

Actor Collaboration in Realizing New Zero Emission 2060 through Renewable Energy Acceleration in South Sulawesi Province

Aslinda¹, Muhammad Luthfi Siraj², Muh. Ikramullah Akmal³

^{1,2} Universitas Negeri Makassar

³ Institut Teknologi Bisnis dan Maritim Balik Diwa

E-mail: aslinda@unm.ac.id

ABSTRACT

Actor collaboration in the implementation of renewable policies is very important to do to deal with climate change and to realize new zero emissions. This study aims to analyze the collaboration of actors in realizing new zero emissions by 2060 through accelerating renewable energy in South Sulawesi Province. The research method uses a qualitative approach. Data sources include primary and secondary data. The informants of this research are the stakeholders involved in the implementation of renewable energy policies. Data collection methods include observation, in-depth interviews and documentation as well as data analysis techniques using interactive data analysis methods. Apart from that, there is also a sectoral ego that is happening in the South Sulawesi government and also BUMN PLN partners who delegate budget allocations for the distribution of electric vehicles as well as political intervention that requires the electric vehicle program to be carried out by the party the government wants, which is different from the wishes of the government. other partners. On the other hand, the findings of this study also found that the collaboration of government actors and the private sector did not provide clear certainty regarding the financial and non-financial benefits that could be obtained by investors and the community when the electric vehicle program was fulfilled for use by the people in South Sulawesi.

Keywords: Collaboration, actor, renewable energy, south sulawesi;

INTRODUCTION

Carbon emissions have become a serious threat to the world. The release of abundant emissions into the air space makes the natural environment unstable and dangerous for nature and living things. Climate change, extreme weather, global warming and air pollution are serious problems caused by carbon emissions ("The Global Competitiveness Report 2016–2017," 2017). released the Global Risks Report 2022. The report presents the main risks facing the world in the coming year, indicating that the five main global risks in 2022 are environmental risks, three social risks, one regarding the economy, and one other regarding geopolitics with failure to prevent climate change and extreme weather are the biggest risks facing the world in 2022. The problems that occur are certainly not spared from human activities, especially the incessant industrialization that is being carried out and the lack of human awareness of efforts to mitigate carbon emissions.

Many countries have experienced enormous environmental damage as a result of these events which then cause climate change and then have a major impact on business activities (Kim et al., 2021), stated that climate change is recognized as an important factor, not only in the ecosystem and human environment, but also in the economy. It was from this condition that many countries took steps to anticipate climate change throughout the world, so various countries agreed to enter into the Paris Agreement and sign the Paris Agreement on Change (high-level Signature Ceremony for the Paris Agreement) in 2015 (Presidential

Regulation (PERPRES) Number 122 of 2021 concerning the Acceleration of Development of Renewable Energy for the Provision of Electricity, 2021) which is where this rule was born departing from (Law of the Republic of Indonesia Number 30 of 2007 concerning Energy, 2007) which essentially mandates that the Indonesian state must be able to manage energy, because energy has an important role in the prosperity of the people and must be carried out on a just, sustainable, rational, optimal and integrated basis.

Renewable energy policy which is the first step for the Central government and also the South Sulawesi Province to address various environmental and economic problems is a must to be implemented immediately. One of the main objectives of public policy is to solve public problems (Smith & Larimer, 2009). Public officials who are authorized to make policies always try to understand public problems. Although in the current conditions empirically it can be seen that the government's efforts also lack seriousness in implementing it to accelerate the development of renewable energy, as stated from the findings of previous research by (Alam, 2019) that this optimization has not been widely utilized by policy makers to optimize the potential of New and Renewable Energy in Indonesia.

Various strategic steps have been taken by the South Sulawesi provincial government in accelerating renewable energy through the electric vehicle program, one of which is aimed at increasing renewable energy which also has benefits for a healthy environment and the driver's economy. In addition, the benefits of converting fuel motorbikes to electricity are 6 million units Fuel saving = 1 liter/day/unit x 6 million = 12.8 million barrels/year CO2 reduction = 1.9 kg/day/unit x 6 million = 3.87 million tonnes/year, electricity consumption = 1.2 KWh/day/unit x 6 million = 2.4 TWh/year, (Ministry of Energy and Mineral Resources Year 2023, 2023). On the other hand, fuel consumption continues to increase, while oil production continues to decline. This will add to the trade balance deficit in 2030 of around IDR 500 trillion/year, and in 2060 the deficit will be more than IDR 1,000 trillion/year. 2. The shift from fuel energy to electrical energy converts imported energy into domestic energy while reducing carbon emissions in the transportation sector. 3. Penetration of electric cars and motorbikes by 90% in 2060 to achieve carbon neutral conditions in the transportation sector, (Ministry of Energy and Mineral Resources Year 2023, 2023). Based on secondary data obtained from the Central Statistics Agency, in 2022 the number of car users is very high in 2022, especially in five provinces in Indonesia, this can be seen in Figure 1:

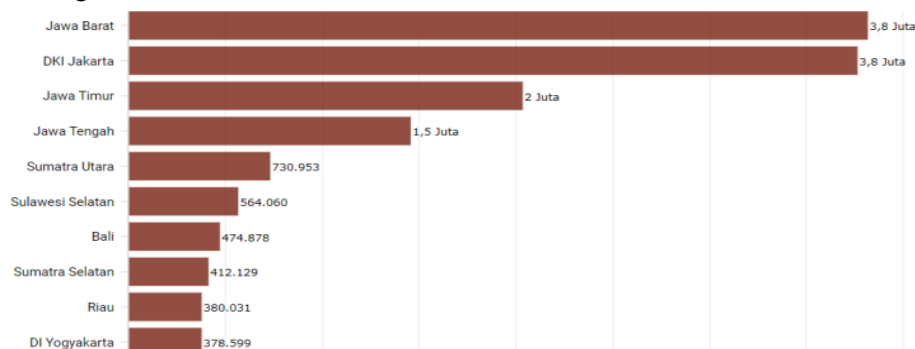


Figure 1. Car users in 2022

Source: Central Bureau of Statistics in Figures 2022

The data above shows that the province of South Sulawesi ranks as the sixth highest number of car users, reaching 564,000 car vehicles. Therefore, in anticipating a global issue, namely climate change in 2025, the South Sulawesi provincial government is required to take this condition seriously, of course the target expected by the government is very important to be realized in framing collaboration with the private sector and also the community to jointly build energy. renewable resources in South Sulawesi by slightly reducing the use of fossil-fueled vehicles (Compston, 2009) specifically seeing collaborative governance has put a lot of emphasis on voluntary collaboration and horizontal relations between sectoral participants.

In order for the electric vehicle program to be realized in the province of South Sulawesi, it is very important to be involved *stakeholders* from various actors starting from the private sector and from the community by coordinating with each other, because the process of interaction between actors in network organizations is greatly influenced by coordination elements. One of the processes of interaction in network organizations is the exchange of resources in a network that is formed or based on the depth of coordination between actors who interact with each other in a network organization. In addition, one of the theoretical approaches to realizing the collaboration of these various actors in realizing new zero emission in South Sulawesi is using theory (Winarno, 2012) important dimensions for the success of cross-sectoral collaboration, including: a) building and developing relationships; b) achieving alignment between the mission, strategy, and/or values of the organization; c) managing partner interfaces; and d) generate profits for partners and the community.

METHODS

The research approach has an important role in a study. This research is a qualitative type with a policy approach so that the aim of this research is to describe the empirical reality behind the phenomenon in depth, detail and thoroughly. The focus of research on actor collaboration on renewable energy policy with measurement dimensions focused on a) building and developing relationships; and b) generate profits for partners and society. The research data source is the subject from which the data is obtained. Sources of data needed in this study are primary and secondary data using interactive model data analysis techniques by (Miles et al., 2014) which consists of four paths, namely data collection, data condensation, data presentation, and verification/conclusion.

RESULTS AND DISCUSSION

The national energy policy is an energy management policy that is based on the principles of equity, sustainability and environmental insight in order to create Energy Independence and national Energy Security in accordance with (Law of the Republic of Indonesia Number 30 of 2007 concerning Energy, 2007) which then the regulation is broken down to (Presidential Regulation Number 5 of 2019 concerning the Acceleration of the Battery Electric Vehicle Program, 2019) for Road Transportation is one of the policies innovated as one of the developments of renewable energy.

Actor Collaboration on the Building and Developing Relationships Dimension

Based on the findings of the actor collaboration research that was shown between the South Sulawesi provincial government and actors from private institutions and the community which were considered not to be effective, this was indicated by the fact that there were still many actors who were not fully involved in the drafting of the EBT Bill so that there were still many actors, especially for the private sector and the public who do not understand well what has resulted in the draft new and renewable energy law drafted by members of the Commission VII DPR. In addition, it also seems that the collaboration of these actors is not carried out by interactive, clear and transparent communication so that sometimes there is various information that is not well known and understood by other stakeholders (Rahmawati, 2019) stated that: " four critical factors or variables in implementing public policy: communication, resources, dispositions or attitudes, and bureaucratic structure." Policy implementation will work well if it is supported by one of the communication factors. The communication factor in this theory is the first and foremost factor in determining the successful implementation of renewable energy development policies. Although in quantity it is known that the Ministry of Energy and Mineral Resources as the main coordinator in accelerating this renewable energy has built relationships with various other actors, there are 80 main partners and there are 292 investors from regional and multinational companies who are partners in accelerating renewable energy. This can be seen in the table and figure below.

Table 1.
Regional, multinational companies partnering to accelerate renewable energy.

No	Type of institution	Amount
1	Relevant Ministries Institutions	27
2	Bilateral KS Partners	9
3	Multilateral Regional KS Partners	18
4	NGO Cooperation Partners	4
5	Associate Cooperation Partners	22
TOTAL		80

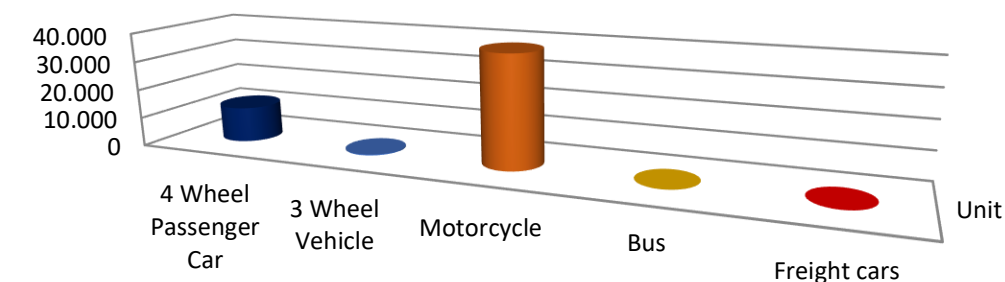
Source: DPR Commission VII, 2023

Referring to the data above regarding the number of partnerships which are a form of collaboration from various actors to implement the acceleration of renewable energy in realizing carbon emissions in 2060 in quantity, the collaboration has been carried out well, but the main factor for accelerating renewable energy, especially in The South Sulawesi Province needs collaboration between actors which is shown in quality by their joint high commitment to providing budgets, facilities and human resources who will work to carry out renewable energy development by building an electric vehicle industry which is a form of program that can to reduce fossil energy as well as to reduce spending for the community in the use of fuel oil.

Through presidential regulation or presidential regulation number 55 of 2019, Indonesia is indeed encouraged to accelerate the battery-based electric motorized vehicle program or *battery electric vehicle*. Apart from supporting infrastructure vehicles, these vehicles are also being accelerated so that the use of electric vehicles can be in line with adequate infrastructure. The form of follow-up from the South Sulawesi provincial government in supporting the acceleration of renewable energy through the electric vehicle program where the South Sulawesi government has so far collaborated with PT PLN (Persero) continues to support the acceleration of the electric vehicle (EV) ecosystem, in addition to providing charging station infrastructure. PLN Public Electric Vehicles (SPKLU) through the PLN North Makassar Customer Service Implementation Unit (UP3) also supports home charging services in the city of Makassar. It is proven that these services can attract people's interest in switching to using electric vehicles. In addition, PLN built 5 SPKLUs in South Sulawesi. One that has begun to be encouraged is the public electricity charging station or SPKLU. This service provider is only owned by PLN in South Sulawesi, PLN under the Sulselbar main distribution unit has made at least 5 SPKLUs in 3 urban districts, each Makassar, Pare-Pare and also the city of Palopo.

In order for the transportation sector to transition towards low carbon, a shift from fuel to electricity is needed, hence the efforts of the South Sulawesi provincial government to strengthen communication and coordination with PLN as well as investors and the public as consumers for. From the implementation of collaborations carried out by various actors that have resulted in one of the electric vehicle ecosystems in 2022 which reached a total of 51,277 units distributed for each type of vehicle as follows:

Number of Electric Vehicles 2022



	4 Wheel Passenger Car	3 Wheel Vehicle	Motorcycle	Bus	Freight cars
Unit	12.228	293	38.669	10	7

Source: Ministry of Energy and Mineral Resources, 2023

The failure of the South Sulawesi provincial government in accelerating renewable energy, is inseparable from the low level of cooperation between actors in each related institution who only think about financial benefits, so that ego-sectoral attitudes often occur from several institutions which are sometimes considered difficult for PLTU or PLTA to

carry out energy development. renewable, which or implementation of the energy development is only prioritized for regions that have great political communication.

The drawbacks assessed by implementing renewable energy through the electric vehicle program in South Sulawesi are that people are still limited to owning these vehicles due to the high price of electric vehicles and also the unavailability of vehicle charging facilities. Looking at the intensity of coordination between stakeholders which is very low where the provincial government has not been able to build a network of investors who can invest in providing adequate facilities for electric vehicles in South Sulawesi, even though as the theory by (Carlson & Kacmar, 2000) that in the analysis of the policy network in a study using the theory "Network: is unsatisfactory, so it is suggested that one way to advance the policy network approach is to apply a new dimension, namely the coordination dimension. This is because a policy must be carried out jointly by several actors involved.

Apart from Carlsson's theory, the theory is also reinforced (Gruening, 2001) which explains that organizational networks are characterized by coordination that exists either directly or indirectly between each actor involved in a network organization. The network organization can be managed through regular coordination between the actors involved in the network organization. Network development for several institutions or agencies outside the government and the community in building a network for a public problem, there must also be a common goal between actors in establishing this collaboration (Muzwardi, 2018), especially regarding the renewable energy policy, of course it will become one of the projects for ministries and regional governments which may reap various problems and even conflict between actors fighting for profits in the project.

Actor Collaboration on DimensionsGenerate Profits for Partners and Communities

One of the renewable energy policies is actually also to answer the challenge of net zero emissions and towards clean energy which has become a world program, so the encouraging trend is that the trend for world clean energy growth is increasing while the use of fossil fuel energy tends to decrease. From the research findings on the dimension of generating profits or benefits for partners and the community it is considered not to be running effectively, where collaboration between actors of the South Sulawesi provincial government on the electric vehicle program as a form of accelerating renewable energy is apparently not well established. This is due to sectoral egos, each of the government and private parties expecting partners to be able to invest in the production of electric vehicles which will be distributed to the needs of the people in South Sulawesi. In addition, it is hoped that the provincial government and PLN will not provide positive results from various investor partners who do not dare to make decisions to invest the budget, because there is no certainty from the local government regarding the benefits that investors can obtain, therefore the real attitude needs to be what the South Sulawesi provincial government is doing is improving the structure of the social system by strengthening the interaction relations between actors by influencing one another to achieve common goals in the public interest. The structure of a social system is conceptualized and measured as a pattern of relationships between actors (Lauamann, 1976). These patterns, which not only characterize networks but also influence the way they work and interact, so that with these relationship patterns one can see the structure and relations between actors in the network. Besides that, (Carlson & Kacmar, 2000). (Howlett & Ramesh, 1995) policy makers in the policy subsystem. The actors of the advocacy coalition consist of actors from a number of private

and government institutions at all levels of government organizations who relate on the basis of belief in achieving goals.

The implementation of the acceleration of electric vehicles in South Sulawesi, which is the government's big hope to create a clean environment or towards new zero emissions, turns out to be a very difficult thing to implement effectively. It is known that the renewable energy development process requires a very large budget and this condition is one of the big problems faced by the government and other stakeholders, so that in realizing renewable energy through the electric vehicle program in South Sulawesi, various actors work together to develop networks with the community. who want to be investors, however, the government's role is precisely not being able to strengthen the network for investors and also the public by providing certainty about what benefits or benefits can be obtained when investing in the development of electric vehicles. Therefore, actor collaboration is very important to provide information to partners and the public in a clear and transparent manner on the benefits of having electric vehicles, as is the view of social capital theory by (Lin, 2021) states that the existence of a network of strong social relations between organizations in a governance network will facilitate effective exchange of information. Therefore, building information exchange in the development of renewable energy policies can be done in various ways, such as education and outreach campaigns, providing information on websites, collaboration and collaboration, increasing information accessibility, and increasing transparency.

CONCLUSION

The results of this study indicate that actor collaboration is seen in the dimensions of building and developing relationships and dimensions of generating benefits for partners and the community, both of which are considered to be less effective collaborations. each sector that has resulted in the electric vehicle program in South Sulawesi not being maximized properly. In addition, there is also a sectoral ego by various actors delegating budget allocations for the distribution of electric vehicles and political intervention that does not want to provide broad information to partners.

REFERENCES

- Alam, Q. N. (2019). The Leadership role of a principal in the performance of institution in comparison with leadership qualities of Macolm Baldrige Quality. *International Journal of Multidisciplinary Research and Development*, 6(2), 143–150.
- Carlson, & Kacmar. (2000). Work-family conflict in the organization: Do life role values make a difference. *Journal of Management*, 26(5), 1031–1054.
- Compston, H. (2009). Policy networks and policy change: putting policy network theory to the test. *Springer*.
- Gruening, G. (2001). Origin and theoretical basis of new public management. *International Public Management Journal*, 4(1), 1–25.
- Howlett, M., & Ramesh, M. (1995). Studying Public Policy: Policy Cycles and Policy Subsystems. *Oxford University Press*.
- Kim, S., Lee, S., Yang, J., Lee, K., Effenberger, M., & Szpirtm, W. (2021).

- Immunopathogenesis and treatment of cytokine storm in COVID-19. *Theranostics*, 11.
- Lauamann. (1976). Studying Basic Public Policy. *Oxford University Press*.
- Law of the Republic of Indonesia Number 30 of 2007 concerning Energy, (2007).
- Lin, N. (2021). Social Capital: A Theory of Social Structure and Action. *Cambridge University Press*.
- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). Qualitative data analysis: A method sourcebook. In *CA, US: Sage Publications*.
- Ministry of Energy, Mineral Resources and Energy in 2023. (2023).
- Muzwardi, A. (2018). *Free Trade Zone menuju kawasan ekonomi Khusus di Batam, Bintan, dan Karimun*. Expert.
- Presidential Regulation (PERPRES) Number 122 of 2021 concerning the Acceleration of Development of Renewable Energy for the Provision of Electricity, (2021).
- Presidential Regulation Number 5 of 2019 concerning the Acceleration of the Battery Electric Vehicle Program, (2019).
- Rahmawati, A. D. (2019). Determinan Harga Saham Pada Bursa Efek Indonesia Periode 2014-2019. *SEIKO: Journal of Management & Business*, 2(2).
- Smith, K. ., & Larimer, C. . (2009). The Public Policy Theory Primer, Boulder, Colorado. *Westview Press*.
- The Global Competitiveness Report 2016– 2017. (2017). In *World Economic Forum*. Insight Report.
- Winarno, B. (2012). *Kebijakan publik: teori, proses, dan studi kasus : edisi dan revisi terbaru*. Center for Academic Publishing Service.