Facilitating Financing for Vietnamese Energy Companies by Creating a Digital System for REC Issuance

I. Relevance

In 2018, the Vietnamese government set a goal to increase electricity generation from renewable energy sources from 8-9% to 23% by 2030, which could make the country one of the leaders in renewable energy among ASEAN states. The mechanism of preferential tariffs adopted in 2019 creates financial incentives for the development of renewable energy, however, for the more successful implementation of this and other goals in the field of environmental policy, it is necessary to attract investment. There is a special class of financial instruments for this purpose - green finance instruments (green certificates, green bonds, carbon credits, etc.).

Vietnam is also collaborating with the World Bank to develop tools for the national green finance system through Partnership for market readiness mechanism[1].

The concept of renewable energy certificates or green certificates first appeared as a tool for accounting and monitoring of production and consumption of electric energy based on renewable sources. Renewable energy producers receive special certificates confirming that they produced a certain amount of renewable or green energy. The number of issued certificates is tied to the volume produced by energy generators. Typically, certificates are multiples of 1 MW / hour. The important point is that such certificates are not tied specifically to the energy, on the basis of which they are issued.

This allows companies to purchase these certificates for implementation of ESG practices or in order to transit to consumption of renewable energy as part of the sustainable development strategy [2] . The certificates, thus, get their value and are traded on the market. There are several green certificates standards (I-REC, Green-e, etc.). However, for the mechanism to be more efficient, there is a need to:

- increase transparency of electricity metering, as well as issuance, trade and offset of certificates;
- exclude the possibility of double accounting of certificates;
- reduce costs in order to make the mechanism profitable for small-scale power plants,
- create ways to integrate fragmented markets.

II. Solution

The project implies creation of a national digital platform for issuing and trading green certificates in accordance with international standards. The first issuance of a digital green certificate will be piloted on any local renewable energy generation facility.

The platform will be implemented using blockchain and the Internet of Things technologies, based on the experience gained by Evercity company (more details below).

[1] https://www.thepmr.org/sites/wbpmr/files/PMR_Annual%20Report.2019_0.pdf
[2] http://there100.org

The implementation of the project will help to attract additional investment in the renewable energy sector of Vietnam and provide a solid foundation to creation of a national blockchain-based green finance market. The project also has great potential for scaling within the region.

A similar project utilizing foreign software is now being implemented in Thailand[3].

III. Project Development Potential

1. Creation of a national system for green certificates issuance and circulation

The pilot issuance should be followed by the creation of a national green certificate circulation system. For this, we have both technological and methodological resources. It is also possible to engage partner international organizations and consultants.

2. Creation of a digital greenhouse gas registry

As part of Vietnam's cooperation with the World Bank, the Partnership for Market Readiness initiative proposes to create a digital registry of greenhouse gas emissions. We can create such a registry using blockchain technology; such an approach is supported by the World Bank.

3. Creation of market mechanisms for trading GHG emissions on blockchain

The next logical step after creating a digital emissions registry could be the creation of market-based mechanisms for trading greenhouse gas emissions. This project can be implemented in pilot mode on the basis of one of the Vietnamese universities. A similar project was implemented by Evercity at Nazarbayev University in Kazakhstan (see "Examples of completed projects").

4. Transition of Vietnam's energy market to digital technology

In the medium term, it is possible to utilize the experience of pilot projects and the national system for green certificates to further digitalize the Vietnamese energy market. Transition of the Vietnamese electric power metering and accounting system to digital technologies on a national and / or regional scale is in line with current international trends.

IV. Evercity's Experience

Evercity has extensive experience in application of blockchain and Internet of Things technologies to issuance of green financial assets and renewable energy metering. In 2016 we launched the DAO IPCI platform (http://ipci.io/) to create a digital infrastructure for the green finance market on the blockchain. In 2017, DAO IPCI conducted the world's first international transaction with green financial instruments on blockchain. Today there are pilot implementations in Chile, Canada, Singapore, Russia and other countries. The success of the project was widely reported in the world media and was supported by advisor to the President of Russia on Climate Change Issues, Alexander Bedritsky and Deputy Chairperson of the UNFCCC Secretariat Martin Frick; it was also presented at key world conferences from the US to Asia.

The platform allows to:

[3] https://tokenpost.com/Thailands-PTT-Energy-Web-Foundation-to-develop-blockchain-renewable-energy-marketplace-3418

- Issue, trade and retire various environmental assets on blockchain (Incl. Carbon Credits, Green Bonds, RECs etc.)
- Measure and track positive and negative environmental impact from polluters/ climate projects
- Blockchainize corporate, regional, national and international environmental programs
- Certify and register voluntary climate obligations (including metallurgy, aviation and other sectors);

Examples of completed projects

1. Pilot project in Russian smart city of Skolkovo. The Platform was integrated with solar power plants, smart sensors and the Skolkovo smart city management system, followed by the issuance of green certificates in test mode.

https://www.youtube.com/watch?v=MnuBgkRSznM

2. Pilot project with a small-scale solar power station in Chile. In 2019, Evercity implemented a pilot project with the Chilean renewable energy supplier EnorChile S. A. to issue green certificates using blockchain technology. This project was also presented at an official side event event within the framework of the United Nations Climate Change Conference COP25. Article - https://medium.com/@evercityappstore/evercity-platform-presents-three-use-cases-on-industry-4-0-tech-for-climate-9e34a2891392

3. Pilot project in Nazarbayev University, Kazakhstan. In 2019, we implemented a pilot project with Kazakh partners. Within the project, a blockchain platform in test mode was deployed on the basis of the university. The platform was integrated with sensors connected to local renewable energy generation facilities (solar panels and wind generators). After that, students participated in a game simulation of green markets, issuing and exchanging green financial instruments on blockchain. Video - https://www.youtube.com/watch?v=zpJ0ddKeZOo

VI. Advantages for Vietnam:

1. Attracting additional investment in the economy for development of the renewable energy sector and green finance.
2. Creation of basic infrastructure for digitalization of the energy market and green finance.
3. Regional leadership in digital innovation for energy and green finance.
4. Increasing transparency and control over projects in the indicated areas.