The Comparison of the Performance Model of the Centralization-Based Electrical Energy Policy and the Regionalization-Based in Indonesia

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Abstract

This study tried to assess the relationship between the capacity of the resources used in the making of policies, namely the capacity of human resources, the capacity of political resources, the capacity of economic resources and the capacity of social resources with the performance of the national energy policy, especially in the field of policy of electricity, based on two approaches, centralization, where the management is done by the center, and the regionalization approach which management is done by each region (decentralization). This study aims to examine the differences in the performance of centralized electrical energy policies model (which is currently being carried out), as well as the model of regionalization. This research was located in Indonesia in 2015, with a base of electrical energy policy in national scale. This research scale was implemented in 6 PLN working area that includes the Regional I: Sumatra, West Java Region II, Region III: East Java, Kalimantan Regional IV, V Regional Sulawesi and Nusa Tenggara, Regional VI: Papua and Maluku. The research show that: Human resource capacity and economics in the regionalization-based policy is perceived better than the capacity of human resources in a policy of centralization-based, in other hand, capacity of political resources and social is at the same level felt by respondents in both the regionalization-based policy, and centralization-based. The performance of the electrical energy policies is better on the model of regionalization, as it is opposed to the centralized model. The performance model of regionalization is 27% better than the performance of the centralized model. The model of regionalization is more feasible to implement than the centralized model. 81.8% of the regionalization-based electrical energy policy success model is determined by the height of the low capacity of both the human resource, political, economic, and social. 68.2% of success of the centralized-based the electrical energy policy model is determined by the height of the low capacity of both the human resource, political, economic, and social. The regionalization-based electrical energy policy is indispensable human resource capacity as the main supporter. The role of the executive (government), the role of the legislature (parliament), and the role of the board of energy is absolutely necessary to ensure the performance of the electrical energy would be better, at this time, nor in the future.
Key words:*Centralization, Regionalization, Electrical Energy, Human, Political, Economical, Social*

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1. INTRODUCTION

One of the policies in Indonesia which is currently being considered and discussed by public is the policy in the field of energy in general and specifically in the field of energy policy electricity. The concept in the electricity sector is closely related to PLN's role as an arm of government in managing the country's electricity. PT PLN (Persero) is in accordance with the mandate of Law No. 30 of 2009 on electricity. PLN which is as a company-owned power state has the duty to plan and implement the projects of electricity with the long period construction, so that PLN needs to have a plan about the long-term policy development of the electrical energy as it has been prepared by the Government and PLN in the form RUPTL (General Plan Development power) which is valid for 10 years (2015-2024) and the long Term Development Plan (RJPP) which is valid for 5 years (2015-2019).

In the Law of the Republic of Indonesia Number 30 of 2009 on electricity, it states that the national development aimed at realizing just and prosperous society that is equitable materially and spiritually, based on Pancasila and the Constitution of the Republic of Indonesia Year 1945, that electricity plays a very important role and strategic in realizing the objectives of the national development, the electricity supplies the business controlled by the state and the provision should be increased in line with the development which is adequate, equitable and quality.

Through Law 30 of 2007, the Government has opened up the opportunities for private investors to participate in the operation of the electricity in Indonesia. And since the publication of Law on the status of PLN, it is no longer as PKUK (Holder of Business Authority of Electricity) but it has been changed into the holders IUPTL (Permit Electricity Supply Business) together with the private investors to build the power plants in the form of Independent Power Producer (IPP). On the other hand, as a state-owned company, PLN is obliged to continuously provide the electricity in sufficient quantities to the public in all parties of Indonesia, both in the short and long term. Thus, PLN basically has the main purpose to serve the electricity which is needed by the society in all parties in Indonesia. Here is the condition of the electricity performance targets nationally until 2014, it is planned that the target of Indonesia national electrification ratio in 2014 is amounted to 80%, meaning that there is 20% of the people of Indonesia, until 2014, has not been able to enjoy electricity and this is what is being prioritized by the Government and PLN to pursue a growth rate of construction of new power plants and new power lines with the Acceleration program of 35,000 MW , until 2019 that is expected later in 2019, the number of national electrification ratio will reach the target of 90%.

The condition of the electrical energy policy according to Dalimi [1] is the problems in the power sector are not less complex. During this time, it is largely resolved by "patchy" so it often happens inefficiency. Therefore, the national electric power sector reform became a necessity. The main things that need to be reformed in between the procurement of primary energy is determined from the center; centralized planning and licensing; PLN huge organizational structure; and the liability coverage by PLN is high enough to provide the electricity for the whole of Indonesia. The AAU mainland electrical energy management-based model is called "sentralistrik" which is currently as the case. The development in the mainland-based (continental) centralized policy in the management of the energy sector in fact does not make the service of electricity and national energy security increasingly better. Because of many problems arising from the implementation of those policies, no one considers the factors that are as the characteristics and particularities of each region within the scope of the State in the form of these islands.

On the other hand, a planned policy approach is the formation of the regionalization-based electrical energy policy is the regionalization islands (in this case decentralization) which shows the difference in approach to archipelago-based development pattern that has been widely carried out the study by the researchers and by the Government. Planning and development of the energy in the island nation do not actually make the strength of the resources in the sea as the power to draw up the priorities and targets. It is because the energy resources in the sea and on land, especially fossil energy is not a differentiator in the perspective of building a powerful energy system. Therefore, this study aims to examine the differences in the performance of centralized electrical energy policies model (which is currently being carried out), as well as the model of regionalization (which will be planned in the near future).

2. THEORETICAL BACKGROUND

This study tried to assess the relationship between the capacity of the resources used in the making of policies, namely the capacity of human resources, the capacity of political resources, the capacity of economic resources and the capacity of social resources with the performance of the national energy policy, especially in the field of policy of electricity, based on two approaches, centralization, where the management is done by the center, and the regionalization approach which management is done by each region (decentralization).

According to the theory of Donald S. Van Meter and Carl E. Van Horn [2], there are six variables that affect the performance of implementation, one of them is resource. This is confirmed by George C. Edwards III Theory [3], he mentions that the Model of policy implementation is influenced by four variables, one of which is resources. More pointedly, Farrington [4] examines the 5 resources as a measure of performance i.e. human, natural, social, physical, and economic. Then, Milen [5] defines capacity as the ability of the resource as an individual, organization, or system to function as it should be effective, efficient, and continuous.

If it is focused on the policy of electrical energy resource, the capacity resource stands on four issues of human resource capacity as the organizer, the capacity of political resources as support, the capacity of economic resources as a driver, as well as the capacity of social resources as a resource actors, users and processors , Measurement of the above four variables are presented as follows: Human Resource Capacity is measured by the role of the executive, legislative role, and the role of the Energy Council. Political Resource Capacity is measured by political forces, the role of regional autonomy, and the role of good governance. Capacity of Economic Resources include economic growth, the price of electric energy, electric energy efficiency (intensity and elasticity of electrical energy), and investment. The capacity of the Social Resources covers the demographics, lifestyle and worldview (Farrington [4]; S. Van Meter and Carl E. Van Horn [2]; C. Edwards III, [3]; Millen, [5]).

The fourth capacity of these resources has a role a source in determining the performance assessment of the particular energy policy especially on the electrical energy policy. The performance assessment of electrical energy policy is associated with the concept of public policy (government policy), relation is a policy that is currently done by PLN as the State Owned Enterprises (SOEs), which represents the government in order to manage the electrical energy in Indonesia. The government is obliged to provide the electricity in sufficient quantities to society continously, both short-term and long-term. Thus, the government in this case PLN, actually is established by the intention to fulfill the need of all societies in Indonesia..

The good electrical energy policy performance is needed. The policy implementation accelerate the effort to improve the electrification ratio in Indonesia by conducting the electricity connection to new consumers in high quantities every year and handle the electricity needs from the waiting lists. It can be conducted giving the attention to the readiness of total electricity supply procurement planning which is available. This policy is created in order to get the picture which is more generating certain and secure energy sources that are cheaper and efficient and available. The Performance of electrical energy policy is based on six indicators, namely: the development of generation capacity, the development of transmission and substations, distribution development, the development of rural electrification, development of new and renewable energy, as well as the development of climate change mitigation.

3. METHODOLOGY

This research was located in Indonesia in 2015, with a base of electrical energy policy in national scale. This research scale was implemented in 6 PLN working area that includes the Regional I: Sumatra, West Java Region II, Region III: East Java, Kalimantan Regional IV, V Regional Sulawesi and Nusa Tenggara, Regional VI: Papua and Maluku. The new model of regionalization was implemented starting in August 2015, replacing the old centralized model that has been implemented in Indonesia before.

This research focused to test the performance comparison of the implementation of centralization-based electrical energy policy based   and regionalization, with 4 determinant namely the capacity of human resources, political, economic, and social. The population in this research is the working area of PT PLN throughout Indonesia. If the working area is associated with a 6, then sub working area consists of 33 provinces throughout Indonesia population. Remembering that the population is relatively small i.e 33, and

the researchers were able to take the entire population, the sample of this study is the overall 33 provinces / territories working throughout Indonesia.

The unit of analysis in this study is the Head of PLN provinces in each region, Community Representative (through the association of Indonesian Electrical Society / ICM) in each region, Head of Mining and Energy in each region, as well as Assembly Members in each region. The analytical tool used is the Multigroup Structural Equation Modeling (SEM Multigroup) and Paired Sample t-test. Multigrup group involves two models namely the centralized model group, and the group model of regionalization. Variables used in this study are as follows: Capacity of Human Resources (X1), Capacity of the Political Resources (X2), Capacity of the Economical Resource (X3), Capacity of Social Resources (X4), and Performance of the Electrical Energy Policy (Y).

4.   RESULT AND DISCUSSION

This study uses a questionnaire instruments in the form of the open-ended questions with a five-level Likert scale that is strongly disagree, disagree, neutral / undecided, agree, and strongly agree. Before the data measurement result be used, it was conducted the the validity and reliability instrument testing first, as it is presented in Table 1 below:

Table 1: Validity and Reliability of Instrument

Validity	Variables				
	Capacity of Human Resources (X1)	Capacity of the Political Resources (X2)	Capacity of the Economical Resource (X3)	Capacity of Social Resources (X4)	Performance of the Electrical Energy Policy (Y)
1st indicator	0.671	0.616	0.599	0.586	0.508
2nd indicator	0.578	0.511	0.455	0.551	0.457
3rd indicator	0.628	0.525	0.477	0.432	0.400
4th indicator	-	-	0.567	-	0.388
5th indicator	-	-	-	-	0.443
6th indicator	-	-	-	-	0.430
Reliability	0.796	0.740	0.771	0.715	0.768

The validity testing (using Pearson correlation) shows that the entire value of the correlation is above 0.3 so that the items used in the questionnaire are valid. On the other hand, the entire value of the alpha Cronbach reliability test shows a minimum value of 0.6 which states it is a reliable instrument.

The next step presents the descriptive analysis as well as testing differences in the results of Performance of electrical energy policy that is based on two models of centralization and regionalization based, as well as the measurement of each resource capacity used.

Table 2: Result of Differences Testing

Variables	Mean of Each Model		P-value of T-test
	Centralization	Regionalization	
Capacity of Human Resources (X1)	3.43	3.81	0.005*
Capacity of the Political Resources (X2)	3.11	3.10	0.473**
Capacity of the Economical Resource (X3)	3.51	3.92	0.011*
Capacity of Social Resources (X4)	3.10	3.13	0.911**
Performance of the Electrical Energy Policy (Y)	3.17	3.97	0.001*

* significant (P-value < 0.05), ** not-significant (P-value > 0.05)

Human resource capacity and the capacity of the economic resources is highly perceived by respondents, it is seen from the mean between 3.41 to 4.20. Moreover, the capacity of the political and social resources is pretended medium by respondents (mean 2.61-3.40). Human resource capacity and economics

in the regionalization-based policy is perceived better than the capacity of human resources in a policy of centralization-based (P-value <0.05), on the other hand, the capacity of political resources and social is at the same level felt by respondents in both the regionalization-based policy, and centralization-based.

Performance of electrical energy policy at the centralized policy model at the level of moderate (2.61-3.40), on the other hand, on the model of regionalization, respondents perceive energy policy electrical performance better (higher level, 3:41 to 4:20). The results of t-test analysis shows that the performance of the electrical energy policies is better on the model of regionalization, as it is opposed to the centralized model. From the analysis above, it shows that the performance model of regionalization is 27% better than the performance of the centralized model.
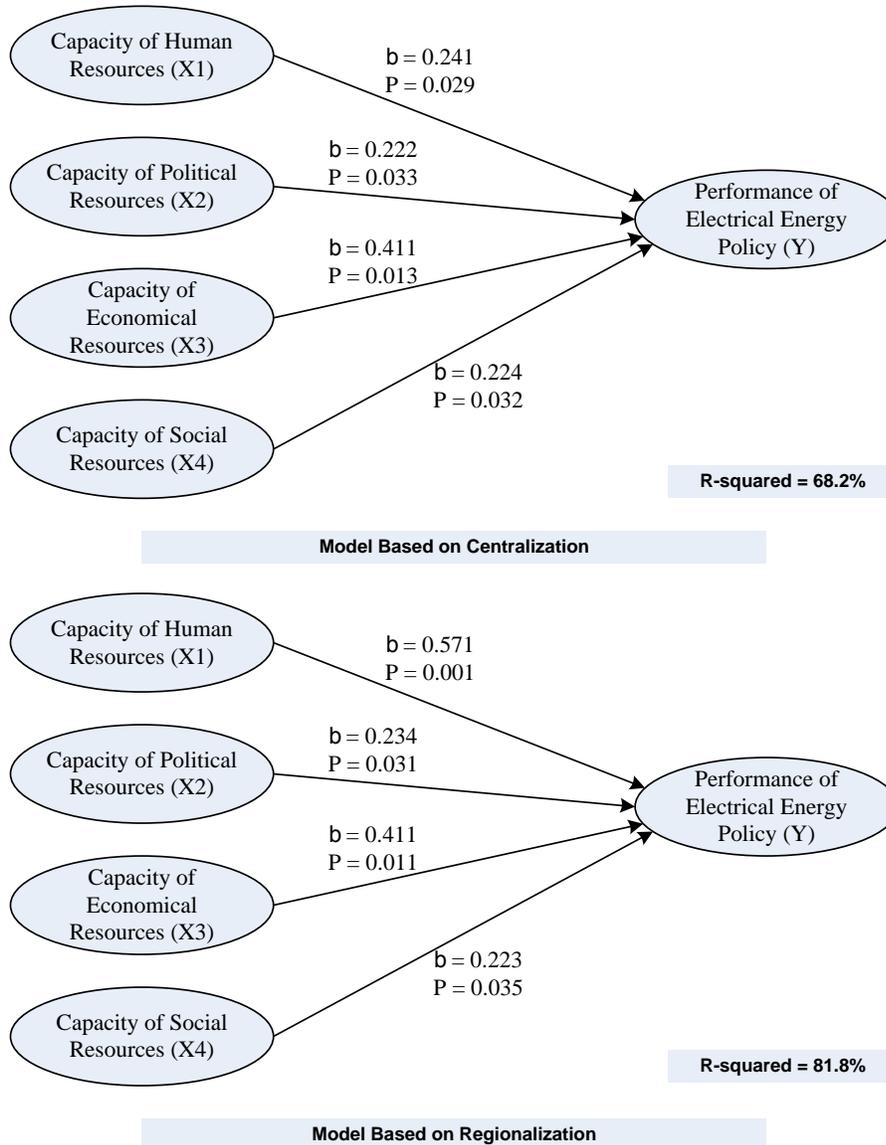

Figure 1: Multi Group SEM: Centralization vs Regionalization

Figure 1 presented a model relationship between the capacity of the resources (human, political, economic, and social) on the performance of the electrical energy policies in the two groups, namely the centralization vs. regionalization.

Model above shows that the four capacity resources (human, political, economic, and social) is a determinant of the level of performance of the electrical energy policy. The value of coefficient of determination or R-square shows that the more powerful model of regionalization is determined by the four determinants, it is compared to a centralized model. That is, in the implementation of the policy model of regionalization, fourth resource capacity is absolutely necessary in order to improve the energy performance of electricity. It is amounted to 81.8% of the regionalization-based electrical energy policy success model is determined by the height of the low capacity of both the human resource, political, economic, and social. On the other hand, it is amounted to 68.2% of success of the centralized-based the electrical energy policy model is determined by the height of the low capacity of both the human resource, political, economic, and social. Therefore, it is recommended that the model of regionalization is more feasible to implement than the centralized model.

From the SEM coefficient above, it shows that the regionalization-based electrical energy policy is indispensable human resource capacity as the main supporter (coefficient of 0571 was higher than the other coefficients in the model of regionalization). This was understandable because of the capacity of human resources as the main actor of the electrical energy policy. The level of energy performance of regionalization-based electricity policy, absolutely determined the models of high human resource capacity . Therefore, all parties should be able to increase the capacity of human resources. The role of the executive (government), the role of the legislature (parliament), and the role of the board of energy is absolutely necessary to ensure the performance of the electrical energy would be better, at this time, nor in the future.

This research is in line with what was observed by: First, [6], [7], [8], [9], [10], and [11] discovered that the human resource capacity affect the performance; Second, [12], [13], [14], [15], [7], [16], and [11] discovered that the political resource capacity affect the performance; Third, [12], [17], [18], [19], [20], [21], [22], [23], [16], [10], [24], [25], [26], and [11] discovered that the economical resource capacity affect the performance; and [6], [19], [13], [15], [7], [22], [8], [9], [16], [10], and [26] discovered that the social resource capacity affect the performance.

This study implies that the model of regionalization is more suitable to be applied than the centralized model, the electrical relation to energy policy in Indonesia. There are at least four (4) Factors to be considered as a force in shaping a strong energy policy at regional level (large islands), provincial or district / city: First, Geographically, Indonesia is composed of 9 (nine) large island. Master Plan for the Acceleration of Indonesian Economic Development (MP3EI) divides priorities into six (eight) main corridors include (1) economic corridor Sumatra, (2) Java Economic Corridor, (3) Kalimantan Economic Corridor, (4) the Sulawesi Economic Corridor, (5) Economic Corridor Bali-Nusa Tenggara, and (6) Economic Corridor Papua-Maluku Islands. Second, Every Economic Corridor has the support of energy resources differ significantly. Third, every province, district / city in each corridor has a demographic and socio-economic backgrounds are different from one another. Such differences affect the pattern of demand and energy use. As well as the fourth, in some derah in each corridor is very dependent on energy resources and foreign exchange revenue source area.

See four factors that form the basis of the regionalization-based islands electrical energy policies above shows the differences in approach to archipelago-based development pattern that has been widely carried out the study by the researchers and by the Government. Planning and energy development in the island nation do not actually make the strength of the resources in the sea as the power to draw up priorities and targets. It is because the energy resources in the sea and on land, especially fossil energy is not a differentiator in the perspective of building a strong energy system.

Currently, PLN is one of the largest electricity companies in the world with the number of consumers of about 57.5 million customers and operates a total generating capacity of 58.00 MW and with a broad regional coverage throughout the Indonesian archipelago. But the pattern of planning, development and operation of electrical systems PLN are still using centralized-based electricity policy and following the models of the countries of continental or large inland countries such as America, Europe, China. When in fact the geographical condition of Indonesia is very different from the large mainland countries. Indonesia is a vast archipelago so as to carry out the development of electricity greater, it is still using the concept of state land (continental) then it will not run efficiently and maximumly because the issue of the diversity of conditions and needs of each region of both the mainland and the islands because of the issue of what planned and decided by PLN centers often do not have correspondency to reality and needs in these areas. Likewise, it becomes very difficult for PLN planning and development to harness the potential of renewable energy to the

maximum in every region of Indonesia, because the characteristic mindset concept continent will focus on building an electric power source in the number and capacity in the islands large and populous and then transmits it to all the land area that could be covered and connect to other regions with well above sea cable or through submarine cable.

Through the opportunities that are open at this time, especially after the government managed to reduce the use of the budget for subsidies for fuel and electricity subsidies as a result of the reduction drastically allocation of fuel consumption which has been used by diesel power plants (diesel) and replaced with the increased use of power plant new uses source energy which is derived from coal fuel and gas and power generation based on the renewable energy (Geothermal, hydropower, Solar etc.) As a result of the Acceleration Program (Fast track Program) FTP I amounted to 10,000 MW and FTP II, amounting to 10,000 MW which began in 2007, which is now almost entirely been operating. As well as the presence of Power Plant Development Acceleration Program of 35,000 MW and plans new transmission network development program that will be began in 2015 until 2019.

5. CONCLUSION AND RECCOMENDATION

Based on the analysis result, the conclusion of this research are:

(1) Human resource capacity and economics in the regionalization-based policy is perceived better than the capacity of human resources in a policy of centralization-based, in other hand, capacity of political resources and social is at the same level felt by respondents in both the regionalization-based policy, and centralization-based.

(2) The performance of the electrical energy policies is better on the model of regionalization, as it is opposed to the centralized model. The performance model of regionalization is 27% better than the performance of the centralized model.

(3) The model of regionalization is more feasible to implement than the centralized model. 81.8% of the regionalization-based electrical energy policy success model is determined by the height of the low capacity of both the human resource, political, economic, and social. 68.2% of success of the centralized-based the electrical energy policy model is determined by the height of the low capacity of both the human resource, political, economic, and social.

(4) The regionalization-based electrical energy policy is indispensable human resource capacity as the main supporter. The role of the executive (government), the role of the legislature (parliament), and the role of the board of energy is absolutely necessary to ensure the performance of the electrical energy would be better, at this time, nor in the future.

The study recommends regionalization-based electrical energy policy. So this time, it is necessary to make efforts to reform the management of the power sector as well as the efforts to restructure the organization and governance of national electricity towards the regionalization in accordance with the archipelagol-based management and development model. The effort of the electricity is directed also to the growing needs of consumers and anticipate the addition of new subscribers in the new areas of economic growth, as it is planned in the plan MP3EI and RUPTL (2014-2025), which in essence PLN should be able to manage the growing needs that occur throughout Indonesia, including addressing the problem areas that are already well advanced as Java, Bali, Sumatra up to the hinterland remote areas like Papua or remote regions such as islands in Maluku, North Maluku. Moreover, PLN should also pay attention to the characteristics of growth and exploit the potential of each region. PLN should be able to empower the capabilities and potential of local resources available in particular to harness the potential of renewable energy which is still owned by the respective regions. PLN should be able to open up access to energy and energy supply, utilization of capital, human resources (HR) at every point in the territory of Indonesia. Therefore, the nature and characteristics of the PLN in the future should be comprehensive in every island (regional) or to the end so that it might be expected to handle the process from planning, construction to the operation, addressing directly the problems that arise in the region. Besides, it is still guaranteeing a high level of accountability and able to manage the financial health conditions are measurable and accountable while still trying fatherly provide a quality service to its customers

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