

Motives and meanings of renewable energy projects in South Korea

Yonjoo Jeong, Prof. Gordon Walker

Lancaster Environment Centre, Lancaster University

y.jeong@lancaster.ac.uk

Abstract

It is considered that RE development can contribute to finding new pathways to a more sustainable energy system. However the heterogeneity of RE projects in terms of multiple renewable technologies, diverse governance arrangements and associated social impacts and outcomes makes them elusive. This paper is to understand the RE projects emerged from diverse social contexts focusing on meanings and motives underlying the discourses of stakeholders. As such, useful implications embedded in dynamics of the RE utilisation can contribute to finding a new path facilitating to energy practice.

Introduction

Rapid increase of renewable energy (RE) development in the last several decades seems to reflect expectation and excitement of the emerging energy sources which are regarded more benign and sustainable than conventional energy sources like fossil fuels. Nonetheless, as many researchers point out, harnessing RE sources requires more challenging and transformative process in terms of its forms and establishing new relations in a society (Cass and Walker, 2007, see van Vliet et al 2005). Multiple renewable technologies, different scales, various forms of governances and associated social impacts in developing RE sources all contribute to complexity and tension that underlie such transition processes (see Bell et al 2005, Bulkely and Bestill 2005, Smith 2007). It also means that universal categorisation of emerging RE projects are hardly applicable and often not plausible in understanding dynamics of various RE projects in a wide diversity of contexts (Cass and Walker 2009, Walker et al 2010). Thus it is necessary to rather focus onto the possibility and diversity of RE development than trying to make the same and larger boxes to put them in. The heterogeneous forms of RE development in a various contexts and conditions in return enable to broaden perspectives and thereby enhancing the understanding of the elusive characters of RE development. As such, implications embedded in dynamics of the RE utilisation can contribute to finding a new path of facilitating to energy practice.

In this research, I will look at two case studies in South Korea. Two cases have quite different characteristics in terms of technologies, scales, and governances. One is a relatively small-scale community RE project led by local leaders in the Buan County and the other is a large-scale wind farm project led by a local government in Jeju Island. Despite the differences between the cases, the drivers and rationale of the

projects have a common ground by rendering localism in terms of fairness and a sense of responsibility. These case studies can provide useful insight to policy makers by suggesting different ways of energy practices in non-western contexts.

In order to research dynamics and underlying meanings of the RE projects in each social context, in-depth interviews with key stakeholders were conducted. Discourse analysis was employed as the main analytical tool in examining interview data and secondary data. Considering interviewees as active meaning constructors who convey their own meaning through interviews (Holstein and Gubrium, 1995), the interview data were treated as discourses of each stakeholder about important meanings associated to a project to him/her. By looking at the discourses, who are the main social actors in a project and to what extent the relations between them affect RE projects and thereby underlying power relations will be identified.

First, the paper will give a brief background of energy situation and RE development in South Korea. Then it will move on to analysis of two case studies. After the similarities and differences between two projects will be discussed, the paper will conclude with a brief overview of the case studies.

Background information

South Korea considerably depends on imported energy sources to meet its energy needs due to limited domestic energy resources. Fossil fuels such as oil, coal and natural gas account for 84.5%, and nuclear power and renewable contribute to 13% and less than 2.5 % respectively of its total primary energy supply (MOICE, 2008) About 97 percent of the primary energy supply is imported from foreign countries, which makes the energy supply system and economic structure of South Korea vulnerable to energy price fluctuation, such as oil price rises. The oil shock in the

1970s, in particular, triggered nuclear power generation launch by strong supports of the South Korean government. The nuclear power industry in South Korea has grown remarkably in a short period of time and thus nuclear power generation accounts for 35.5 percent of the total electricity generated in South Korea as of 2007 (ibid, Leem, 2006) Meantime, in South Korea, the role of new and renewable energy in the total energy supply is very limited. It is because investment in renewable energy development was regarded far from imperative whereas economic development was given top priority during the relatively stable oil prices after oil shocks¹ (Chang, 2003). However, the surging oil price since 2000 and growing pressure of CO2 emission reduction have brought attention back to the importance of renewable energy development. In August 2008, the president, Lee announced “Low Carbon, Green Growth” as a new vision for economic development highlighting the role of market dynamics and economic agent in achieving sustainability which seems based on ‘Ecological Modernization’ rationale (Mol, 1997). In this manner, South Korea government promotes discourse of a new development model regardless criticism on capitalism and globalization.

Case Study 1 – Buan County Citizen Power Generation

In January 2005, Buan Citizen Power Generation (BCPG) was launched aiming at renewable energy development in Buan County in South Korea. In October 2005, 3kw photovoltaic panels were initially installed at three places in the Buan County: on the roofs of Majugmul building in Deungyong Village, the Won Buddhism² Sanctuary

¹ After oil shock of 1970s the price of oil was stable until 2001 owing to stable oil supply in Middle East region and development of new oil fields.

² An indigenous religion founded in Korea in the 20th century.

and the Catholic Sanctuary. Buan County is in the southeast of Korean Peninsula having a population of around 60,000. Agricultural and forest land account for more than 82% of the area and the population has been shrinking and aging such that local government financially relies strongly on central government support.

BCEPG was started up by two local religious leaders and a local activist. The initial project was funded by local people (75%) and by subsidies provided by the government (25%). Two of the representatives of BCEPG played an important role in generating funding for the initial project; one who is a Roman Catholic priest invested condolence money after his mother's funeral and the other invested part of funds already accumulated for building a new Won Buddhist sanctuary. Under a feed-in-tariff scheme, the electricity generated from solar panels is sold to The Korea Electric Power Corporation (KEPCO) at an officially fixed price. BCEPG distributes the profits from selling electricity to investors annually. However, the main investors who invested relatively larger than average investors, such as the two project leaders, have reinvested profits in further renewable energy projects so that BCEPG can continue to expand its activity. As of 2009, BCEPG had installed a total of 36kw of photovoltaic panels as well as a solar and thermal heating system in Deungyong Village.

The explanation of why BCEPG was established is directly and indirectly related in interviewee accounts to two preceding local conflicts - the planned construction of a sea dyke and proposals for a nuclear waste disposal site. The construction of the Saemangeum Sea Dyke was part of reclamation plans announced in the 1980s in order to enlarge farm land in the name of food security and the promotion of the local

economy. Concerns about the environmental disruption that would be caused by proposed reclamation increased in the mid 1990s, focused in particular on the irreversible environmental damage such as the loss of habitat and wetland species caused by tideland reclamation. Environmental NGOs unsuccessfully instituted legal proceedings against the construction of the Saemangeum Sea Dyke in 2001 and approval for construction was given in 2006. For interviewees this long running conflict was seen as first igniting debates over environmental and economic change in the area.

This was then followed by controversy which erupted over a nuclear waste disposal site-selection process in 2003 and 2004. Even though many local people had expressed their opposition to hosting a nuclear waste disposal facility, the governor of the Buan County, according to interviewee accounts 'arbitrarily' submitted an application for a location in Buan. This led to furious opposition demonstrations opposing this application, including violent clashes between protestors and the authorities. Many social and environmental NGOs at local and national levels also joined the protests in a form of providing education programmes on energy issues to local protesters during the protests. The protests were successful as in February 2004, the government announced the withdrawal of the Buan site location from consideration.

This history of mobilisation against development proposals was directly influential in the processes that then started leading to the setting up of the BCPG. The Buan local leaders who led the opposition demonstrations willingly became leaders for BCPG because they regard a renewable energy project as a way to keep on the

resistant '*spirit*' inherited from the anti-nuclear movement and to justify their anti-nuclear protests by "*realizing the ideal*" of genuinely sustainable energy (*Project leader B*). The resistance was represented not just as opposition specifically to nuclear energy, but rather a broader sense of opposition to the power of the established energy industries that are closely linked with the national government, and to centralized models of energy generation. The word "*the government*" is used as an umbrella term across the interviewees to convey a sense of centralized power. For instance, an NGO interviewee represents it as "*a handful of experts or government officials*" who have great power over the government, the authorities, academics and even whole nation by undemocratically deciding energy policies. One of BCPG project leaders describes the power base as a group of people who "*has an interest in fossil fuels and nuclear energy, and hold important posts in the government*" (*Project leader C*). Another project leader sees the BCPG projects as a way of manifesting the feeling of resistance to political-industrial power that ignores, disappoints and deprives '*the have-not*' like local people in the Buan area (*Project leader A*). One interviewee from the NGO involved in the BCPG links the hierarchical structure of energy policy planning and energy sectors, to a "*military culture*" whereas he says RE development is more similar to "democracy" in terms of encouraging local involvement (*Interviewee C from NGO*). Similarly, project leader C criticizes the unfairness of nuclear power generation and his argument is extended into the criticism of its role in supporting the current materialistic and capitalistic society through large-scale development:

"...the way of life based on fossil fuels, oils reflects the current capitalistic civilization of mass consumption and mass production ...Nuclear energy is

absolute evil. It is like opening the Pandora's Box that shouldn't have been created and shouldn't have been opened....In a society sustained by fossil fuels and nuclear energy source, there are beneficiaries and victims... victims are forced to tolerate responsibilities of [some other]beneficiaries" (Project leader C).

This deeply negative sense of the 'evil' of nuclear power generation is positioned in clear contrast with the BCPG projects which are described as "small" "humble" "poor" (Project leader A) so hardly victimize others. Thus the projects are for "coexisting", "sharing [social benefits] with others", and respecting "life" and "peace" (Project leader A) which seems closely related to the non-economic values of this project which local interviewees commonly mentioned.

In making such comparisons the resistant spirit embedded in the BCPG project is transformed into a sense of responsibility for doing things differently. In the current energy supply system, consumers can only purchase electricity from local electricity companies which are all under control of the Korea Electric Power Corporation (KEPCO)³, a state run power company, and thus there is no way for people to choose other than whatever KEPCO provides. Therefore, setting up the BCPG is seen as not only securing "an alternative" energy source, but also an alternative electricity producer. This underlying motive of taking responsibility is wrapped up with ethics which for some of the interviewees were rooted in religious faith.

Deungyong Village is a very small agricultural village with 44 families and is referred to as a "catholic community village". When the catholic leader of Buan County became one of the leaders of the BCPG, the religious faith seems to contribute to

³ KEPCO was divided into 6 generation companies but still has influence on them as well as maintaining nuclear energy company and transmission and distribution sectors under its direct control.

earning trust from the village. For the religious leader, the project had a strong spiritual dimension, part of a movement for the 'Kingdom of God':

“For 15 years ahead⁴, this will be place of my mother’s Resurrection and we will be pleased in it and it becomes the hope of the Resurrection on its own way. The foundation of our religion is to let people know the death of Jesus and to proclaim the Resurrection. When we give the world everything we have, the change will come. This is the movement for the Kingdom of God as well as renewable energy movement” (Project leader A)

Alongside spiritual responsibility, there is another discourse of sense of responsibility for this project. As the project has the name of Buan citizen’s power generation, it is the project for citizens and by citizens (Project leader C). In the quote below, One interviewee from the NGO involved in the BCPG also argues that the project represents citizens’ action. Indeed, resisting to being *captive consumers* (Walker and Cass, 2007) can be interpreted into citizenship action of “*challenging and changing unjust social relations*” as well as complying (Barry , 2006).

..Buan case appears to be a very good model because [Buan] citizens stood firm on support for renewable energy. Regardless the amount of money they invested in the [BCPG] project, they knew what photovoltaic power generation is during the fight against site selection of nuclear waste disposal facilities. I thought [Buan] citizens understood why they had to do the project (Interviewee C from NGO)

⁴ In the FIT scheme, electricity from solar energy will be sold at the fixed price for 15 years.

We have seen so far, this project has a resistance character which is to challenge the unfair relations between centralized power and marginalized local voice in energy supply system. Ethics and a sense of responsibility associated with religious faith and citizenship play a role as rationale of the reason why the project is meaningful to local people as well as a society that participants try to create. This relatively small scale energy generation initiative can be seen as an energy practice towards a sustainable society based on normative principles. Now we move on the second case in Jeju Island.

Case Study 2 – Jeju Wind Farm Project

Gashi Village wind farm project is local government-led in Gashi Village in Jeju Island. In 2008, the national government invited 16 local governments to submit proposals on how to reduce the impact of surging oil price and stimulate the economy at a local level. Jeju provincial government presented a plan for the wind farm project utilising domestically manufactured wind turbines, then this wind farm project was launched with the investment of the national government and local government at the ratio of 60 percent and 40 percent each. In January next year, in order to find a venue for installing 13 wind turbines of 15MW capacity, Jeju local government invited applications of villages for hosting it in the communal land on the condition that the village will be given 10 percent of total net profit of electricity generation in return. Among five village applicants, the local government selected Gashi Village which locates in the middle inland of Jeju island with large communal ranch.

Why this wind farm project was suggested in the island and the way of the project was shaped are closely related to two incidents in the island – wide area black out and local conflicts over wind farm development. Jeju Island is the largest island in South Korea locating in the South Sea of Korean Peninsula. Due to the remoteness from the mainland, however, the island significantly relies on energy supply from the mainland. Although three thermal power generation plants in the island are responsible for around 65 percent of total electricity, 30 percent comes from mainland through submarine power transmission cables. Thus, when transmission failure occurred in April 2006, the Jeju Island had to bear wide region black out. This incident exposed the vulnerability of energy supply structure in the island.

Secondly, the abundant wind energy source of Jeju Island led to recent wind rush to the island. It hosted the first venue for wind turbine installation in the early 1980s and the first commercial wind farm was successfully set up by the local government in the north east coast of the island in 1997. Afterwards, wind farm projects have rapidly increased in the island and thus as of 2009, 33 wind turbines (46MW) have been set up and 26 turbines (73MW) are under construction. However, it also started to cause social conflicts around wind energy development. For instance, in 2005, local conflicts between farmers and a wind farm developer in Nansan area in the island became one of conspicuous examples of wind farm opposition. Such conflicts around the wind farm development also caused public appeals of opponents to the local government blaming the authorities for granting a development permit to the developers. Meanwhile, in the parallel with “Green Growth” of the central government, the Jeju government introduced plans for “Carbon-free Island” which included wind farm development. Thus, the local government faces the challenge of promoting wind energy development as well as avoiding local conflicts.

In this wind farm project, therefore, the local government as a project leader adopted a different selection system - inviting application from villages rather than designating a venue in a decide-announce-defend approach. The local government also tries to differentiate the meaning of this project from those of private developers which caused conflicts in local communities.

These businessmen are doing business in main land, right? Those people [say], “why do residents oppose to [wind farm] projects which were granted planning permit?” . [Local residents] strongly oppose to it because they have their life here (Village resident A, previous leader of Gashi Village)

Here, the quote above demonstrates that private developers are regarded as “*mainland businessmen*” who do not have the same relations with the island as islanders do. In the quote, for the developers, the island is seen as a place for making money and doing business whereas for islanders the island is considered as a place for leading their life. The other village resident argues that “*nothing can stop them*” because the private developers have money, power and influence (Village resident B). In this way, the unpleasant relations between developers and local people link to the discourse of the classical division between insiders and outsiders, islanders and mainlanders. Such separation between mainland developers and island local residents is reiterated in the interview with a local government officer.

And the government office only considers the public good not making a profit at all... It will be good to have a local government- owned company to play as a mediator. Then all projects in the island can be carried out [by this company] on a purpose of the public good and like I said earlier, even when private enterprises come to [the island], [local government] can suggest [them]to

invest in [the project of government-owned company] so that the wind resources as public goods should be developed for the purpose of public interests. (Interviewee C, local government officer)

Here, the local government officer suggests that wind resources should be treated as public goods and used for the public good implying that local government can protect the islanders' interests from the private developers are from outside of the island. For the local government, "*playing as a mediator*" is not to be just a permit issuer to allow good sites to be occupied by outsiders. This role of a mediator can be interpreted into being an *intermediary*, negotiator, moderator between private enterprises and village residents as well as mainlanders and islanders (Moss T. et al, 2011). The mediator does not mean simply an arbitrator of conflicts over RE development but an active pathfinder to address problems such as local conflicts. As such, the role is by no means playing a neutral mediator between stakeholders, but rather becoming a powerful manipulative and goal-driven actor that has its own interests and intention as *intermediaries* (See Moss T. et al, 2011). In this manner, for a local government, division between islanders and mainlanders is employed as discursive means in order to compete with developers, outside competitors as well as justify the strong role in RE development in the island.

However, the demarcation between insiders and outsiders is not fixed and permanent but changing and relational. This project is known for installing domestically manufactured wind turbines, which develops into another boundaries between "*we*" and "*The foreign*".

They are all from foreign made..[we] let [private RE] companies do business and they can take money [they make here] away to foreign countries..

(Interviewee D from Jeju energy Committee)

“Foreign” products (imported wind turbines) and “foreign” countries are described as another outsider in the quote above. One interviewee from a wind turbine company involved in the project depicts foreign wind turbines as *“planting others’ products in our soil”* (Interviewee E from a wind turbine company). The wind mills, as a village resident says, are *foreign* and *overwhelmingly huge*. The *“European machines”* in the account of one village resident seem to imply visible symbols of the advance and power of foreign countries or companies. Thus having wind turbines made in “our” country can link to the pride in ability of achieving advance and challenging foreign power. In this manner, the clashes between mainlanders and islanders become faded away and new demarcation between insiders and outsiders emerges. This project installing domestically manufactured wind turbines is called a way that the Jeju islanders *“respond to what nation needs”* (Interviewee D from Jeju Energy Committee) and *“to contribute to promoting export industry”* (a local government officer). In this way, localism seems to extend to sense of responsibility for advocating the nation’s interests. In this context, islanders by no means deny or sever from mainland but are aware of being interrelated with it.

In this project, the project leader, local government is to some extent to promote an intermediary role which can defend local interests from outsiders – mainland developers as well as foreign competitors. Through the relational demarcation between insiders and outsiders associated with RE development, the purposes of the project extended from local interests into contributing to nation’s interests.

In the next section, it will be discussed how the two projects are different but connected.

Discussion

What can be drawn from two case studies is seemingly different local RE projects emerged from a unique local context. The first case was triggered by preceding anti-nuclear protests whereas the central government's initial invitation encouraged local governments to suggest RE project in the second case. Thus the project is funded by central and local governments in the latter, whilst in the former the project was mainly funded by local people. This also leads to the different scale of the each project. More importance difference is who led the project. In the case of Buan, the local leaders who had led anti-nuclear movement became project leaders. Hence, the authorities are regarded as representing the power manipulated by interest groups supporting nuclear power generation whilst the participants of BCPG are described as citizens resisting to unfairness produced by the power. The trust between project leaders and local communities based on religious faith also facilitated to implementing RE projects. Through shared experiences such as religion and protests, the solidarity of the local community was reinforced. The localism raised from resistant spirit in this project is supported by discourses of ethics and responsibility of citizenship.

On the contrary, in the Jeju wind farm project a local government is a project leader protecting local interests against irresponsible development of private developers as well as contributing to national interests in competing with foreign wind turbines. The

project is regarded as aiming fairness in developing local energy resources, and at the same time, challenging the power of foreign companies in RE industry. In this way, the localism in this project is beyond geographical boundaries of the locality, the island and moreover local empowerment is integrated with the discourse of globalisation. As Swyngedouw (2004) remarks the spatial scale is continuously reshuffled and reorganised in the process of *glocalization*, it can be argued that localism in this case emerges from redefining spatial scales and altering social power within socio-spatial dynamics of glocalization.

Both of the cases, to some extent, share the common ground: more local is fairer. However, localism drawn here is not separated from outside the locality but rather more actively related to it retaining power and thereby creating its own localism in the wide geographical and social spectrum.

Conclusion

The two case studies we have discussed emerged in different social contexts in the same country, South Korea. The Buan case can be put in the existing framework of small scale community energy development whereas the Jeju project should be put in large scale energy development run by local government. In the Buan case, the ethics and normative principles seems related to literature on 'alternative' energy extending back to the 1970s (Dunn 1978, Schumacher 1974). The criticism of dominant institutions and systems is consonant with 'resistance citizenship' (Barry, 2006) unfolded in this case. To some extent, it can be argued that RE projects of BCPG are energy practice to change energy systems relying on fossil fuels with motivation of normative and ethical principles.

In the Jeju case, the project is to redefine the active role of a local government in developing local energy resources. The *intermediary* role that the local government suggests is to facilitate local empowerment by encouraging taking local responsibility for RE development (Moss T. et al, 2011). In doing so, such localism which emerged from the division between insiders and outsiders by no means divorce from the global change but takes part in it in the process of *de-construction and re-construction of spatial scale* in globalisation (Swyngedouw ,2004; 32).

Through two case studies in South Korea, it was shown that local RE projects are not limited to its geographical demarcation. Power relations with outside of the locality seem to result in reinforcing localism in forms of resistance, or competition. Thus, localism and local empowerment in RE development is based on relational boundaries of the locality and it can be important clues to facilitate local energy practice towards sustainable society.

Reference

- Barry, J. (2006) "Resistance is fertile: From environmental to sustainability citizenship" In Andrew Dobson and Derek Bell (eds.) *Environmental Citizenship*. Cambridge, MA: The MIT Press, pp. 21-48
- Bell, D., T. Gray, et al. (2005). "The 'Social Gap' in Wind Farm Siting Decisions: Explanation and Policy Responses." *Environmental Politics* 14: 460-477.
- Cass, N. and Walker, G. (2009) 'Emotion and rationality: the characterisation and evaluation of opposition to renewable energy projects'. *Emotion, Space and Society*, 2, 62-69.
- Chang, H.J (2003) New horizons for Korean energy industry-Shifting paradigms and challenges ahead, *Energy Policy*, 31, 1073-1084
- Bulkeley, H. and Betsill, M. 2005. Rethinking sustainable cities: multi-level governance and the urban politics of climate change. *Environmental politics*, 14(1): 42-63
- Holstein, J. A., and Gubrium, J. F. (1995) *The Active Interview*. Newbury Park, Calif.: Sage
- Lee, S .(2006) 'Unchanging vision of nuclear energy: nuclear power policy of the South Korean government and citizens' challenge' *Environment, Climate Change, Energy Economics and Energy Policy*, 17, 439-456
- MOCIE (2008) *White Paper on New and Renewable Energy* (Shin Jesaeng Energy Bakseo), the Ministry of Commerce, Industry and Energy, Seoul

Mol, A. P.J. (1997) 'Ecological modernisation: industrial transformations and environmental reform', in Redclift, M. & Woodgate, G. (eds) *The International Handbook of Environmental Sociology*, Cheltenham: Edward Elgar, pp. 138-49

Moss, T., Guy, S., Marvin, S. and Medd, W.(2011) *Shaping Urban Infrastructures: Intermediaries and the Governance of Socio-technical Networks*, Earthscan: London

Smith, A. (2007) Emerging in between: the multi-level governance of renewable energy in the English regions, *Energy Policy* 35: 6266-6280.

Swyngedow, E. (2004) Globalisation of 'Glocalisation'? Networks, Territories and Rescaling, *Cambridge Review of International Affairs*,17(1) 25-48

Van Vliet, B., Chappells, H. and Shove, E. (2005) *Infrastructures of Consumption: Environmental innovation in the utility industries*, London: Earthscan.

Walker, G. and Cass, N. (2007) 'Carbon reduction, "the public" and renewable energy: engaging with sociotechnical configurations'. *Area*, 39(4), 458-469.

Walker, G.P., Hunter, S., Devine-Wright, P., Evans, B. and High, H. (2010b) 'Trust and community: exploring the meanings, contexts and dynamics of community renewable energy'. *Energy Policy*, 38, 2655-2633.