) through blockchain | Lawrence Livermore National Laboratory
https://www.llnl.gov/article/48711/physics-based-cryptocurrency-transmits-energy-not-just-information-through-blockchain

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