The Second Youth Frontier for Energy Transition

GREEN and NEW DEAL

Summary Report

ENERGY TRANSITION FORUM

EU-KOREA CLIMATE ACTION

Project funded by the European Union

The Second Youth Frontier for Energy Transition and Green Deal
Summary Report

Contents

1

Measures to Improve the Acceptance of Residents Living Near Large-scale Solar PV Generation Site

by Team ´Ppurism´

Topic

Focusing on the resident acceptance survey and measures to improve public awareness of solar power.

Background

Increasing local conflicts (e.g. photovoltaic (PV) sites take away the land of farmers, benefit is not great, etc.) from the residents over the large-scale PV power generation sites despite its growing importance.

Objective

Develop solutions to improve the residents' acceptability and establish effective communication systems for stakeholders in rural areas.

Methodology

- Identify local conflicts
- Interview with stakeholders in areas where conflicts occur over renewable energy to understand their concerns and point of view
- Study measures to improve the residents' level of acceptance

Site Visits & Interviews

- Location : Daehoji-myeon, Dangjin-si, Chungcheongnam-do
  - Dangjin City Hall, Daehoji Solar Park, Inc., Daehoji Solar Park Residents' Cooperative, and Dangjin Energy Center
- Location : Munnae-myeon, Haenam-gun, Jeollanam-do
  - Haenam Newspaper, Munnae Hyeoldo Solar Power Countermeasures Committee, and Solasido Solar Power Plant

Proposed Solution

Three parallel approaches targeting local residents, the central government, and the public

I. At the local level

- Problem : Low accessibility of information on renewable energy to residents
  - Proposed Solution : Provide customized educational and PR materials for local residents and establish a network that organically connects dispersed information.

2. At the government level

I) Specify resident agreements

- Problem : Although the Electric Utility Act requires the electricity generation business to be notified beforehand to residents to collect their opinions, its requirements are unclear, causing confusion at the site.
  - Proposed Solution : Provide clear and well-structured guidelines that specify persons subject to the consent survey, prosecutor, survey forms, etc.

2) Propose a conflict management agency

- Problem : There is no entity in charge of mediating conflicts between the PV generation business owner and local community.
  - Proposed Solution : Propose an establishment of conflict management agency for institutional improvements and mediating conflicts between between the different parties.

3. At the public level

- Problem : The public lacks awareness on importance of renewable energy
  - Proposed Solution : Produce and disseminate videos by the team member regard on this issue.

Expectation

- Promote open and transparent communication between government, business, and residents.
- Enhance information accessibility to local residents living in the close surrounding of renewable energy sites.
- Raise public awareness about the importance of renewable energy in the context of climate change.

2

A Resident-Led Energy Society in South Korea

by Team ´GO100´

Topic

Solutions to achieve a resident-led energy society.

Background

Many investors and developers of renewable energy projects have recognized that the problem of resident acceptability has a significant impact on the business and are seeking solutions.

Objective

Explore methods to allow local residents to participate in renewable energy projects designed to enhance self-reliance.

Methodology

- Grouping and interview stakeholders by downstream industry
- Explore new ideas to improve awareness on renewable energy among senior citizens and individuals
- Develop private sector–led renewable energy projects involving local residents

Site Visits & Interviews

Korea Federation for Environmental Movements in Gwangju, Topinfra Co., Ltd., Gwangju/Jeonnam Branch Office of the Korea Energy Agency, Shinan-gun Office, Anjwado New Renewable Energy Residents' Cooperative, Anjwa Smart Farm & Solar City, Root Energy, MNK Law Office, and Ansan Citizen's Solar Power Cooperative.

Proposed Solution

- **Establish a consulting agency dedicated to resident-led renewable energy projects :**
  - Identify the network and details of a community
  - Hold community meetings
  - Form an energy committee within the community to manage further tasks and meetings
  - Provide information service education programs for local residents

- **Conducting promotions through KakaoTalk[1] targeting senior citizens**

Expectation

- **Establish a professional consulting agency intended to assist local resident participation:**
  - Reduce the practice of the private sector relying on the government and improve the independence of the private sector
  - Educate senior citizens on the energy industry and local renewable energy operations to engage them more actively in the community
  - Facilitate communication between generations

- **Conduct promotions via KakaoTalk**
  - Ensure easy access at low costs

I) Popular mobile messenger app used in South Korea.

3-1

A Plan to Increase the Share of Renewable Energy in Jeju Island

by Team ´Gone with the Wind´

Topic

Securing flexible resources (e.g. demand response systems, stationary distributed energy storage systems) for renewable energy expansion

Background

- Rapid increase in curtailment due to expansion of renewable energy
- Lack of public awareness on renewable energy

Objective

- To develop solutions to secure flexible resources in the power system for efficient expansion of renewable energy.
- To identify approaches to promote public awareness on demand-side management to encourage the consumer to use less energy during peak hours, or to move the time of energy use to off-peak times such as nighttime and weekends.

Methodology

- Study measures to utilize flexible resources tailored to Jeju Island.
- Identify each stakeholder's position on demand-side management.
- Study approaches to promote public awareness of demand-side management.

Site Visits & Interviews

GridWiz, Jeju Special Self-Governing Provincial Office, Jeju Research Institute, Jeju Branch Office of the Korea Power Exchange, Jeju Energy Corporation, andSK D&D Gasiri Wind Farm.

Proposed Solution

Solutions to resolve curtailment through flexible resources and public awareness

- **Short-term solution :**
  - Propose to secure flexible resources by utilizing 'Shared E-mobility project' in Jeju's Special Self-Governing Province.

- **Mid- to long-term solutions :**
  - Define seasonal patterns and high production time slot in the afternoon where duck curve[2)] occurs to set the electricity rate which will mitigate the duck curve by distributing late-night demand to the times when duck curve occurs.
  - Establish measures to respond to volatility of wind power generation through wind-powered seawater desalination and molten-salt energy storage systems.

Expectation

- Contribute to the promotion of an e-3DA platform pilot project and increasing awareness on energy transition by letting citizens recognize the importance of e-mobility and their roles in the future.

- Mitigate the impacts of the duck curve by further distributing the demand for the existing midnight electricity equipment during the day, revitalizing the thermal energy storage market.

- Diversify responses to variable renewable energy and securing drinking water in Jeju Island from a long-term perspective.

2) A graph of power production over the course of a day that shows the timing imbalance between peak demand and renewable energy production.

3-2

A Plan to Secure the Residents Acceptability in Daejeong-eup, Jeju

by Team ´Gone with the Wind´

Topic

Measures to raise awareness of positive aspects of wind power among residents through the case of Daejeong-eup, Seogwipo, Jeju Island.

Background

- Low share of wind power in the energy mix
- Number of planned renewable energy projects in Jeju were canceled or reduced in size due to conflict with residents

Objective

- To analyze issues in the pilot project in Dajeong Off-shore wind power generation, which was rejected due to the resident's acceptability
- To search ways to raise the acceptability

Methodology

- Interview with key stakeholders (local government, wind power operators and residents)

Site Visits & Interviews

- Low-Carbon Policy Division, Future Strategies Bureau, Jeju Special Self-Governing Province
- Wind Power plant in Gasiri in Jeju, SK D&D
- Daejeong-eup
- Doosan Heavy Industries & Construction

Proposed Solution

- **Short-term solution: awareness raising through local festivals**
  - Organize Light Street Festival
  - Improve the operation of 'Extreme South Yellowtail Festival' to renewable energy friendly

- **Mid- to long-term solution: awareness raising through education**
  - Conduct energy transition social campaign through High School Students Council Association in Jeju, 'Mandorong'
  - Incorporate climate crisis specialized curriculums

Expectation

- **Raise resident acceptance in Daejeong-eup**
  - Improve awareness of youth through education
  - Improve awareness of young and senior citizens through local festivals and profit sharing

4

Proposed Roles for Each Stakeholders to Move toward a Just Transition

by Team ´So Sang Gong In´

Topic

Discussions on preparations for Coal Phase-Out and Just Transition in the Chungnam Region.

Background

Chungnam Region is where the coal-fired plants are concentrated and its economy is at the risk of unemployment with a declining local economy caused by coal phase-out.

Objective

Seeking methods to encourage workers to actively participate in discussions on energy transition in preparation for potential unemployment and weakened local economies caused by coal phase-out policies.

Methodology

Produce tasks for Just Transition depending on the roles of each type of stakeholder (the central government, local governments, and private sector incl. workers in coal-fired plants).

Site Visits & Interviews

- Seoul : National Assembly of South Korea and the Energy and Climate Policy Institute for Just Transition
- Boryeong and Dangjin : City Hall, Dangjin Energy Center, and Eco Solar Power Plant

Proposed Solution

I) Central government

- **To increase trust in the implementation of carbon neutrality, the following tasks shall be initiated from the central government level:**
  - Suggest a clear road map for the coal phase-out policy.
  - Present the need for quick enactment and preparation for financial sources to support the coal-phase out policy.

2) Local governments

- Strengthen the capacity of the existing Chungnam Just Transition Task Force Team.
- Organize a scenario workshop to enhance a mutual understanding of stakeholders while collecting diverse ideas.

3) Labor union

- Propose programs designed to improve cooperation with other stakeholders, such as civil society groups and the central and local governments, to actively suggest policies and raise awareness in climate responses and Just Transition.

Expectation

- Incorporate Just Transition into the 2050 Carbon Neutral Strategy; consider the social impacts of climate crisis response; and protect marginalized and vulnerable groups.

- Find more effective alternatives through discussions among stakeholders and effectively spreading the concept of Just Transition.

- Allow the labor unions in the power sector to contribute to effective policy design and act as an education agent to prepare for coal phase-out and sustainable jobs.

5

Spoon On System (SOS) to achieve Grid Parity

by Team ´Emart!`

Topic

Transition from the Renewable Portfolio Standard (RPS) to the system for large-scale power generation projects.

Background

Due to the lack of proper guaranteed profitability, the subsidy scheme provided to renewable energy operators is currently impeding the expansion of renewable energy supply.

Objective

- Identify the fundamental problems of the current power market and the RPS
- Develop solutions to expand renewable energy

Methodology

- Conduct two site visits in Daejeon and Jinju
- Conduct interviews with 8 stakeholders

Site Visits & Interviews

Korea Solar Power Corporation Association, Green Peace, GS E&R, Energy Peace, Korea Energy Agency, Korea Union Solar Coop, Obliged power suppliers[3].

3) Power generation plants that are obliged to supply more than a certain percentage of total power generation using renewable energy under the RPS; a Power generation plant with power generation facilities of at least 500 MW, excluding renewable energy facilities.

Proposed Solution

- **Establishment of Office of Integrated Power Processing (OIPP)**
  - OIPP will act as a control tower for fostering large-scale solar power projects and by breaking institutional barriers through Spoon On System (SOS).
  - Part of initial cost shall be supported by the government.

- **Introduce Spoon On System (SOS)**
  - A public-led integrated support project which aims to reduce the unit price of power generation by implementing large-scale power generation projects.

Expectation

- Smooth market inflow of large-scale solar power projects
- Independence of system operation through independent organizations
- Reach grid parity from decrease of levelized cost of electricity (LCOE)
- Increase competitiveness of the domestic solar industry

6 Enhance Energy Independence in Rural Communities

by Team ´Han-Ul´

Topic

Identify long-term methods to ensure energy self-sufficiency in rural communities by utilizing the movements of young people settling in rural areas for farming.

Background

- Decentralized power enhances local energy self-sufficiency.
- The problem of aging rural communities and need to attract younger generation to live in rural communities.

Objective

- Solutions of sustainable energy independence and transition in rural communities by incorporating the movements of young people settling in rural communities for farming.

Methodology

- Conduct surveys and interviews for preliminary survey, targeting young farmers who came from cities to rural areas for farming
- Conduct an on-site survey

Site Visits & Interviews

Jeonju Energy Center, Wanju Social Goods Center, Transitiontech Socialcoop, Jthink, Korea Federation for Environmental Movement in Jeonbuk.

Proposed Solution

- Develop community support centers such as the Wanju Social Goods Center to assist rural communities in solving problems and educate them on energy

  (e.g., Wanju Social Goods Center : a center which is established to create a harmonious community between the young people who came to rural areas for farming, and local residents)

- Organize a project, "Reviving a Rural Community Using Energy", by the community support center to cope with the climate crisis in rural areas.

Expectation

- Through "Reviving a Rural Community Using Energy", local residents and young people will acknowledge their need for each other in the process of resolving the climate crisis.

- Increase the local members' awareness of the climate crisis and inducing their direct engagement and action, which may also improve their energy sensitivity.

- Strengthen a sense of ownership for their communities.

7

A Plan to Promote Green Renovation through a Platform-Driven Virtuous Cycle

by Team ´EcoEco´

Topic

Develop and expand Korean green renovation markets for each stakeholder and measures to improve the system.

Background

There is a need for green renovation of existing small residential buildings to achieve 2050 Carbon Neutrality.

Objective

Identify methods to create, maintain, and expand a green renovation market that can satisfy the diverse needs of stakeholders.

Methodology

- Interview with different types of stakeholders (a government official, a supplier, and consumers) to identify the hidden needs.
- Conduct in-depth examinations on the stagnation of the existing green renovation market.
- Systematize a green renovation market through a virtuous cycle.

Site Visits & Interviews

- Government official : Park Hak-yong, Director General of Jibsuri.com
- Supplier : Park Noh-ho, CEO of E-Square E&C
- Consumer : Samsung Galaxy Real Estate Agent, Commerce Real Estate Agent, and Professor Kim Seon-suk (Ajou University)

Proposed Solution

- **Propose a green renovation platform**
  - A state-led platform which will effectively impact the markets
  - Centralize information using cooperation systems between the central and local governments
  - Solve information imbalance by introducing various stakeholder-specific programs
  - Achieve market expansion through entities interested in renovation

- **Train professional consultants**
  - Help green consumers to navigate the market easily
  - Contribute to social welfare for the vulnerable groups in employment
  - Implement a local small-sized construction company certification system
  - Expand the inflow of suppliers into the market through a small-sized construction company certification

- **Mandatory labeling of building energy efficiency ratings**
  - Encourage building owners to participate in green renovation
  - Provide objective information on building energy performance and the quality of residential environments

- **Utilize the government budget**
  - Expect to induce different social groups to take part in the market
  - Increase the useful value of incentives to ensure effective and efficient budget management

Expectation

- Revitalize the market through a virtuous cycle of above proposed solutions from development of green renovation platform to utilize the government budget.

The Second Youth Frontier for Energy Transition

GREEN and NEW DEAL

Summary Report

ENERGY TRANSITION FORUM

EU-KOREA CLIMATE ACTION

Project funded by the European Union