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Energy Transition Readiness Index in Indonesia: Mapping Current Conditions and Navigating the Future of the Energy Sector

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Collective action is crucial to address regional disparities related to energy transition readiness in Indonesia. Empowering rural communities serves as the foundation to stimulate and seize opportunities amid the energy transition. Collaboration among the government, corporations, and communities is paramount in shaping a future of clean, sustainable, and equitable energy”.

Sumber foto Dokumentasi Celios (2023)

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Executive Summary

The Policy Trajectory of Indonesia's Energy Sector, spanning from the General Energy Sector Policy (Kebijakan Umum Bidang Energi or KUBE) issued by the National Energy Coordination Agency (Badan Koordinasi Energi Nasional or Bakoren) in 1981 to the National Energy Management Blueprint 2005–2025, reflects not only the evolution of policies but also challenges such as consistency in policy implementation and contradictions between energy conservation and fuel subsidies. Recently, from September 2020 to the present, the government, through the Ministry of Energy and Mineral Resources and the House of Representatives of the Republic of Indonesia, has been deliberating on the draft of the New and Renewable Energy Bill.

In addition to administrative obstacles and the lack of clarity in financing assistance mechanisms, Indonesia faces tangible challenges in the energy sector, a dependence on energy consumption still dominated by coal and natural gas use. Despite an increase in industrial biomass consumption and solar energy utilization, Indonesia has not made significant progress in comprehensive and sustainable energy diversification.

The findings in this report present a diverse regional landscape. Western regions of Indonesia, such as DKI Jakarta, Banten, and DI Yogyakarta, exhibit high energy transition readiness. Meanwhile, eastern regions and provinces outside Java, such as Papua, West Papua, and Central Kalimantan, generally face economic challenges, government capacity issues, and a lack of clean energy initiatives. On the other hand, provinces with moderate scores, such as Southeast Sulawesi, Bali, East Nusa Tenggara, and East Kalimantan, show opportunities for improving energy transition readiness.

The report also reveals three key factors that may influence energy transition readiness. The findings indicate that cities with high per capita consumption rates and significant female involvement tend to have higher levels of energy transition readiness. A similar pattern is found regarding climate and energy vulnerability; when these factors are high, public awareness and support for the energy transition agenda also tend to be high.

Therefore, the government needs to recognize the importance of developing inclusive policies to address regional disparities and encourage strategies tailored to the characteristics of each province in responding to the complexity of energy transition in Indonesia. With existing challenges and opportunities, collaborative efforts from the government, society, and businesses are required to achieve Indonesia's vision as a leader in supporting global energy transition.

Indonesia's Journey in Managing the Challenges of Energy Transition

Indonesia faces intricate challenges in balancing energy justice and sustainability

a. Track Record of Energy Policies in Indonesia

Indonesia has a long history associated with the development and implementation of energy policies. In 1980, the National Energy Coordination Agency (Bakoren) was established as the first institution overseeing all aspects of energy in Indonesia, based on Presidential Decree Number 46 of 1980 [1]. In 2007, Bakoren underwent a nomenclature change and became the National Energy Council (Dewan Energi Nasional or DEN) in accordance with Law Number 30 of 2007 concerning Energy [2]. However, the legal basis for the formation of the new DEN was separately established through Presi-dential Regulation Number 26 of 2008, which regulated the Establishment of DEN and the Procedures for Screening DEN Member Candidates. According to this regulation, DEN is recognized as a national, independent, and permanent institution responsible for formulating national energy policies in Indonesia [3].

To capture the dynamics of changes and the essence of national energy policies in Indonesia under Bakoren, DEN, and other relevant institutions or ministries, this report will summarize them chronologically as follows.

1981 - 1991

The National Energy Coordination Agency (Bakoren) issues the General Energy Field Policy (Kube), with a focus on the intensification, diversification, and conservation of energy.

1998

The government adheres to the General Energy Field Policy (KUBE) while augmenting it with additional key policies related to energy pricing and environmental considerations.

2003

The General Energy Field Policy (KUBE) is replaced by the National Energy Policy and the Renewable Energy and Energy Conservation Development Policy (Green Energy).

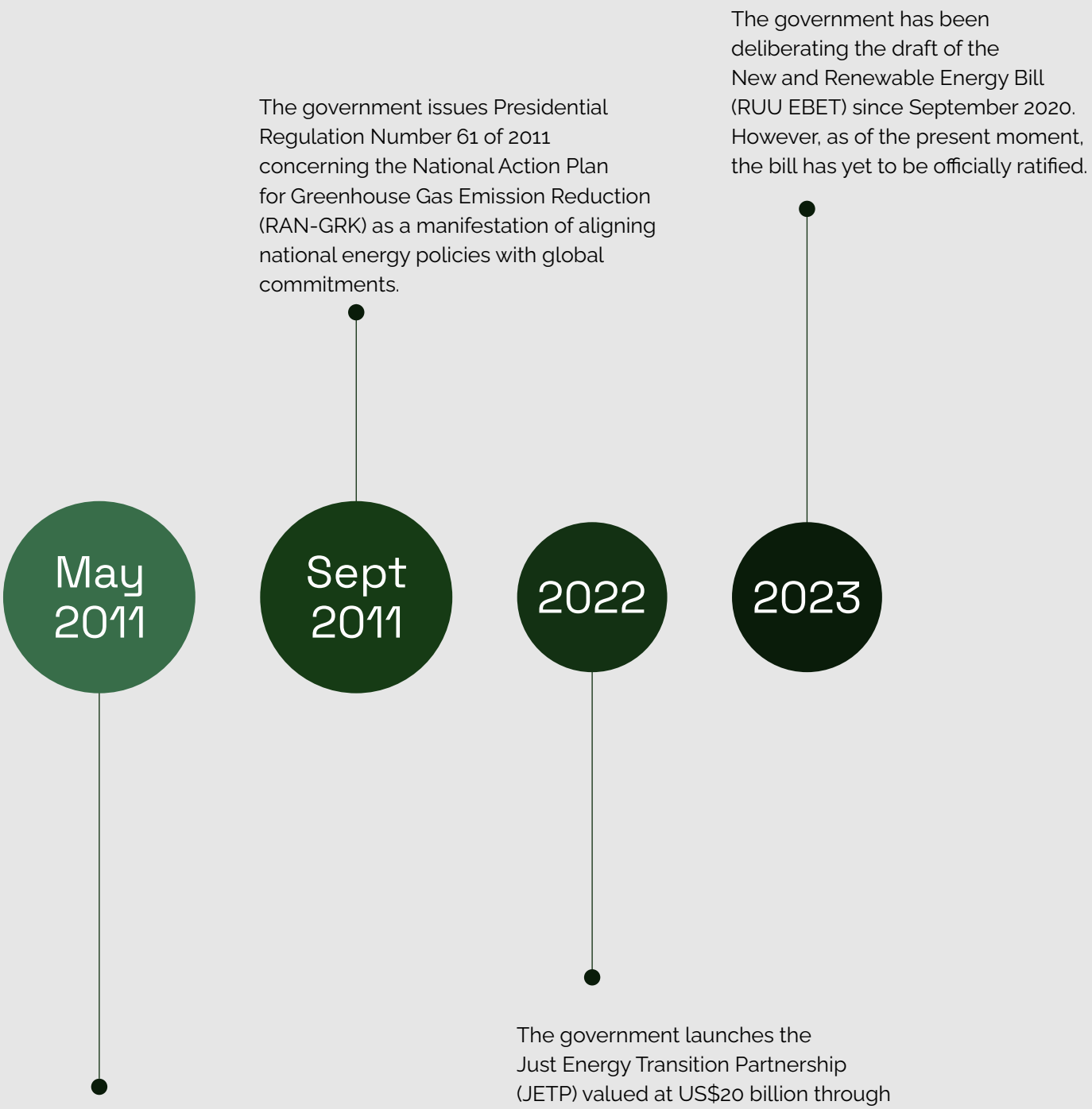
2006

To ensure a more comprehensive implementation of the National Energy Policy (NEP), the government formulates the Blueprint for National Energy Management 2005–2025. Subsequently, this blueprint is ratified and promulgated through Presidential Regulation Number 5 of 2006.

2007

The energy policy is regulated by Law Number 17 of 2007 concerning the National Long-Term Development Plan (RPJPN) 2005–2025, serving as a strategic guideline.

Figure 1.
Energy Policy Timeline in Indonesia



1981, 1987, dan 1991: General Energy Sector Policy

During this period, Bakoren issued the General Energy Sector Policy (KUBE) in 1981 and revised and improved it in subsequent years. The national energy policy focused on three aspects: intensification, diversification, and conservation [4]. Intensification involved the exploration and survey of energy sources to enhance reserves, particularly fossil energy. Diversification emphasized the principle of diversifying the use of both renewable and non-renewable energy. Meanwhile, conservation aimed to preserve and protect the utilization of energy from upstream to downstream.

1998: General Energy Sector Policy with Additions

During the era of reform in Indonesia, the energy policy still adhered to the three aspects of previous years but made additional key policy related to energy prices and the environment [5]. The average energy prices were gradually determined following market mechanisms. During this period, the government also began paying attention to environmental aspects in the development and utilization of the energy sector, including prioritizing the use of clean energy. These five main policies were accompanied by seven supporting policies, including: (1) increased investment, (2) incentives and disincentives, (3) standardization and certification, (4) infrastructure development, (5) improvement of human resources quality, (6) information system management, research and development, and (7) institutional and regulatory development. Based on these policies, there were at least two major differences between the 1998 policies and the previous ones: an increased role of the economy and the market in energy management, and an increased government awareness of environmental sustainability.

2003: National Energy Policy

On December 22, 2003, the Ministry of Energy and Mineral Resources, currently named the Ministry of Energy and Mineral Resources, transformed the General Energy Sector Policy of 1981, 1987, 1991, and 1998 into the National Energy Policy (Kebijakan Energi Nasional or KEN) and the Policy for the Development of Renewable Energy and Energy Conservation (Green Energy) [6]. In general, this policy emphasized reducing dependence on oil as an energy source through the diversification and intensification of energy resources. However, the policy faced significant criticism regarding the contradiction between energy conservation policies and the provision of fuel subsidies [7].

2006: National Energy Management Blueprint 2005–2025

As it evolved, the National Energy Policy created in 2003 was deemed insufficient to address the complexity of energy issues in Indonesia. Therefore, the government formulated the National Energy Management Blueprint 2005–2025 to implement the KEN more comprehensively [8]. This blueprint was established and enacted on January 25, 2006, based on Presidential Regulation Number 5 of 2006 concerning the National Energy Policy [9]. The main policies in this regulation included: (1) ensuring energy availability through domestic energy supply assurance, production optimization, and energy conservation implementation; (2) utilizing energy through efficiency and diversification; (3) economically determining energy price policies considering assistance for low-income households; and (4) environmental sustainability by applying the principle of sustainability.

The goal of this policy was the achievement of an optimal primary energy mix by 2025, as observed through the respective roles of each energy type in national energy consumption, as follows.

Table 1.
Targets of the National Energy Policy (KEN) based on Presidential Regulation Number 5 of 2006

<20% Crude oil	>5% Biofuel	>5% Renewable energy, such as biomass, solar power, wind power, small-scale hydropower, and nuclear
>30% Natural gas	>5% Geothermal energy	>2% Alternative fuels derived from coal liquefaction
>33% Coal		

2007: Long-Term National Development Plan 2005–2025

The development and management of energy in Indonesia increasingly became the focus of government through the enactment and promulgation of Law Number 17 of 2007 concerning the Long-Term National Development Plan (RPJPN) for the 2005 – 2025 [10]. This regulation and plan provided strategic guidance and served as the foundation for energy-related policymaking over the past 20 years, dominated by the principles of energy diversification and conservation. The regulation presented an extensive overview, ranging from the current conditions of energy-related facilities and infrastructure to the challenges of energy management from the perspectives of science and technology, natural resources, transportation, and the environment.

Mei 2011: Masterplan for the Acceleration and Expansion of Indonesian Economic Development (MP3EI) 2011–2025

On May 20, 2011, the government established and promulgated Presidential Regulation Number 32 of 2011 concerning the Masterplan for the Acceleration and Expansion of Indonesian Economic Development (Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia or MP3EI) for the period 2011–2025 [11]. Although this regulation was not directly related to the energy sector, it explicitly stated that the energy sector was one of the eight main sectors or programs outlined in the MP3EI 2011–2025. Some energy-related policies stipulated in this masterplan include (1) ensuring national energy availability, (2) regulating the energy composition that supports sustainable economic development, (3) restricting the export of energy commodities for further processing domestically to enhance export value, (4) mining governance to minimize environmental damage, and (5) revising regulations that do not support business climates and improving consistency between regulations. In other words, energy policies within the MP3EI focused on efforts to meet energy availability and utilization goals to enhance the national economy. It is important to note that this regulation was repealed by Presidential Regulation Number 82 of 2020 concerning the Committee for Handling the Coronavirus Disease 2019 (COVID-19) and National Economic Recovery.

September 2011: National Action Plan for Greenhouse Gas Emission Reduction

Four months after the government issued the Masterplan for the Acceleration and Expansion of Indonesian Economic Development (MP3EI), it established and promulgated Presidential Regulation Number 61 of 2011 concerning the National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK) on September 20, 2011 [12]. One of the reasons for issuing this regulation was to align Indonesia's national energy policy with global commitments to reduce greenhouse gas emissions. In general, this regulation aimed for a 26% reduction in emissions through domestic efforts and a 41% reduction with international assistance by 2020. The regulation also detailed emission reduction targets for the agriculture, forestry and peatland, energy and transportation, industry, waste management, and other supporting sectors.

However, studies found that these figures lacked a clear baseline and reference year [13]. The National Development Planning Agency (Bappenas), one of the institutions involved in formulating the RAN-GRK, also acknowledged that these target figures were indicative and could change based on the results of the working groups formed by Bappenas. This condition created ambiguity in terms of conditions and targets, making it challenging to measure and evaluate the extent to which the proposed emission reductions could be achieved. This regulation was repealed by Presidential Regulation Number 98 of 2021 concerning the Implementation of Carbon Economic Value for the Achievement of Nationally Determined Contribution Targets and Greenhouse Gas Emission Control in National Development.

2022: Just Energy Transition Partnership (JETP)

A decade after the issuance of the National Action Plan for Greenhouse Gas Emission Reduction, Indonesia reaffirmed its commitment to the energy sector through the launch of the Just Energy Transition Partnership (JETP) at the G20 Summit in Bali in November 2022. JETP is a financing scheme, coordinated by the Glasgow Financial Alliance for Net Zero (GFANZ), aimed at assisting developing countries like Indonesia in transitioning from fossil fuel dependence to renewable energy [14].

Donor countries are part of the International Partners Group (IPG), including the European Union, Japan, the United States, Canada, Denmark, France, Germany, Italy, Norway, and the United Kingdom [15].

So far, in addition to Indonesia, South Africa and Vietnam are also known to be recipients of JETP financing. However, compared to others, Indonesia received the largest allocation of assistance, reaching $20 billion [16].

2023: Draft New and Renewable Energy Law

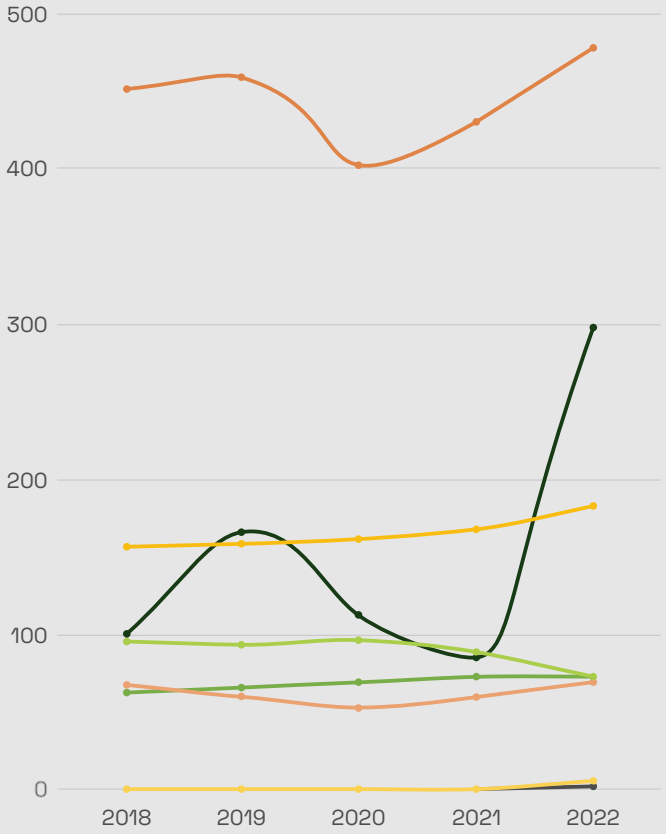
Currently, the House of Representatives of the Republic of Indonesia (DPR RI) is deliberating the Draft New and Renewable Energy Law (Rancangan Undang-Undang Energi Baru dan Terbarukan or RUU EBT). Records indicate that the draft bill was first discussed on Thursday, September 17, 2020, during the 5th session between Commission VII, the Masyarakat Energi Terbarukan Indonesia (METI), Masyarakat Ketenagalistrikan Indonesia (MKI), and the Koalisi Perempuan Indonesia (KPI) through a Public Hearing [17]. However, as of 2023, this bill has yet to be passed. The latest report on November 20, 2023, indicates that the government, through the Ministry of Energy and Mineral Resources, has proposed several new formulations deemed necessary to be included in the draft. These include the economic value of carbon, Domestic Component Levels (Tingkat Komponen Dalam Negeri or TKDN), formulations for network collaboration (open access), and the use of RUU EBT funds [18].

Given the current situation, the House of Representatives of the Republic of Indonesia estimates that the new draft can only be completed during the 2023/2024 Session Period. It is noteworthy that as of June 2023, discussions conducted by the House of Representatives had only reached the discussion of the 170th Inventory of Issues (Daftar Inventarisasi Masalah or DIM) out of approximately 600 list [19]. This implies that DPR RI has significant work ahead to expedite discussions on more than 70% of DIM in the RUU EBT if the policy is to be established according to the schedule.

b. Challenges of Energy Transition in Indonesia

Through the JETP scheme, Indonesia is set to receive at least IDR 311.7 trillion for the planning and implementation of the energy transition agenda. However, as of the fourth quarter of 2023, the mechanisms and financing status of JETP are still under discussion. This uncertainty has led many to doubt the impact of JETP on the energy transition, and there are concerns that it might potentially create new challenges for financing related to the renewable energy agenda in Indonesia. Moreover, the efforts towards energy transition in Indonesia are expected to face various complex challenges, given that historical energy consumption in the country has been heavily dominated by non-renewable sources such as coal, crude oil, and natural gas (see Diagram 1).

Diagram 1.
Final Energy Consumption 2018 – 2022 (in Million BOE)



	2018	2019	2020	2021	2022
Coal	100.51	167.41	113.42	87.82	299.19
Fuel	450.78	458.33	402.12	430	477.82
Gas	95.64	94.62	97.48	89.56	74.58
Electricity	156.98	159.11	162.16	168.38	183.41
Briquette	0.04	0.03	0.19	0	0
LPG	64.46	66.2	69.62	72.92	72.99
Biogas	0.17	0.17	0.18	0.18	0.21
Traditional Biomass	67.75	61.39	60.39	60.39	71.9
Industry Biomass	0	0	0	0	4.52
Solar Water Heater	0	0	0	0	0.94

Source
Handbook of Energy and Economic Statistics of Indonesia, 2018 – 2022 [20]

The consumption of coal has exhibited fluctuations during 2018 – 2022. Despite a surge in 2019, its consumption declined in 2020 and 2021 but experienced a significant increase in 2022. This indicates that Indonesia still heavily relies on coal, a fossil fuel with significant environmental impacts, contradicting the energy transition mission. The sharp increase in 2022 raises concerns as it suggests a lack of progress in transitioning to more environmentally friendly energy sources.

On the other hand, the consumption of natural gas and LPG has shown a consistent decline over the years, which can be seen as a positive sign. However, it is essential to investigate whether this decline is due to a shift to renewable energy sources or other factors such as price fluctuations. Amidst the massive use of non-renewable energy, renewable sources such as solar water heaters, biogas, and biomass still contribute minimally to energy consumption in Indonesia.

The low utilization of environmentally friendly energy sources indicates that Indonesia has not made significant progress in diversifying its energy mix toward sustainability.

Nevertheless, it is noteworthy that the emergence of industrial biomass consumption in 2022 signals a positive shift towards systematic adoption of renewable energy. This positive development is further supported by the cessation of briquette consumption since 2020 to reduce dependence on non-renewable solid fuels.

In general, Indonesia's energy consumption data from 2018 to 2022 indicates that the readiness for energy transition in Indonesia faces several complex challenges. These challenges arise from the continued dominance of coal, limited use of renewable energy, and fluctuations in gas consumption, reflecting a lack of comprehensive and consistent energy transition policies.

Relevance of the Indonesian Energy Transition Readiness Index

The Indonesian Energy Transition Readiness Index is beneficial for strategic planning and sustainable development in Indonesia

Firstly, this index provides a structured and comprehensive assessment of the current conditions in Indonesia regarding energy transition readiness. This involves a thorough evaluation of existing energy infrastructure, policies, and practices to help identify areas of strength and potential weaknesses that need attention. Systematic evaluation is crucial for policymakers as it serves as a guide for the development and refinement of energy-related policies. Understanding specific challenges and opportunities in the energy transition landscape allows policymakers to formulate better strategies to face a sustainable energy transition.

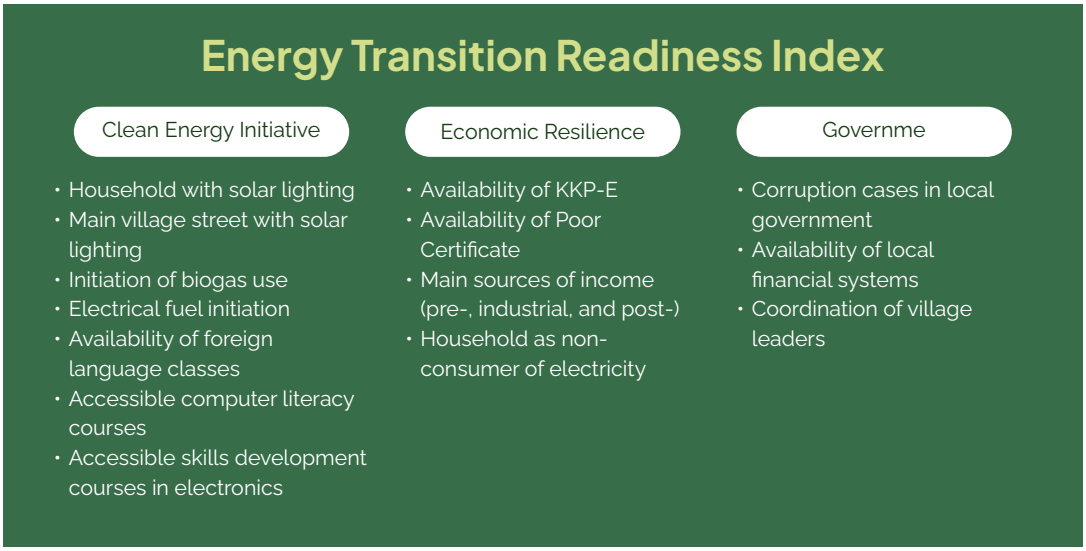
The Indonesian Energy Transition Readiness Index plays a key role in attracting investments. Investors, both domestic and international, are increasingly considering environmental, social, and governance (ESG) factors in their investment decision-making. An index reflecting a country's commitment and readiness in energy transition can attract investment by providing a stable and predictable environmental signal for sustainable energy projects. More importantly, the index contributes to public awareness and engagement. This awareness is crucial to gain support and participation in the collaborative efforts needed for a successful energy transition.

In an effort to address disparities in energy security, the Indonesian Energy Transition Readiness Index becomes a key instrument to identify and mitigate disparities that may occur in the distribution, accessibility, and utilization of energy resources across the country. Through a comprehensive assessment of energy transition readiness in various regions, this index allows the government to identify areas vulnerable to inequality in energy access and benefits.

With a deeper understanding, more equitable policies can be formulated, including resource allocation and investment to support regions that may lag in terms of energy transition. Moreover, the index opens opportunities to design strategies that enhance energy accessibility for all segments of the population, especially in remote or underdeveloped areas. This not only helps address energy access inequalities but also provides a foundation for community empowerment programs in regions requiring greater support.

With a focus on clean energy sources in vulnerable areas, the index helps reduce the environmental impact of inequalities and turns the energy transition into an opportunity for inclusive and sustainable development across Indonesia.

a. Data and Methodology



This study utilizes the latest data, the Micro Village Potential Mapping (Potensi Desa or Podes) Data in 2022. Podes is a statistical dataset related to the potential and characteristics of villages in Indonesia. It is an initiative by the Indonesian Central Statistics Agency (Badan Pusat Statistik or BPS) to collect data on the social, economic, and demographic conditions at the village level. This data is gathered from existing sources in the villages and compiled systematically to provide a comprehensive overview of the potential and challenges faced by each village.

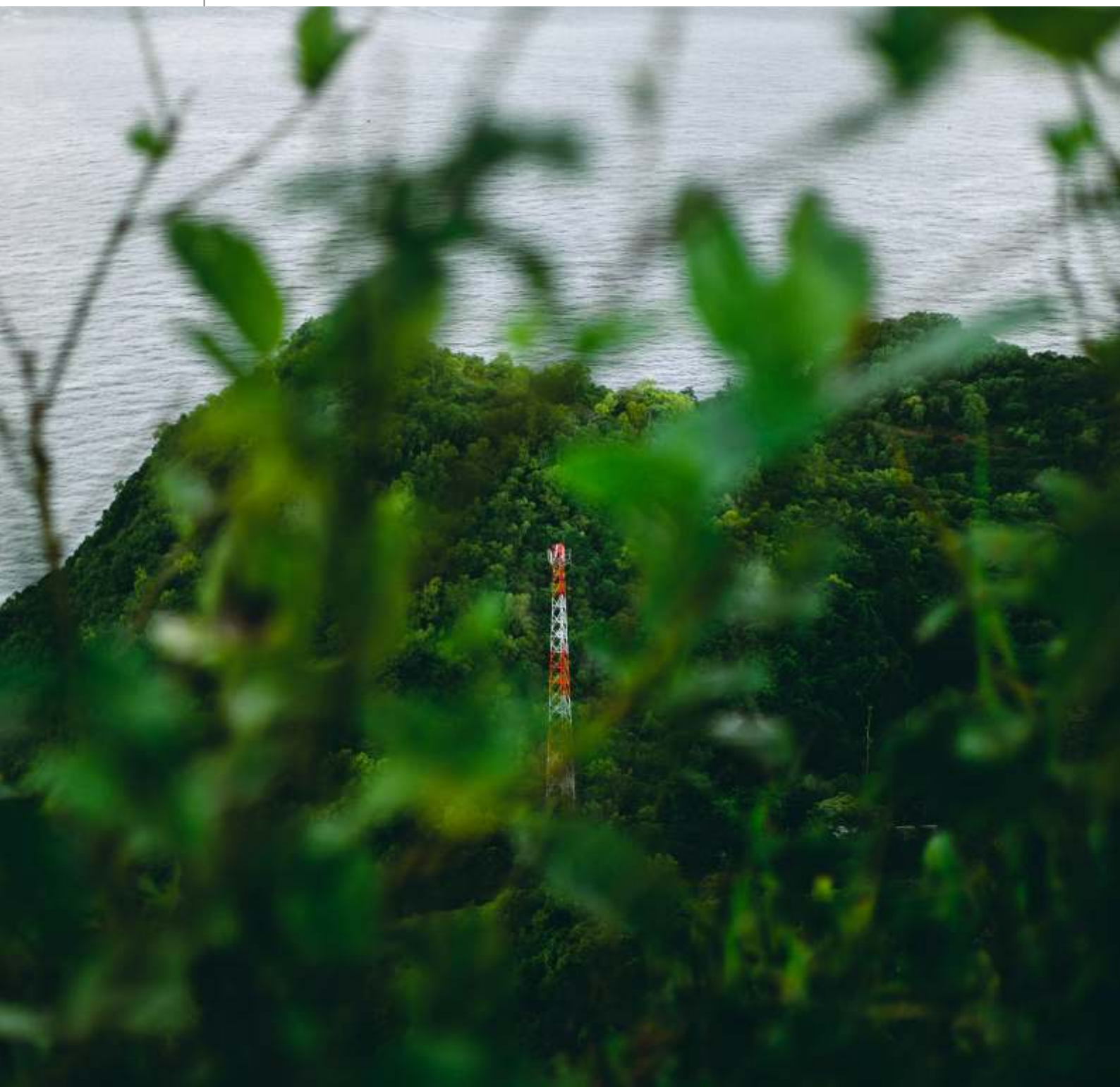
Podes covers various aspects, including population size, education levels, employment, poverty, infrastructure, as well as economic potential and natural resources in the village. This information is crucial for development planning, public policy formulation, and resource allocation to enhance the well-being of communities at the village level. Anchored in these data, the report focuses on three key questions in the formulation of the index.

1. What is the progress of initiatives related to energy transition?
2. How resilient is the economic capacity of communities in facing energy transition?
3. What is the government's capacity to support sustainable energy transition?

There is currently no index capable of capturing the progress of energy transition in Indonesia at the smallest level, rural areas.

Methodologically, developing the energy transition readiness index in Indonesia presents its own challenges. Firstly, the definition related to a just energy transition is a relatively new concept, not widely understood and agreed upon. Secondly, the availability of data and the high costs associated with obtaining nationally representative data pose a challenge, making it difficult to capture all phenomena regularly.

Furthermore, national policy priorities and the evolving urgencies in the energy sector can also influence index development. Therefore, this Energy Transition Readiness Index becomes a crucial instrument to measure and understand Indonesia's readiness in transitioning towards more For details regarding the methodology used, specific questions, the rationale for each indicator, and index development estimates, please refer to **tinyurl.com/ETRICelios.**



Overview of the Energy Transition Readiness Index in Indonesia

Key Findings

- **Western Region of Indonesia Dominates Energy Transition Readiness.** Based on overall energy transition readiness, DKI Jakarta occupies the top position with a score of 84.24. The characteristics of DKI Jakarta as the capital city, a center of industry and government, with better clean energy infrastructure, are likely significant factors influencing this outcome. Jakarta's ranking is followed by other provinces on the Java Island in sequence, such as DI Yogyakarta (66.74), Banten (58.57), Central Java (55.22), West Java (55.19), and East Java (52.89). These five provinces rank highest due to strong provincial economic indicators, proactive clean energy initiatives, and government capacities that tend to be more efficient compared to other provinces.

- **Challenges for Provinces outside Java.** Provinces outside Java Island, such as Papua (3.48), Central Sulawesi (28.97), Bangka Belitung Islands (30.71), and West Papua (32.27), face significant challenges and exhibit lower levels of energy transition readiness. Economic resource limitations, low adoption of clean energy initiatives, and governance issues contribute to these challenges.

- **Regional Disparities.** Provinces with top rankings, including Banten, DI Yogyakarta, and West Java, indicate higher energy transition readiness in the regions around the capital. Likely, this is due to these provinces having easier access to relevant resources to strengthen economic resilience and government capacity compared to provinces in other regions. This assumption is supported by the reality that outer provinces, distant from the capital, such as Papua, Central Sulawesi, West Papua, and North Kalimantan (33.49), rank lower in this report, reflecting regional challenges.

- **Improvement Opportunities.** Provinces with moderate scores, such as East Nusa Tenggara (43.01), Southeast Sulawesi (42.93), and Bali (42.65), have opportunities to enhance energy transition readiness. These provinces do not yet possess well-established transition readiness but have good governance capacities and clean energy initiatives to implement principles of renewable and sustainable energy. Therefore, provinces should consider focused initiatives to strengthen economic development, initiate environmentally friendly energy implementation, and enhance good governance practices.

- **Only Two Provinces with High Energy Transition Readiness.** The results indicate that DKI Jakarta is the only province with a "very high" status in energy transition readiness. This is followed by Banten with a "high" status. Meanwhile, approximately 70% or 24 provinces have a "medium" status, and about 20% or 7 provinces have a "low" status. Additionally, only 1 province has a "very low" status. These figures imply that 90% of provinces in Indonesia do not yet have good readiness to implement the energy transition agenda. This poses a unique challenge for the government to give greater attention to the majority of provinces to achieve inclusive and comprehensive energy transition readiness, with support from the community and commitment from business stakeholders.

- **Inclusive Policy Development.** Regional disparities in energy transition readiness underscore the need for inclusive policy development that considers regional nuances. In contrast to the "one-size-fits-all" principle, the central and local government needs to promote energy transition policies according to the unique characteristics of each province. For example, East Kalimantan (43.56) has a moderate ranking in overall energy transition readiness but ranks among the top five in clean energy initiatives. This implies that the government needs to intervene more in other areas, such as government capacity and economic resilience, so that East Kalimantan has strong and comprehensive energy transition readiness. Customized strategies for various provinces like this can be one of the approaches to achieving a more balanced and equitable energy transition throughout Indonesia.

Table 1..
Overall Results of the Energy Transition Readiness Index in Each Province

Scale

Very High	: 80-100
High	:60-79
Medium	: 40-59
Low	: 20-39
Very Low	: 0-19

Rank	Provinces	Score	Category
1	DKI Jakarta	84,24	Very High
2	DI Yogyakarta	66,74	High
3	Banten	58,57	Medium
4	Jawa Tengah	55,22	Medium
5	Jawa Barat	55,19	Medium
6	Jawa Timur	52,89	Medium
7	Lampung	52,19	Medium
8	Nusa Tenggara Barat	50,33	Medium
9	Aceh	49,13	Medium
10	Gorontalo	46,82	Medium
11	Sumatera Utara	46,55	Medium
12	Maluku Utara	45,39	Medium
13	Sumatera Selatan	44,81	Medium
14	Sulawesi Barat	44,58	Medium
15	Kalimantan Timur	43,56	Medium
16	Nusa Tenggara Timur	43,01	Medium
17	Sulawesi Tenggara	42,93	Medium
18	Bali	42,65	Medium
19	Kalimantan Tengah	42,19	Medium
20	Kalimantan Barat	42,12	Medium
21	Kalimantan Selatan	41,95	Medium
22	Sumatera Barat	41,73	Medium
23	Sulawesi Selatan	41,49	Medium
24	Riau	41,48	Medium
25	Kepulauan Riau	41,35	Medium
26	Sulawesi Utara	41,31	Medium
27	Jambi	39,60	Low
28	Maluku	36,39	Low
29	Bengkulu	34,96	Low
30	Kalimantan Utara	33,49	Low
31	Papua Barat	32,27	Low
32	Kepulauan Bangka Belitung	30,71	Low
33	Sulawesi Tengah	28,97	Low
34	Papua	3,48	Very Low

Category Result of the Clean Energy Initiative

Key Findings

- **Indicators.** This dimension is measured through seven indicators: (1) the number of households using solar lighting, (2) the number of solar-powered street lights on main village roads, (3) the initiation of using biogas as a cooking fuel, (4) the initiation of using electricity-based cooking fuels, (5) the availability of foreign language classes, (6) the availability of computer classes, and (7) the availability of skill-related classes in electronics.

- **Western Provinces in Indonesia Excel in Clean Energy Initiatives.** The top rankings in the clean energy dimension are predominantly held by provinces in western Indonesia, such as DKI Jakarta (75.24), DI Yogyakarta (57.71), West Java (45.29), Bangka Belitung Islands (43.82), and East Java (43.50). These provinces outperform others, likely due to their robust financial and governmental capacities, and a populace with a good understanding to support the energy transition agenda. For instance, as of June 2020, out of 2,346 installed Rooftop Solar Power Plants (PLTS) Atap, more than 90% (2,189) were installed in provinces on Java Island [24]. While not the sole factor, this reality can rationalize why provinces in western Indonesia are more advanced in clean energy initiatives.

- **Provinces Outside Java and in Eastern Indonesia Still Lag Behind.** The bottom rankings in the clean energy dimension are dominated by provinces in eastern and non-Java provinces, such as West Kalimantan (27.20), Central Kalimantan (26.84), East Nusa Tenggara (26.61), South Kalimantan (25.81), West Papua (23.20), and Papua (17.61). Clean energy initiatives, especially the use of electricity-based cooking fuels, are challenging to implement in these provinces due to low electrification ratios. 2020 data shows that East Nusa Tenggara (88%), Central Kalimantan (94%), Papua (94%), and West Kalimantan (97%) have electrification ratios lower than the national average of 99.2% [21]. Eastern provinces also have lower accessibility to skill-related classes in electronics, foreign languages, and computers compared to provinces on Java Island. Exposure to these classes is crucial for opening up and enhancing public understanding to support the clean energy agenda. However, further studies are highly necessary to invest in understanding the causes of low clean energy initiation scores in provinces outside Java. Score Clean Energy Initiatives yang rendah.
- **Solar Lighting.** One intriguing highlight on this list is the Bangka Belitung Islands. This province ranks fourth overall in the clean energy initiative assessment. This ranking is attributed to the active role of the government in collaborating with the State Electricity Company (Perusahaan Listrik Negara or PLN) Icon Plus for the installation of Rooftop Solar Power Plants and preparing 100 hectares of land as a regional PLTS site [46] [47].
- **Initiatives for Cooking Fuels.** Provinces that initiate alternative cooking fuels, whether using biogas or electricity, tend to have better rankings in the overall clean energy initiation dimension, such as DKI Jakarta, DI Yogyakarta, and West Java.
- **Education and Skills.** Access to foreign language, computer, and electronic skill classes also plays a crucial role in supporting the readiness for clean energy use in a province. Trends show that provinces with the availability of these classes tend to perform better in clean energy overall, as seen in DKI Jakarta and DI Yogyakarta. Both provinces have good accessibility to foreign language and computer skill classes and rank at the top in the clean energy initiation dimension.

Table 2.
Results of Clean Energy Initiative Measurement in Each Province

Scale

Very High	: 80-100
High	:60-79
Medium	: 40-59
Low	: 20-39
Very Low	: 0-19

Rank	Provinces	Score	Category
1	DKI Jakarta	75,24	High
2	DI Yogyakarta	57,71	Medium
3	Jawa Barat	45,29	Medium
4	Kepulauan Bangka Belitung	43,82	Medium
5	Kalimantan Timur	43,54	Medium
6	Jawa Timur	43,50	Medium
7	Nusa Tenggara Barat	41,76	Medium
8	Kepulauan Riau	41,28	Medium
9	Sulawesi Selatan	41,12	Medium
10	Gorontalo	40,46	Medium
11	Riau	40,45	Medium
12	Sulawesi Utara	39,10	Low
13	Bali	38,51	Low
14	Maluku Utara	38,42	Low
15	Sumatera Selatan	38,21	Low
16	Sumatera Barat	38,15	Low
17	Sulawesi Barat	37,83	Low
18	Lampung	37,81	Low
19	Jambi	37,67	Low
20	Banten	35,93	Low
21	Jawa Tengah	35,92	Low
22	Maluku	35,91	Low
23	Sumatera Utara	35,38	Low
24	Sulawesi Tengah	35,16	Low
25	Sulawesi Tenggara	32,68	Low
26	Kalimantan Utara	31,45	Low
27	Aceh	30,59	Low
28	Bengkulu	28,42	Low
29	Kalimantan Barat	27,20	Low
30	Kalimantan Tengah	26,84	Low
31	Nusa Tenggara Timur	26,61	Low
32	Kalimantan Selatan	25,81	Low
33	Papua Barat	23,20	Low
34	Papua	17,61	Very Low

Category Result of the Economic Resilience

Key Findings

- **Indicators.** The Economic Resilience dimension is measured by four indicators: (1) the availability of Food and Energy Resilience Credit (Kredit Ketahanan Pangan dan Energi or KKP-E) facilities, (2) certificate of indegence (Surat Keterangan Tidak Mampu or SKTM), (3) the type of community's primary source of income (i.e., pre-industrial, industrial, and post-industrial), and (4) the number of families not using electricity. In this context, pre-industrial-based jobs or economies typically dominate the agriculture and fisheries sectors. Industrial economies are characterized by a shift from the agricultural sector to the industrial sector. Meanwhile, post-industrial economies focus on the development of the service sector.
- **Provinces with Higher Fiscal Positions Have Better Economic Resilience.** Provinces in western Indonesia and on Java dominate the top rankings in the economic resilience dimension. The top five ranks are held by DKI Jakarta (88.43), DI Yogyakarta (55.91), West Sumatra (53.36), West Java (52.34), and Banten (51.40). These rankings are not surprising as these provinces have broader fiscal space, as reflected in their Regional Income and Expenditure Budgets (Anggaran Pendapatan dan Belanja Daerah or APBD). The BPS report shows that DKI Jakarta ranked first in the 2021 revenue realization at Rp65.57 trillion [22].

Meanwhile, West Java ranks second with a realization of Rp36.99 trillion and Banten ranks eighth with a realization of Rp11.62 trillion. However, it should be noted that provinces topping this dimension do not always have high revenue realizations. For example, DI Yogyakarta ranks 19th with a realization of Rp5.70 trillion and West Sumatra ranks 15th with a realization of Rp6.70 trillion. Both provinces perform well in economic resilience in this report but have relatively lower revenue realizations compared to provinces with similar positions and rankings.

- **Eastern Indonesia: Lower Fiscal Positions, Weaker Economic Resilience.** Meanwhile, the bottom rankings are dominated by provinces in eastern and non-Java regions, such as Maluku (34.63), Central Kalimantan (33.91), Papua (33.43), North Kalimantan (32.47), and West Papua (25.49). In line with the logic in the previous explanation, these provinces occupy the lowest ranks in economic resilience, most likely due to narrower fiscal space. The BPS report in 2021 revealed that North Kalimantan ranked 32nd out of 34 provinces with revenue realization only at Rp2.60 trillion [23]. Maluku ranks 29th with a realization of Rp3.04 trillion, and Central Kalimantan ranks 22nd with a realization of Rp5.19 trillion. Interestingly, not all provinces with low rankings in this dimension have small revenue realizations. Papua recorded a realization of Rp13.88 trillion, and West Papua recorded Rp7.32 trillion. Both figures are much larger than revenue realizations in DI Yogyakarta and West Sumatra, even though these two provinces top this dimension. These data underscore that fiscal space in the APBD is not the main determinant in the economic resilience dimension in the context of energy transition readiness.

- **Regional Disparities.** The overall ranking results clearly show that provinces in western Indonesia tend to have stronger economic resilience than provinces in eastern Indonesia. This highlights regional disparities in energy transition readiness in general and economic resilience specifically.

- **Correlation of Income Sources and Food and Energy Resilience Credit (KKP-E).** Provinces with income sources dominated by the industrial sector have higher economic resilience rankings, such as DKI Jakarta, Banten, and West Java. Data indicates that the economic models and income sources in Jakarta are starting to shift towards post-industrial, while Banten and West Java show tendencies towards industrial sector dominance. Moreover, provinces that have facilities and services to provide KKP-E also have higher economic resilience rankings, such as DI Yogyakarta, West Nusa Tenggara, and Bali. With the presence of KKP-E, farmers and breeders in these three provinces have the potential to access more affordable interest rates. This enables them to adopt recommended cultivation technologies to increase agricultural and livestock productivity and meet national food and energy needs. However, it should be acknowledged that access to KKP-E is still uneven, especially in eastern Indonesian provinces and outside Java, such as Papua, North Maluku, North Kalimantan, and West Papua, which have not provided KKP-E for farmers and breeders in their regions.

- **Strong Correlation with Electricity Usage.** The highest number of families not using electricity is found in Papua, West Papua, East Nusa Tenggara, and Maluku. These four provinces tend to have low rankings in economic resilience. Meanwhile, ten provinces with the highest number of families using electricity fully are Lampung, Banten, Bangka Belitung Islands, West Nusa Tenggara, East Java, West Java, DI Yogyakarta, Bali, Central Java, and DKI Jakarta. Although these ten provinces have different economic resilience rankings, the trend shows that provinces with better electricity access also have higher levels of economic resilience.

Table 3.
Result of Economic Resilience Measurement in Each Province

Scale

Very High	: 80-100
High	:60-79
Medium	: 40-59
Low	: 20-39
Very Low	: 0-19

Rank	Provinces	Score	Category
1	DKI Jakarta	88,43	Very High
2	DI Yogyakarta	55,91	Medium
3	Sumatera Barat	53,36	Medium
4	Jawa Barat	52,34	Medium
5	Banten	51,40	Medium
6	Bali	49,61	Medium
7	Nusa Tenggara Barat	46,71	Medium
8	Kepulauan Bangka Belitung	46,55	Medium
9	Kalimantan Timur	45,67	Medium
10	Jawa Timur	44,88	Medium
11	Sulawesi Selatan	43,36	Medium
12	Jawa Tengah	43,23	Medium
13	Riau	43,16	Medium
14	Sulawesi Barat	41,57	Medium
15	Kepulauan Riau	41,00	Medium
16	Sumatera Utara	40,39	Medium
17	Lampung	40,39	Medium
18	Nusa Tenggara Timur	40,28	Medium
19	Gorontalo	39,78	Low
20	Sumatera Selatan	39,19	Low
21	Bengkulu	38,58	Low
22	Maluku Utara	38,34	Low
23	Aceh	38,10	Low
24	Sulawesi Tengah	36,82	Low
25	Kalimantan Barat	36,43	Low
26	Jambi	36,43	Low
27	Sulawesi Utara	36,32	Low
28	Kalimantan Selatan	35,52	Low
29	Sulawesi Tenggara	34,98	Low
30	Maluku	34,63	Low
31	Kalimantan Tengah	33,91	Low
32	Papua	33,43	Low
33	Kalimantan Utara	32,47	Low
34	Papua Barat	25,49	Low

Category Result of the Government Capacity

Key Findings

- **Indicators.** The Governance Capacity is measured by three indicators: (1) the availability of corruption cases in local government, (2) the availability of the local financial system, and (3) the number of village head meetings held annually.

- **Diversity of Governance Capacity.** The dimension varies significantly among provinces in Indonesia. Central Java emerges as the province with the highest governance capacity (76.55), while Papua has the lowest capacity (15.56). It implies different levels of administrative readiness in managing energy transition. However, provinces on Java and Sumatra still dominate this dimension, with Aceh (74.57), Lampung (73.93), Banten (73.68), and DI Yogyakarta (72.50) ranking at the top.

- **Correlation with Local Financial Systems.** Provinces with well-established local financial systems tend to exhibit higher governance capacity, such as DI Yogyakarta, Central Java, and Aceh. This correlation suggests that a robust financial system can enhance a province's ability to manage complex energy transition projects. An interesting finding can be observed in DKI Jakarta, which has a low governance capacity score due to a low value of the local financial system, even lower than the national average. However, DKI Jakarta has fairly good scores for the other two indicators.

- **Impact of Corruption Cases.** The presence of corruption cases in local government negatively impacts government capacity. Provinces with fewer corruption cases tend to have higher governance capacity scores. This indicates that a clean governance environment is crucial for effective energy transition management.

- **Role of Village Head Meetings.** The number of village head meetings also has a positive impact on government capacity. Provinces that hold more village head meetings tend to perform better, as seen in the case of Aceh. However, it is worth noting that some provinces with the highest number of village head meetings have only moderate Governance Capacity. For example, Riau ranks 2nd in this indicator but is 26th in the Governance Capacity dimension overall. Similarly, West Sumatra, ranked 4th in village head meeting activities, is positioned 31st in the Governance Capacity dimension. Nevertheless, this indicator underscores the importance of local community engagement and communication for government readiness in undertaking energy transitions.

Table 4.
Result of Government Capacity Measurement in Each Province

Scale

Very High	: 80-100
High	:60-79
Medium	: 40-59
Low	: 20-39
Very Low	: 0-19

Rank	Provinces	Score	Category
1	Jawa Tengah	76.55	High
2	Aceh	74.57	High
3	Lampung	73.93	High
4	Banten	73.68	High
5	DI Yogyakarta	72.50	High
6	Kalimantan Tengah	69.71	High
7	Jawa Timur	68.24	High
8	Kalimantan Selatan	68.23	High
9	Sulawesi Tenggara	67.35	High
10	Kalimantan Barat	67.01	High
11	Sumatera Utara	66.43	High
12	Maluku Utara	65.38	High
13	Gorontalo	65.30	High
14	Nusa Tenggara Timur	64.87	High
15	Papua Barat	64.44	High
16	Sumatera Selatan	63.78	High
17	Jawa Barat	63.72	High
18	Nusa Tenggara Barat	63.34	High
19	Sulawesi Barat	61.28	High
20	Sulawesi Utara	60.90	High
21	DKI Jakarta	60.00	High
22	Jambi	58.81	Medium
23	Maluku	56.44	Medium
24	Kalimantan Utara	56.03	Medium
25	Kepulauan Riau	55.51	Medium
26	Riau	53.95	Medium
27	Bengkulu	53.59	Medium
28	Sulawesi Selatan	53.49	Medium
29	Kalimantan Timur	53.37	Medium
30	Bali	50.28	Medium
31	Sumatera Barat	45.39	Medium
32	Sulawesi Tengah	43.42	Medium
33	Kepulauan Bangka Belitung	32.97	Low
34	Papua	15.56	Very Low

Unraveling the Interconnected Factors in Energy Transition Readiness

a. Relationship between Per Capita Consumption and Energy Transition Readiness

The diagram reveals an intriguing relationship between per capita consumption and energy transition readiness. **Cities with higher levels of per capita consumption demonstrate greater readiness to embrace and implement energy transition plans.** This indicates that financial resources and prosperity play a crucial role in preparing cities to transition to cleaner and sustainable energy sources. However, it is essential to note that this correlation is not absolute and does not imply causation, whether per capita consumption causes an increase in energy transition readiness or vice versa.

One plausible explanation for the relationship between per capita consumption and energy transition readiness lies in the greater access to resources in wealthier cities. These cities often have the financial capability to invest in renewable energy infrastructure, research, and innovation. Practically, this can be observed through the initiation of renewable technology usage in several provinces.

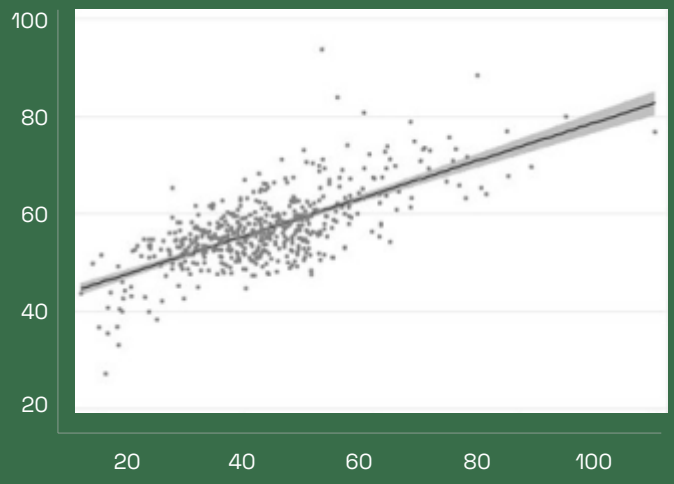


Diagram Description

This data is sourced from the Central Statistics Agency (Badan Pusat Statistik or BPS) using the latest calculation method as of 2021. The horizontal axis represents the magnitude of per capita consumption (PCC) in thousand Indonesian rupiah, while the vertical axis represents the value of the Energy Transition Readiness Index. The green dots represent regencies and cities as reported in this study.

In June 2020, the Ministry of Energy and Mineral Resources (ESDM) recorded 2,346 customers installing Rooftop Solar Power Plants (PLTS) [24], for residential, business, and government buildings. Among these customers, the majority were located in DKI Jakarta (703), West Java (656), Banten (544), East Java (191), and Central Java and Yogyakarta (95) cumulatively. Moreover, cities in these five provinces are known to have high per capita consumption. There are at least 13 cities in East Java, 11 cities in Central Java and Yogyakarta cumulatively, 6 cities in DKI Jakarta, and 5 cities in Banten that are included in the list of the top 100 cities with the highest per capita consumption in Indonesia.

Furthermore, as of July 2023, the Ministry of ESDM noted a surge in rooftop solar power plant customers, reaching 7,472 customers [25]. This increase is dominated by the use of rooftop solar power plants for households in West Java, Banten, and DKI Jakarta. This implies that an increasing number of people in these three provinces can afford to purchase rooftop solar power plants as a clean and environmentally friendly technology.

Box 1. Rooftop Solar Power Plants:

Renewable Energy Dilemma and Affordability Challenge

The government's commitment to popularize the use of rooftop solar power plants began in 2018 through Regulation of the Minister of Energy and Mineral Resources (Permen ESDM) Number 49 of 2018 [26]. In 2021, this regulation was revised to Permen ESDM Number 26 of 2021, setting a national target for rooftop solar power plants capacity by 2025 at 3.6 Gigawatts (GW) or equivalent to 3,600 Megawatts (MW). However, as of May 2023, the national utilization of the rooftop has only reached 95 MW from 7,075 customers [27]. This figure falls short of 5% of the government's target for 2025.

Looking at the number of rooftop solar power plants customers as of July 2023, which is 7,472, this figure actually indicates an increase of up to 2,000% compared to the initial installation in 2018 when there were only 350 customers [28] [29]. Nevertheless, the installation cost is still considered expensive by various groups, including developers and the public [30]. It is possible that these financial considerations serve as one of the hindrances in achieving the government's ambition for extensive installation of rooftop solar power plants.

Based on a survey conducted by researchers from Udayana University in 2022, the initial investment cost for installing rooftop solar power plants varies widely, ranging from around 22 million to 150 million [31]. For instance, the average investment cost in Indonesia with a capacity of <2 kilo Watt peak (kWp) is Rp22.95 million, capacity <3 kWp is Rp42.84 million, and capacity of 10 kWp reaches Rp151.82 million.

This survey aligns with a simulation of rooftop solar power plants installation costs by the Editorial Team of Kompas [32]. According to this simulation, an area of 36 square meters can install a solar power plants with a capacity of 1.02 kWp, incurring an installation cost of 17 million. Subsequently, an area of 45 square meters with a capacity of 2.04 kWp has an installation cost of up to 33.7 million. Finally, an area of 60 square meters with a capacity of 3.06 kWp has an installation cost of 51.3 million.

With installation costs running into tens of millions, customers are predicted to start benefiting from rooftop solar power plants, which is cheaper than conventional electricity usage, after 7 to 10 years of installation [33]. This waiting period may be considered lengthy for some individuals. Moreover, during this period, customers also have to incur maintenance costs. Overall, the installation and maintenance costs of the solar power plants are certainly higher than the survey and simulations presented above.

This case study implies that the installation of rooftop solar power plants tend to be affordable only for the upper-middle-class society. This reinforces the findings in the Diagram 1 above that individuals with higher per capita consumption tend to be more ready for energy transition as they have financial stability to access the latest clean innovations and technologies.

b. Linkage between Climate–Energy Vulnerability and Energy Transition Readiness

The diagram below reveals an intriguing correlation between climate and environmental vulnerability and the readiness for energy transition. **In aggregate, the diagram indicates that the higher the level of climate and environmental vulnerability in a city, the better the city's readiness to undergo an energy transition**[1]**.** This finding challenges academics and policymakers to reassess current knowledge and reconsider longstanding ideas to be more open to new approaches for achieving sustainability missions and energy transitions.

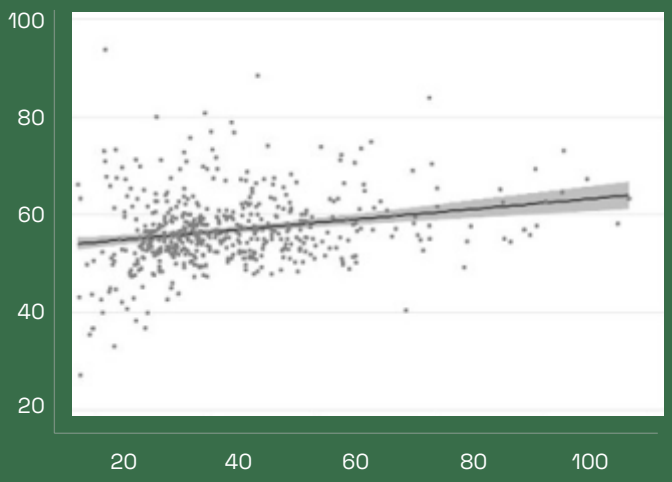


Diagram Description

Climate vulnerability and environmental data were processed based on the 2021 Village Potential (Potensi Desa or Podes) data from Central Statistics Agency, which contains records of flood occurrences, forest fires, air pollution, and so on. The complete indicators can be found in the Appendix section. The horizontal axis represents the level of climate and environmental vulnerability or climate-energy vulnerability (CEV), while the vertical axis represents the value of the Energy Transition Readiness Index. The green dots represent regencies and cities in this report.

These findings can be explained through at least two scientific arguments and the following case studies. First, climate and environmental vulnerability often heighten the awareness of the public and political leaders regarding climate change. An analysis of 92 scientific articles shows that public awareness and knowledge of climate change can contribute to engagement in policy-making and climate change actions [34], both on an individual and collective scale. This engagement can ultimately bring communities closer to readiness and openness to ideas for energy transition [35]. In other words, the higher the level of climate and environmental vulnerability in a region, the greater the awareness of the community to take immediate action, such as transitioning to cleaner, renewable, and sustainable energy sources.

[1] Disclaimer: However, specifically, the findings do not align when applied to the situation in Jakarta. Despite Jakarta having a lower vulnerability level compared to other provinces, it paradoxically exhibits the highest readiness for energy transition nationally. This contradiction arises, as per the general trend, the readiness for energy transition in Jakarta should be lower. Therefore, it is essential to note that this diagram only reflects aggregate results and does not encompass specific outcomes or case-by-case scenarios. Like other diagrams, this one merely indicates a general correlation rather than a causal relationship between climate and environmental vulnerability and the readiness for energy transition.

Second, cities vulnerable to climate and environmental change understand that related disasters can have adverse impacts on the economy and infrastructure. Destruction caused by events such as strong winds and floods can result in significant financial losses. This logic is supported by Komendantova's 2021 research, **indicating that economic rationality is often considered more important by the public than environmental protection when discussing support for energy transition efforts** [36]. This suggests that most cities with higher climate and environmental vulnerability actually pay more attention to energy transition plans based on financial loss considerations rather than concern for climate and energy sustainability itself.

The reality of these two arguments becomes evident when examining the levels of climate and environmental vulnerability and energy transition readiness in West Sumatra. The data show that West Sumatra is the province with the highest level of climate and environmental vulnerability. However, the readiness for energy transition in this province is relatively better than half of the total provinces in Indonesia. The Energy and Mineral Resources Agency report also notes that the share of Renewable Energy (RE) in the primary energy mix in West Sumatra in 2020 was the highest nationally at 27.72%, while the national average was only 11.20% [37]

c. Women's Involvement in Energy Transition Readiness

The acknowledgment of the urgency of women's involvement in environmental, climate, and energy affairs has been scientifically established since the 1970s through the concept of ecofeminism [38]. The diagram above reinforces this acknowledgment by revealing that **the higher the involvement of women in local community activities and coordination meetings regarding climate and the environment, the greater the readiness level of the city or region to undertake energy transition.**

Based on national statistics, women in Indonesia dominate employment in sectors closely related to climate and energy, such as agriculture, forestry, and fisheries. Labor Force Situation (Keadaan Angkatan Kerja) data in August 2020 showed that these sectors employed 13.79 million female workers, both in urban and rural areas [39]. The absorption in these sectors is the largest compared to others, accounting for 27.2% of the total female workforce. This dominance has persisted since 2018 until 2020.

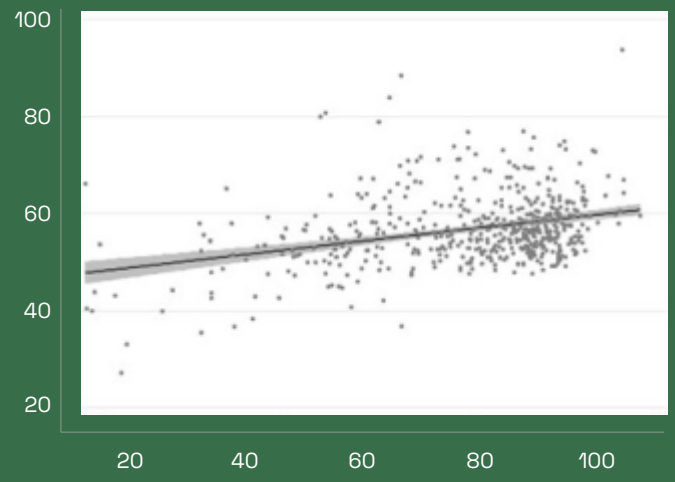


Diagram Description

This data is processed based on the 2021 Village Potential (Potensi Desa or Podes) data. Respondents were queried about the presence and composition of women in the Village Consultative Body (Badan Permusyawaratan Desa or BPD). The horizontal axis represents the level of women's involvement in the village or women-led initiatives (WLIs), while the vertical axis represents the value of the Energy Transition Readiness Index. Green dots represent districts and cities in this report.

These statistics indicate that Indonesian women have a close connection to employment sectors directly affected by climate change and energy transition. It suggests that women have a deep understanding of energy needs at the household and community levels [40] [41]. With this understanding, women bring a unique perspective to renewable energy initiatives and play a crucial role in disseminating related information and supporting energy policy changes.

Women's involvement in decision-making about energy can also be observed at the national institutional level. In 2021, the Ministry of Energy and Mineral Resources (ESDM) reported that there were at least 11 women serving as directors out of a total of 55 units in the ministry [42]. This figure reached 20%, higher than a decade ago when only 6 women held director positions out of a total of 47 units.

However, women's involvement in the energy sector is not uniform. Data processing shows that Papua has the lowest level of women's involvement. This data is supported by Csevar's findings in 2020 that indigenous Papuan women have traditional roles based on local community rules, making their involvement considered less significant than men [43]. Papuan women are also generally known to lack rights to natural resources and land as these rights are granted to men. As a result, Papuan women have very limited, if not non-existent, space in decision-making in general and matters related to energy transition specifically.

Box 2.

Involvement of Indonesian Women in the Energy Transition Agenda

Women of Sumba in the Energy Island Icon Project [44]

Since 2010, Sumba Island in East Nusa Tenggara has been heralded as a symbol of energy transition in Indonesia. This initiative, spearheaded by Hivos, an international development organization based in the Netherlands, aims to provide exclusively renewable energy sources to 750,000 residents of Sumba by 2025. Recently, reports indicate that the project has successfully increased electrification rates in Sumba from 24.5% to 42.6% in 2010.

In addition to promoting the use of renewable energy, this project also advocates for gender equality in economic aspects. Alongside the adoption of renewable energy in Sumba, the project has effectively reduced the household workload of women, giving them more time to engage in valuable social and economic activities. For example, a report in 2014 shows that women in Sumba have increased family income by using biogas to produce fertilizer. The use of biogas also has a positive impact on reducing indoor air pollution, providing long-term health and well-being benefits to the family.

Limitations of the Role of Women in West Sumatra in Energy Transition [45]

Since 2011, energy transition efforts in West Sumatra have been initiated and driven by support from the World Bank to build micro-hydro projects in Pekonan Village, South Solok Regency. This support is carried out through the National Program for Community Empowerment scheme. Generally, reports indicate that this initiative has gained active support from the local community and successfully provided electricity to around 65 households.

Although the project has brought significant benefits, reports also reveal that women are often less involved in decision-making related to the project. Women's involvement tends to be limited and sometimes only occurs when their husbands are away or not at home. This situation reflects that the implementation of renewable energy technology still faces challenges of exclusivity, limiting the role of women in the decision-making process. This has the potential to cause ambiguity in the delivery of information and benefits to the entire community involved.

Appendix

a. Energy Transition Readiness Index for Each City and Regency

Table Information
The list of abbreviations below is applicable to Appendix 8.a and 8.b.

ETRI : *Energy Transition Readiness Index*

ER : *Economic Resilience*

CEI : *Clean Energy Initiative*

GC : *Government Capacity*

PCC : *Per Capita Consumption*

WLI : *Women-Led Initiative*

CEV : *Climate-Environment Vulnerability*

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
1	Kota Magelang	Jawa Tengah	93,83	38,70	75,11	86,57
2	Jakarta Timur	DKI Jakarta	88,50	59,49	55,40	86,81
3	Batu	Jawa Timur	83,92	69,66	44,32	82,31
4	Banjar Baru	Kalimantan Selatan	80,80	50,63	54,00	81,61
5	Jakarta Barat	DKI Jakarta	80,05	54,20	50,09	86,81
6	Depok	Jawa Barat	78,92	50,70	52,28	79,32
7	Jakarta Utara	DKI Jakarta	76,90	44,97	53,01	86,81
8	Jakarta Selatan	DKI Jakarta	76,87	45,31	52,75	86,81
9	Bontang	Kalimantan Timur	75,74	49,08	49,09	86,22
10	Bantul	DI Yogyakarta	74,90	49,34	47,14	92,81
11	Kota Kupang	Nusa Tenggara Timur	74,06	52,04	46,98	73,99
12	Pontianak	Kalimantan Barat	73,90	44,44	52,39	70,75
13	Kota Bekasi	Jawa Barat	73,49	44,46	51,65	72,93
14	Kota Bandung	Jawa Barat	73,28	44,33	50,14	83,09
15	Salatiga	Jawa Tengah	73,22	43,07	50,97	82,79

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
16	Kota Bogor	Jawa Barat	73,12	42,75	51,28	81,28
17	Kota Madiun	Jawa Timur	72,94	42,25	51,15	83,39
18	Kota Solok	Sumatera Barat	72,72	49,51	46,60	79,04
19	Manado	Sulawesi Utara	72,19	45,41	49,26	75,76
20	Jakarta Pusat	DKI Jakarta	71,62	43,34	48,56	86,81
21	Palembang	Sumatera Selatan	71,29	41,77	50,73	76,05
22	Kota Kediri	Jawa Timur	71,15	44,43	47,45	85,88
23	Kota Sukabumi	Jawa Barat	71,12	42,72	49,23	81,10
24	Banda Aceh	Aceh	70,86	43,22	46,84	94,25
25	Tangerang Selatan	Banten	70,79	42,70	49,53	76,48
26	Kota Cirebon	Jawa Barat	70,55	43,04	48,14	83,07
27	Cimahi	Jawa Barat	70,35	41,33	49,58	79,45
28	Jambi	Jambi	69,83	41,34	50,49	68,65
29	Palu	Sulawesi Tengah	69,78	45,43	46,75	75,41
30	Denpasar	Bali	69,69	42,07	47,50	86,04
31	Kota Blitar	Jawa Timur	69,37	47,01	43,95	85,04
32	Pematang Siantar	Sumatera Utara	69,34	45,93	45,12	81,59
33	Samarinda	Kalimantan Timur	69,33	40,25	49,73	75,78
34	Sleman	DI Yogyakarta	69,25	45,21	44,90	86,06
35	Cilegon	Banten	68,95	41,03	48,13	80,80
36	Bandar Lampung	Lampung	68,70	38,48	49,92	78,36
37	Malang	Jawa Timur	68,21	52,22	38,52	90,07
38	Yogyakarta	DI Yogyakarta	67,77	39,63	47,40	84,00
39	Banjarmasin	Kalimantan Selatan	67,54	39,00	48,24	79,17
40	Bekasi	Jawa Barat	67,47	44,15	43,68	86,58
41	Bengkulu	Bengkulu	67,45	35,11	50,94	77,92
42	Bangka Tengah	Kepulauan Bangka Belitung	67,35	50,37	39,22	87,56
43	Ambon	Maluku	67,32	43,78	44,56	80,73
44	Binjai	Sumatera Utara	67,30	40,78	46,62	80,39
45	Bukittinggi	Sumatera Barat	67,19	41,03	46,05	82,44
46	Pangkal Pinang	Kepulauan Bangka Belitung	67,11	41,46	45,77	81,79
47	Padang	Sumatera Barat	67,00	38,46	48,64	74,64
48	Kota Pekalongan	Jawa Tengah	66,98	41,69	45,29	83,08
49	Kota Malang	Jawa Timur	66,57	41,26	46,24	75,04

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
50	Kota Bima	Nusa Tenggara Barat	66,41	38,48	47,16	80,89
51	Paser	Kalimantan Timur	66,40	54,18	35,35	89,68
52	Bandung	Jawa Barat	66,26	37,51	46,43	89,99
53	Bogor	Jawa Barat	66,18	43,97	42,17	88,60
54	Kepulauan Seribu	DKI Jakarta	66,16	37,70	46,63	86,81
55	Makassar	Sulawesi Selatan	65,80	36,76	47,64	81,24
56	Tebing Tinggi	Sumatera Utara	65,54	39,89	44,85	84,13
57	Kota Banjar	Jawa Barat	65,46	48,17	39,76	79,80
58	Surabaya	Jawa Timur	65,31	39,90	45,07	80,77
59	Simeulue	Aceh	65,29	51,54	35,28	94,74
60	Tangerang	Banten	65,27	39,72	43,99	89,33
61	Kota Sorong	Papua Barat	65,22	38,66	46,18	78,04
62	Kota Tasikmalaya	Jawa Barat	64,97	38,89	44,93	84,13
63	Solok Selatan	Sumatera Barat	64,87	41,26	42,21	91,61
64	Medan	Sumatera Utara	64,54	40,20	45,45	70,40
65	Sawah Lunto	Sumatera Barat	64,52	41,61	41,90	89,46
66	Lombok Tengah	Nusa Tenggara Barat	64,43	46,58	38,33	90,33
67	Kota Mojokerto	Jawa Timur	64,20	36,96	46,36	77,23
68	Batam	Kepulauan Riau	64,08	43,40	41,11	82,92
69	Pekanbaru	Riau	63,93	41,31	42,71	80,46
70	Kota Tangerang	Banten	63,80	40,98	42,84	80,08
71	Sidoarjo	Jawa Timur	63,72	37,40	43,87	89,68
72	Payakumbuh	Sumatera Barat	63,64	43,52	40,54	83,17
73	Kota Gorontalo	Gorontalo	63,61	36,69	45,57	79,86
74	Lombok Barat	Nusa Tenggara Barat	63,46	40,59	41,34	90,46
75	Kota Tegal	Jawa Tengah	63,34	32,95	47,31	83,66
76	Parepare	Sulawesi Selatan	63,33	37,27	44,16	85,22
77	Tanjung Pinang	Kepulauan Riau	63,27	39,32	44,57	71,47
78	Badung	Bali	63,18	40,43	41,58	87,26
79	Sinjai	Sulawesi Selatan	63,15	44,86	38,32	88,99
80	Lhokseumawe	Aceh	63,15	39,13	41,43	94,63
81	Trenggalek	Jawa Timur	63,11	45,13	37,70	92,02
82	Kota Probolinggo	Jawa Timur	62,78	41,55	41,43	79,71
83	Kota Pasuruan	Jawa Timur	62,74	31,79	47,98	79,78

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
84	Pagar Alam	Sumatera Selatan	62,73	48,80	37,29	73,71
85	Gowa	Sulawesi Selatan	62,72	46,08	37,06	88,91
86	Kulon Progo	DI Yogyakarta	62,67	41,64	39,84	90,17
87	Sibolga	Sumatera Utara	62,59	45,39	41,19	60,84
88	Kudus	Jawa Tengah	62,57	35,46	44,00	89,54
89	Dumai	Riau	62,55	37,25	43,06	87,38
90	Bengkalis	Riau	62,51	43,66	38,36	89,70
91	Dharmasraya	Sumatera Barat	62,51	43,58	38,11	91,98
92	Karang Asem	Bali	62,32	41,92	39,23	90,59
93	Kendari	Sulawesi Tenggara	62,29	34,24	45,99	78,76
94	Langsa	Aceh	62,20	36,08	42,84	92,11
95	Luwu Timur	Sulawesi Selatan	62,16	48,10	34,93	90,22
96	Cirebon	Jawa Barat	62,09	38,43	41,45	89,78
97	Bandung Barat	Jawa Barat	62,01	41,61	39,17	90,12
98	Pemalang	Jawa Tengah	61,78	42,43	38,35	90,35
99	Ternate	Maluku Utara	61,72	38,53	42,38	79,59
100	Metro	Lampung	61,71	39,61	41,31	81,95
101	Gunung Kidul	DI Yogyakarta	61,66	40,59	39,55	89,72
102	Garut	Jawa Barat	61,64	43,03	37,96	89,07
103	Pasaman	Sumatera Barat	61,55	35,92	43,20	85,18
104	Labuhan Batu	Sumatera Utara	61,52	42,25	38,46	88,39
105	Penajam Paser Utara	Kalimantan Timur	61,33	44,71	37,02	85,21
106	Kota Semarang	Jawa Tengah	61,30	34,65	43,74	85,62
107	Boyolali	Jawa Tengah	61,29	44,79	36,37	89,33
108	Lubuklinggau	Sumatera Selatan	61,29	40,07	40,81	80,08
109	Sungai Penuh	Jambi	61,23	42,63	37,56	90,85
110	Polewali Mandar	Sulawesi Barat	61,16	44,98	36,35	87,51
111	Takalar	Sulawesi Selatan	61,12	45,04	36,35	86,86
112	Sumedang	Jawa Barat	61,11	41,59	38,19	90,44
113	Jepara	Jawa Tengah	60,90	37,82	40,41	91,26
114	Semarang	Jawa Tengah	60,82	42,69	37,26	89,55
115	Kota Jayapura	Papua	60,81	35,44	43,40	80,38
116	Lima Puluh Kota	Sumatera Barat	60,78	37,81	40,14	92,38
117	Jember	Jawa Timur	60,77	41,30	38,32	88,32

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
118	Deli Serdang	Sumatera Utara	60,58	39,85	38,72	91,17
119	Sabang	Aceh	60,55	36,48	40,43	95,12
120	Pariaman	Sumatera Barat	60,49	36,99	40,68	90,25
121	Singkawang	Kalimantan Barat	60,47	35,66	42,31	84,70
122	Banyuwangi	Jawa Timur	60,43	38,51	39,89	88,00
123	Lampung Timur	Lampung	60,31	45,80	34,43	91,01
124	Lombok Utara	Nusa Tenggara Barat	60,29	43,90	36,34	86,20
125	Ciamis	Jawa Barat	60,11	42,01	36,65	91,97
126	Barru	Sulawesi Selatan	60,07	36,49	41,17	85,89
127	Belitung	Kepulauan Bangka Belitung	60,01	42,37	37,57	82,50
128	Tulungagung	Jawa Timur	59,99	38,10	39,29	91,03
129	Sumbawa	Nusa Tenggara Barat	59,95	42,49	36,42	90,00
130	Palopo	Sulawesi Selatan	59,95	37,14	41,36	80,30
131	Cianjur	Jawa Barat	59,80	42,84	36,01	90,11
132	Banyumas	Jawa Tengah	59,77	38,07	39,24	89,89
133	Minahasa Utara	Sulawesi Utara	59,74	44,12	35,15	89,63
134	Ponorogo	Jawa Timur	59,73	41,36	36,84	90,84
135	Purwakarta	Jawa Barat	59,72	39,92	37,81	90,79
136	Pekalongan	Jawa Tengah	59,66	36,19	40,11	91,94
137	Padang Panjang	Sumatera Barat	59,62	31,19	45,26	78,60
138	Jombang	Jawa Timur	59,59	36,56	39,89	91,21
139	Tanah Datar	Sumatera Barat	59,57	34,73	40,86	93,06
140	Tomohon	Sulawesi Utara	59,56	41,07	38,68	77,44
141	Minahasa	Sulawesi Utara	59,56	44,00	35,36	87,23
142	Subang	Jawa Barat	59,54	41,79	36,29	91,23
143	Empat Lawang	Sumatera Selatan	59,52	45,31	34,43	87,32
144	Kota Serang	Banten	59,52	34,11	42,99	80,04
145	Boalemo	Gorontalo	59,48	42,57	35,64	91,70
146	Pinrang	Sulawesi Selatan	59,46	40,47	37,50	88,26
147	Wajo	Sulawesi Selatan	59,42	40,27	37,32	90,27
148	Bantaeng	Sulawesi Selatan	59,41	42,78	37,94	73,17
149	Pesisir Selatan	Sumatera Barat	59,41	40,02	37,38	91,04
150	Halmahera Selatan	Maluku Utara	59,24	40,34	37,80	85,07
151	Buleleng	Bali	59,19	33,76	41,99	86,60

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
152	Tegal	Jawa Tengah	59,14	35,84	40,02	90,38
153	Soppeng	Sulawesi Selatan	59,07	41,02	36,56	89,43
154	Majalengka	Jawa Barat	59,05	38,10	38,32	90,99
155	Bojonegoro	Jawa Timur	59,04	38,26	38,08	91,82
156	Lamongan	Jawa Timur	59,02	39,91	37,10	90,67
157	Batang Hari	Jambi	58,98	43,03	35,39	87,42
158	Sukabumi	Jawa Barat	58,96	39,89	37,34	88,48
159	Bungo	Jambi	58,94	43,21	34,52	92,62
160	Prabumulih	Sumatera Selatan	58,80	37,90	39,21	83,42
161	Tapanuli Tengah	Sumatera Utara	58,80	42,90	35,16	88,29
162	Labuhan Batu Utara	Sumatera Utara	58,80	42,46	36,04	84,00
163	Kutai Timur	Kalimantan Timur	58,79	42,33	35,84	86,07
164	Kampar	Riau	58,76	38,22	37,94	90,90
165	Pangkajene dan Kepulauan	Sulawesi Selatan	58,72	43,96	34,74	85,53
166	Jembrana	Bali	58,63	41,57	35,89	88,32
167	Enrekang	Sulawesi Selatan	58,56	39,13	37,10	90,97
168	Sumenep	Jawa Timur	58,48	42,43	34,92	90,26
169	Wonosobo	Jawa Tengah	58,52	39,89	36,55	90,58
170	Mojokerto	Jawa Timur	58,37	36,68	38,62	90,55
171	Rokan Hulu	Riau	58,35	42,54	34,59	90,89
172	Tuban	Jawa Timur	58,35	40,58	35,96	90,51
173	Tasikmalaya	Jawa Barat	58,29	39,79	36,27	91,76
174	Buton	Sulawesi Tenggara	58,28	44,41	33,37	89,94
175	Kuningan	Jawa Barat	58,21	38,69	36,89	92,01
176	Belu	Nusa Tenggara Timur	58,19	39,90	36,61	87,84
177	Seram Bagian Barat	Maluku	58,09	43,96	34,11	85,27
178	Tarakan	Kalimantan Utara	58,08	38,88	38,14	80,82
179	Bone Bolango	Gorontalo	58,07	41,88	34,84	90,16
180	Mandailing Natal	Sumatera Utara	58,04	43,47	33,84	89,33
181	Tulang Bawang Barat	Lampung	58,03	43,19	33,72	91,53
182	Gianyar	Bali	58,01	33,44	40,37	90,97
183	Indramayu	Jawa Barat	57,98	38,45	37,29	88,47
184	Tanjung Balai	Sumatera Utara	57,96	32,84	42,33	79,14
185	Cilacap	Jawa Tengah	57,95	40,35	35,78	89,92

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
186	Karimun	Kepulauan Riau	57.94	39.18	37.09	85.94
187	Gresik	Jawa Timur	57.93	37.36	37.73	90.30
188	Berau	Kalimantan Timur	57.90	40.83	35.36	90.16
189	Majene	Sulawesi Barat	57.80	39.54	36.93	84.22
190	Solok	Sumatera Barat	57.79	34.08	39.94	89.22
191	Mamuju	Sulawesi Barat	57.74	35.84	38.70	89.19
192	Bangli	Bali	57.69	39.74	36.48	85.80
193	Madiun	Jawa Timur	57.68	38.09	36.70	92.32
194	Karawang	Jawa Barat	57.65	36.87	37.93	89.07
195	Padangsidimpuan	Sumatera Utara	57.64	37.30	38.25	84.50
196	Pamekasan	Jawa Timur	57.62	39.52	35.97	90.10
197	Bintan	Kepulauan Riau	57.61	41.14	35.11	88.24
198	Blitar	Jawa Timur	57.60	38.99	36.26	90.42
199	Pangandaran	Jawa Barat	57.59	39.85	35.54	91.36
200	Pacitan	Jawa Timur	57.55	39.77	35.69	90.33
201	Kediri	Jawa Timur	57.46	37.46	37.00	91.50
202	Muara Enim	Sumatera Selatan	57.45	41.81	34.25	90.00
203	Buol	Sulawesi Tengah	57.40	39.73	35.57	90.22
204	Maros	Sulawesi Selatan	57.26	40.32	35.52	86.69
205	Sukamara	Kalimantan Tengah	57.24	43.21	32.94	91.10
206	Lumajang	Jawa Timur	57.21	38.62	36.19	89.80
207	Pasangkayu	Sulawesi Barat	57.17	37.94	36.42	91.15
208	Sragen	Jawa Tengah	57.09	35.84	37.82	90.69
209	Lombok Timur	Nusa Tenggara Barat	57.05	36.11	37.64	90.29
210	Lebak	Banten	57.02	35.90	37.57	91.65
211	Agam	Sumatera Barat	57.01	37.23	36.99	89.23
212	Kayong Utara	Kalimantan Barat	57.01	40.12	35.03	89.24
213	Aceh Tenggara	Aceh	56.97	39.61	35.19	90.33
214	Bangka	Kepulauan Bangka Belitung	56.90	37.56	36.53	90.16
215	Indragiri Hulu	Riau	56.88	39.89	34.89	90.45
216	Asahan	Sumatera Utara	56.86	35.65	37.60	91.46
217	Ogan Ilir	Sumatera Selatan	56.80	37.56	36.67	88.32
218	Bondowoso	Jawa Timur	56.79	36.48	37.15	90.04
219	Minahasa Selatan	Sulawesi Utara	56.78	41.53	33.94	88.55

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
220	Pasuruan	Jawa Timur	56,76	37,33	36,69	88,99
221	Rokan Hilir	Riau	56,74	39,06	35,66	87,85
222	Demak	Jawa Tengah	56,73	37,36	36,24	91,95
223	Gunungsitoli	Sumatera Utara	56,73	40,36	34,43	90,36
224	Lampung Selatan	Lampung	56,71	35,74	37,61	89,76
225	Karanganyar	Jawa Tengah	56,71	35,68	37,76	88,89
226	Ngawi	Jawa Timur	56,70	35,44	37,58	91,44
227	Jeneponto	Sulawesi Selatan	56,67	34,28	38,61	89,32
228	Siak	Riau	56,65	38,49	35,69	89,78
229	Pakpak Bharat	Sumatera Utara	56,65	41,14	33,89	89,76
230	Labuhan Batu Selatan	Sumatera Utara	56,61	41,57	33,68	88,90
231	Bone	Sulawesi Selatan	56,54	39,45	34,89	90,00
232	Indragiri Hilir	Riau	56,53	38,75	35,51	88,78
233	Kepulauan Selayar	Sulawesi Selatan	56,51	38,96	35,49	87,77
234	Tual	Maluku	56,50	34,73	38,25	88,40
235	Bangka Barat	Kepulauan Bangka Belitung	56,44	38,92	35,00	91,03
236	Sukoharjo	Jawa Tengah	56,42	35,15	37,73	89,61
237	Aceh Barat Daya	Aceh	56,41	38,27	35,36	91,41
238	Gorontalo	Gorontalo	56,39	38,76	35,21	89,90
239	Palangka Raya	Kalimantan Tengah	56,36	36,98	37,85	79,02
240	Pati	Jawa Tengah	56,33	37,17	36,08	90,92
241	Banggai	Sulawesi Tengah	56,32	39,68	34,80	87,87
242	Klaten	Jawa Tengah	56,31	37,09	36,25	89,95
243	Magetan	Jawa Timur	56,28	35,43	37,02	92,31
244	Kolaka Utara	Sulawesi Tenggara	56,23	42,45	32,87	87,55
245	Muna	Sulawesi Tenggara	56,18	37,34	36,00	89,55
246	Wakatobi	Sulawesi Tenggara	56,17	40,72	33,93	87,88
247	Aceh Tamiang	Aceh	56,17	35,24	37,15	91,38
248	Buton Tengah	Sulawesi Tenggara	56,16	38,63	34,64	92,99
249	Bulukumba	Sulawesi Selatan	56,12	37,17	36,57	85,70
250	Brebes	Jawa Tengah	56,10	35,46	37,07	90,44
251	Situbondo	Jawa Timur	56,10	39,65	34,62	87,53
252	Probolinggo	Jawa Timur	56,06	40,97	33,61	88,21
253	Kepulauan Sula	Maluku Utara	56,01	40,49	34,80	81,30

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
254	Baubau	Sulawesi Tenggara	55,97	30,40	41,38	82,79
255	Nganjuk	Jawa Timur	55,94	35,53	36,84	90,49
256	Buru	Maluku	55,91	41,24	33,62	85,55
257	Tanggamus	Lampung	55,86	40,40	33,42	90,81
258	Bitung	Sulawesi Utara	55,85	35,97	38,03	78,88
259	Mempawah	Kalimantan Barat	55,84	32,78	38,54	90,84
260	Tebo	Jambi	55,83	40,65	33,34	90,01
261	Kepulauan Anambas	Kepulauan Riau	55,81	42,77	31,83	90,37
262	Simalungun	Sumatera Utara	55,79	38,26	34,86	90,33
263	Kubu Raya	Kalimantan Barat	55,73	37,63	35,50	88,29
264	Pasaman Barat	Sumatera Barat	55,64	37,00	36,15	85,93
265	Sidenreng Rappang	Sulawesi Selatan	55,62	38,66	34,51	89,65
266	Aceh Selatan	Aceh	55,54	37,18	35,11	91,92
267	Bulungan	Kalimantan Utara	55,50	40,65	33,57	85,67
268	Banyu Asin	Sumatera Selatan	55,45	37,51	35,12	89,50
269	Bima	Nusa Tenggara Barat	55,39	32,52	38,24	90,93
270	Purbalingga	Jawa Tengah	55,39	34,79	36,74	90,66
271	Kolaka	Sulawesi Tenggara	55,38	37,44	35,49	86,65
272	Maluku Tengah	Maluku	55,35	39,97	33,58	87,88
273	Tabanan	Bali	55,35	36,04	35,90	90,31
274	Padang Pariaman	Sumatera Barat	55,33	34,01	37,05	91,84
275	Ogan Komering Ilir	Sumatera Selatan	55,32	38,08	34,50	90,25
276	Sigi	Sulawesi Tengah	55,32	36,95	35,61	87,68
277	Mesuji	Lampung	55,31	38,90	33,81	91,18
278	Rembang	Jawa Tengah	55,27	36,73	35,19	91,48
279	Mamuju Tengah	Sulawesi Barat	55,26	38,38	34,46	88,60
280	Bolaang Mongondow Selatan	Sulawesi Utara	55,21	40,52	32,76	90,09
281	Klungkung	Bali	55,19	34,76	36,99	87,43
282	Dompu	Nusa Tenggara Barat	55,10	33,67	37,47	88,67
283	Kebumen	Jawa Tengah	55,09	35,07	35,90	93,18
284	Donggala	Sulawesi Tengah	55,07	35,66	36,12	88,37
285	Pandeglang	Banten	55,06	36,48	35,59	88,17
286	Sijunjung	Sumatera Barat	55,05	34,57	36,29	92,50
287	Kendal	Jawa Tengah	55,02	34,57	36,46	91,00

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
288	Lahat	Sumatera Selatan	55,01	39,53	33.53	87,79
289	Sumbawa Barat	Nusa Tenggara Barat	54,98	36,75	35,26	88,64
290	Wonogiri	Jawa Tengah	54,93	39,33	33.35	89,49
291	Lampung Utara	Lampung	54,92	37,87	34,25	89,99
292	Magelang	Jawa Tengah	54,90	34,15	36,64	90,80
293	Gorontalo Utara	Gorontalo	54,90	39,03	33,07	92,82
294	Buru Selatan	Maluku	54,89	41,33	32,40	86,18
295	Aceh Besar	Aceh	54,87	36,15	35,13	91,71
296	Bangka Selatan	Kepulauan Bangka Belitung	54,86	36,55	35.33	88,17
297	Samosir	Sumatera Utara	54,84	39,77	32,55	92,54
298	Halmahera Utara	Maluku Utara	54,84	41,21	32,49	85,73
299	Halmahera Tengah	Maluku Utara	54,81	40,10	33,30	85,06
300	Nias Utara	Sumatera Utara	54,80	35,56	35,43	91,90
301	Batu Bara	Sumatera Utara	54,79	34,21	36,41	91,34
302	Langkat	Sumatera Utara	54,72	34,00	36,71	89,63
303	Tapanuli Selatan	Sumatera Utara	54,70	40,39	32,23	90,66
304	Kepulauan Mentawai	Sumatera Barat	54,68	35,28	36,30	85,95
305	Pulau Taliabu	Maluku Utara	54,68	34,79	36,89	84,00
306	Kepulauan Meranti	Riau	54,67	34,14	36,34	91,26
307	Buton Selatan	Sulawesi Tenggara	54,62	39,38	32,59	92,42
308	Grobogan	Jawa Tengah	54.55	34,95	35,83	90,08
309	Kupang	Nusa Tenggara Timur	54,54	35,73	35,51	88,48
310	Pelalawan	Riau	54,47	36,22	34,88	90,08
311	Muaro Jambi	Jambi	54,45	36,58	34,50	91,03
312	Halmahera Barat	Maluku Utara	54,40	38,12	34,05	86,22
313	Kerinci	Jambi	54,40	38,51	33,34	89,48
314	Lembata	Nusa Tenggara Timur	54,38	38,31	33,39	89,94
315	Timor Tengah Selatan	Nusa Tenggara Timur	54,36	34,71	36,22	86,89
316	Belitung Timur	Kepulauan Bangka Belitung	54,36	37,46	34,20	88,08
317	Sampang	Jawa Timur	54,34	35,65	35,18	89,79
318	Natuna	Kepulauan Riau	54,28	37,51	33,49	92,41
319	Pesawaran	Lampung	54,26	35,49	35,14	90,25
320	Parigi Moutong	Sulawesi Tengah	54,23	39,51	32,57	88,87
321	Serang	Banten	54,21	33,65	36,49	88,98

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
322	Fakfak	Papua Barat	54,15	40,99	32,05	84,72
323	Kutai Kartanegara	Kalimantan Timur	54,10	33,68	36,39	88,77
324	Tanah Bumbu	Kalimantan Selatan	54,08	36,82	34,32	88,28
325	Batang	Jawa Tengah	54,03	33,45	36,10	91,55
326	Poso	Sulawesi Tengah	54,01	38,02	34,13	83,18
327	Serdang Bedagai	Sumatera Utara	53,98	34,90	35,20	90,62
328	Tanah Laut	Kalimantan Selatan	53,93	33,59	36,33	88,35
329	Musi Rawas Utara	Sumatera Selatan	53,93	36,44	34,37	88,58
330	Temanggung	Jawa Tengah	53,87	34,03	35,70	90,33
331	Mahakam Hulu	Kalimantan Timur	53,82	41,12	31,06	88,82
332	Muna Barat	Sulawesi Tenggara	53,81	35,33	34,57	91,72
333	Pohuwato	Gorontalo	53,77	35,41	34,78	89,42
334	Tulangbawang	Lampung	53,65	36,91	33,20	92,70
335	Kuantan Singingi	Riau	53,61	36,78	33,81	88,51
336	Paniai	Papua	53,56	32,23	39,25	70,70
337	Sikka	Nusa Tenggara Timur	53,56	31,96	36,72	90,77
338	Bolaang Mongondow Timur	Sulawesi Utara	53,51	39,28	31,96	89,01
339	Aceh Utara	Aceh	53,51	35,48	34,44	89,67
340	Musi Rawas	Sumatera Selatan	53,49	36,80	33,80	87,63
341	Timor Tengah Utara	Nusa Tenggara Timur	53,47	36,97	34,07	84,63
342	Nias Barat	Sumatera Utara	53,40	37,53	32,94	89,57
343	Kepulauan Sangihe	Sulawesi Utara	53,38	36,26	33,82	89,30
344	Tidore Kepulauan	Maluku Utara	53,35	33,49	36,73	81,32
345	Bengkulu Selatan	Bengkulu	53,31	32,44	36,22	90,04
346	Sumba Barat Daya	Nusa Tenggara Timur	53,28	31,77	37,03	87,17
347	Musi Banyuasin	Sumatera Selatan	53,27	35,43	34,21	89,71
348	Morowali	Sulawesi Tengah	53,25	34,58	34,94	88,40
349	Sumba Barat	Nusa Tenggara Timur	53,25	30,93	37,73	86,01
350	Tana Toraja	Sulawesi Selatan	53,17	36,56	33,93	85,39
351	Banggai Laut	Sulawesi Tengah	53,13	35,58	34,01	89,32
352	Pesisir Barat	Lampung	53,11	36,81	33,13	89,52
353	Halmahera Timur	Maluku Utara	53,08	37,04	33,27	87,12
354	Subulussalam	Aceh	53,06	33,67	35,03	90,76
355	Kotawaringin Barat	Kalimantan Tengah	53,02	32,56	36,00	88,83

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
356	Kepulauan Talaud	Sulawesi Utara	53,01	37,50	33,45	82,95
357	Sanggau	Kalimantan Barat	52,91	35,25	34,30	87,15
358	Blora	Jawa Tengah	52,90	35,30	33,88	89,85
359	Kaur	Bengkulu	52,89	37,53	32,57	88,44
360	Ogan Komering Ulu Selatan	Sumatera Selatan	52,87	36,98	32,94	88,15
361	Kotawaringin Timur	Kalimantan Tengah	52,85	34,68	34,48	88,22
362	Tapanuli Utara	Sumatera Utara	52,81	33,02	35,50	88,57
363	Kotamobagu	Sulawesi Utara	52,81	33,01	36,52	81,14
364	Pulau Morotai	Maluku Utara	52,80	35,88	34,48	81,79
365	Ogan Komering Ulu Timur	Sumatera Selatan	52,78	36,78	32,92	88,67
366	Bangkalan	Jawa Timur	52,73	36,40	33,17	88,32
367	Alor	Nusa Tenggara Timur	52,72	33,19	35,32	88,41
368	Ketapang	Kalimantan Barat	52,70	36,60	32,91	89,01
369	Nias	Sumatera Utara	52,66	33,04	34,99	91,16
370	Maluku Tenggara	Maluku	52,65	36,79	32,73	88,99
371	Aceh Singkil	Aceh	52,65	33,00	35,53	87,26
372	Toraja Utara	Sulawesi Selatan	52,61	33,44	35,37	85,94
373	Malaka	Nusa Tenggara Timur	52,60	32,69	35,69	87,28
374	Toli-Toli	Sulawesi Tengah	52,60	34,98	34,30	86,03
375	Konawe Selatan	Sulawesi Tenggara	52,60	35,22	33,82	88,40
376	Rejang Lebong	Bengkulu	52,59	32,28	36,12	86,01
377	Lampung Tengah	Lampung	52,57	33,82	34,57	89,61
378	Gayo Lues	Aceh	52,56	37,23	32,48	88,01
379	Siau Tagulandang Biaro	Sulawesi Utara	52,55	38,06	31,79	88,89
380	Luwu	Sulawesi Selatan	52,51	33,61	34,84	88,17
381	Nias Selatan	Sumatera Utara	52,49	32,92	34,99	90,41
382	Aceh Timur	Aceh	52,46	34,69	33,71	90,78
383	Tojo Una-Una	Sulawesi Tengah	52,44	35,80	34,14	81,96
384	Pringsewu	Lampung	52,42	33,09	35,00	88,91
385	Manggarai Timur	Nusa Tenggara Timur	52,37	33,28	35,08	87,05
386	Merangin	Jambi	52,32	35,80	32,85	90,44
387	Bengkulu Utara	Bengkulu	52,30	34,87	33,50	90,20
388	Bolaang Mongondow Utara	Sulawesi Utara	52,29	34,86	33,59	89,53
389	Pidie Jaya	Aceh	52,26	34,92	33,35	90,76

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
390	Lebong	Bengkulu	52,26	36,52	32,73	87,37
391	Way Kanan	Lampung	52,23	35,22	33,21	90,04
392	Bombana	Sulawesi Tenggara	52,22	35,36	33,55	86,76
393	Balangan	Kalimantan Selatan	52,20	36,00	32,46	91,45
394	Kutai Barat	Kalimantan Timur	52,17	33,50	34,24	90,56
395	Nagan Raya	Aceh	52,15	32,90	34,39	92,32
396	Kepahiang	Bengkulu	52,04	34,44	33,97	86,86
397	Aceh Barat	Aceh	52,03	34,75	32,96	92,66
398	Sarolangun	Jambi	52,00	35,46	32,89	89,40
399	Buton Utara	Sulawesi Tenggara	51,90	35,54	32,53	90,87
400	Toba Samosir	Sumatera Utara	51,89	36,26	32,21	89,63
401	Kepulauan Aru	Maluku	51,89	39,63	30,79	83,24
402	Banjarnegara	Jawa Tengah	51,87	32,43	34,52	91,49
403	Lampung Barat	Lampung	51,83	34,92	33,23	88,29
404	Dairi	Sumatera Utara	51,77	34,36	33,41	89,30
405	Aceh Jaya	Aceh	51,75	31,18	35,05	92,93
406	Penukal Abab Lematang Ilir	Sumatera Selatan	51,72	35,44	32,85	87,69
407	Bolaang Mongondow	Sulawesi Utara	51,72	34,11	33,40	90,19
408	Nunukan	Kalimantan Utara	51,63	34,51	33,46	87,06
409	Mamasa	Sulawesi Barat	51,60	32,67	34,46	88,65
410	Karo	Sumatera Utara	51,58	34,04	33,58	88,18
411	Boven Digoel	Papua	51,57	31,89	35,66	83,43
412	Barito Selatan	Kalimantan Tengah	51,56	33,12	34,05	89,07
413	Hulu Sungai Utara	Kalimantan Selatan	51,55	32,14	34,46	90,89
414	Deiyai	Papua	51,48	34,71	35,60	69,09
415	Lingga	Kepulauan Riau	51,45	34,40	32,91	90,31
416	Landak	Kalimantan Barat	51,38	30,51	35,85	87,49
417	Sumba Tengah	Nusa Tenggara Timur	51,35	32,53	34,58	86,53
418	Ngada	Nusa Tenggara Timur	51,30	32,74	34,19	87,97
419	Konawe	Sulawesi Tenggara	51,22	34,66	32,95	86,95
420	Bener Meriah	Aceh	51,21	35,02	32,25	90,20
421	Rote Ndao	Nusa Tenggara Timur	51,17	32,53	34,35	86,83
422	Luwu Utara	Sulawesi Selatan	51,13	32,47	33,96	89,71
423	Ogan Komering Ulu	Sumatera Selatan	51,12	32,42	34,11	88,69

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
424	Bireuen	Aceh	51,11	32,55	33,74	90,76
425	Sambas	Kalimantan Barat	51,09	32,34	33,75	91,59
426	Merauke	Papua	51,07	32,28	35,26	80,61
427	Nagekeo	Nusa Tenggara Timur	51,05	31,86	34,28	89,81
428	Banjar	Kalimantan Selatan	51,04	31,61	34,44	89,67
429	Hulu Sungai Selatan	Kalimantan Selatan	50,95	30,39	34,77	92,73
430	Maluku Tenggara Barat	Maluku	50,95	32,32	34,04	88,39
431	Bengkayang	Kalimantan Barat	50,95	31,51	34,45	89,49
432	Seruyan	Kalimantan Tengah	50,95	32,87	33,56	89,20
433	Pulang Pisau	Kalimantan Tengah	50,90	33,35	33,01	90,47
434	Katingan	Kalimantan Tengah	50,79	33,03	33,44	88,09
435	Bengkulu Tengah	Bengkulu	50,75	32,05	33,69	90,83
436	Barito Kuala	Kalimantan Selatan	50,59	31,80	33,85	89,61
437	Hulu Sungai Tengah	Kalimantan Selatan	50,53	31,75	33,65	90,94
438	Kotabaru	Kalimantan Selatan	50,45	33,41	32,55	90,16
439	Pidie	Aceh	50,40	32,00	33,28	91,42
440	Gunung Mas	Kalimantan Tengah	50,32	32,92	33,00	88,25
441	Barito Utara	Kalimantan Tengah	50,30	32,37	33,47	87,42
442	Seram Bagian Timur	Maluku	50,27	33,50	33,17	83,70
443	Mimika	Papua	50,27	30,83	35,68	78,48
444	Flores Timur	Nusa Tenggara Timur	50,25	31,04	33,97	89,95
445	Sumba Timur	Nusa Tenggara Timur	50,14	31,65	34,05	85,42
446	Kapuas	Kalimantan Tengah	49,98	32,56	32,89	88,23
447	Seluma	Bengkulu	49,89	33,00	32,37	89,17
448	Nabire	Papua	49,89	30,50	34,96	82,52
449	Raja Ampat	Papua Barat	49,87	39,44	28,54	85,08
450	Lanny Jaya	Papua	49,82	28,67	36,66	78,61
451	Kapuas Hulu	Kalimantan Barat	49,81	34,98	30,93	89,27
452	Mukomuko	Bengkulu	49,78	33,71	31,69	89,81
453	Padang Lawas Utara	Sumatera Utara	49,77	36,06	30,40	87,52
454	Humbang Hasundutan	Sumatera Utara	49,75	30,56	33,62	91,00
455	Padang Lawas	Sumatera Utara	49,72	33,05	32,44	87,08
456	Manggarai Barat	Nusa Tenggara Timur	49,61	29,44	34,55	88,69
457	Sekadau	Kalimantan Barat	49,57	30,43	33,87	88,45

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
458	Barito Timur	Kalimantan Tengah	49,44	32,68	32,00	90,02
459	Konawe Kepulauan	Sulawesi Tenggara	49,31	33,03	32,15	86,10
460	Ende	Nusa Tenggara Timur	49,30	30,15	33,76	88,58
461	Tabalong	Kalimantan Selatan	49,25	31,67	32,47	90,05
462	Banggai Kepulauan	Sulawesi Tengah	49,24	30,90	32,85	91,02
463	Sabu Raijua	Nusa Tenggara Timur	49,21	32,51	31,82	90,44
464	Purworejo	Jawa Tengah	49,13	32,21	31,86	90,89
465	Tanjung Jabung Timur	Jambi	49,04	32,48	31,88	88,73
466	Lamandau	Kalimantan Tengah	48,81	33,25	30,89	90,46
467	Manggarai	Nusa Tenggara Timur	48,70	28,91	34,25	86,49
468	Biak Numfor	Papua	48,66	31,66	32,71	83,74
469	Tana Tidung	Kalimantan Utara	48,64	33,31	30,54	91,42
470	Kepulauan Yapen	Papua	48,58	28,84	34,95	80,65
471	Tanjung Jabung Barat	Jambi	48,55	30,79	32,14	91,44
472	Morowali Utara	Sulawesi Tengah	48,35	32,78	31,17	87,18
473	Melawi	Kalimantan Barat	48,30	30,01	32,94	87,59
474	Kaimana	Papua Barat	48,30	35,86	29,99	80,14
475	Tapin	Kalimantan Selatan	48,29	31,49	31,89	87,79
476	Aceh Tengah	Aceh	48,11	28,36	33,23	92,15
477	Keerom	Papua	47,91	29,36	33,47	83,84
478	Murung Raya	Kalimantan Tengah	47,83	30,99	32,27	83,92
479	Konawe Utara	Sulawesi Tenggara	47,79	32,12	31,05	86,99
480	Kolaka Timur	Sulawesi Tenggara	47,67	30,31	31,78	89,66
481	Minahasa Tenggara	Sulawesi Utara	47,63	32,36	30,30	90,04
482	Sintang	Kalimantan Barat	47,61	30,50	31,92	87,26
483	Manokwari	Papua Barat	47,47	32,81	30,73	83,42
484	Malinau	Kalimantan Utara	47,31	32,40	30,55	85,54
485	Jayapura	Papua	47,29	31,19	31,83	81,95
486	Maluku Barat Daya	Maluku	47,18	31,45	30,99	86,02
487	Dogiyai	Papua	45,95	28,41	32,18	82,86
488	Sorong	Papua Barat	45,19	29,59	30,81	81,19
489	Supiori	Papua	45,01	31,51	29,20	82,02
490	Teluk Wondama	Papua Barat	44,89	33,51	28,16	78,82
491	Teluk Bintuni	Papua Barat	44,70	29,73	30,34	80,17

Rank	Cities/Regency	Provinces	ETRI	CEI	ER	GC
492	Manokwari Selatan	Papua Barat	44,26	31,13	28,66	82,14
493	Pegunungan Arfak	Papua Barat	43,74	28,07	30,70	78,34
494	Nduga	Papua	43,66	28,08	30,41	79,79
495	Asmat	Papua	43,07	29,72	28,03	84,55
496	Sorong Selatan	Papua Barat	42,93	29,44	28,56	81,00
497	Pegunungan Bintang	Papua	42,65	27,80	29,43	80,54
498	Jayawijaya	Papua	42,60	28,27	29,25	79,15
499	Waropen	Papua	42,12	29,46	28,08	78,09
500	Tambrauw	Papua Barat	40,70	30,77	25,55	79,23
501	Intan Jaya	Papua	40,36	34,03	33,71	0,00
502	Puncak	Papua	39,91	28,06	26,30	81,05
503	Mappi	Papua	39,81	28,04	26,36	79,97
504	Sarmi	Papua	38,23	28,19	25,28	74,89
505	Maybrat	Papua Barat	36,81	28,64	22,94	78,94
506	Mamberamo Raya	Papua	36,61	29,87	21,92	78,71
507	Yahukimo	Papua	35,47	27,26	21,71	84,52
508	Puncak Jaya	Papua	33,04	27,79	19,80	77,08
509	Tolikara	Papua	27,07	27,85	13,18	79,28
510	Surakarta	Jawa Tengah	*	46,29	*	83,68
511	Balikpapan	Kalimantan Timur	*	41,39	*	84,69
512	Mataram	Nusa Tenggara Barat	*	44,89	48,33	*
513	Mamberamo Tengah	Papua	*	28,42	*	79,07
514	Yalimo	Papua	*	27,57	*	78,35

Note:
(*) Data marked with this symbol indicates that it is either unavailable or incomplete. Please note that this information is retrieved from the Central Statistics Agency (BPS), Village Potential (Podes) Statistics 2021.

b. Profile of the Energy Transition Readiness Index for Each Province

Aceh

Population (2022)
5,40 million people

Province Area (2021)
57.956,00 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,04	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,23	0,34

Indicator
Initiation of biogas use

Score	National Average
0,00	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,22	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,03	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,16	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,10	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,01	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,40	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,10	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,01	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

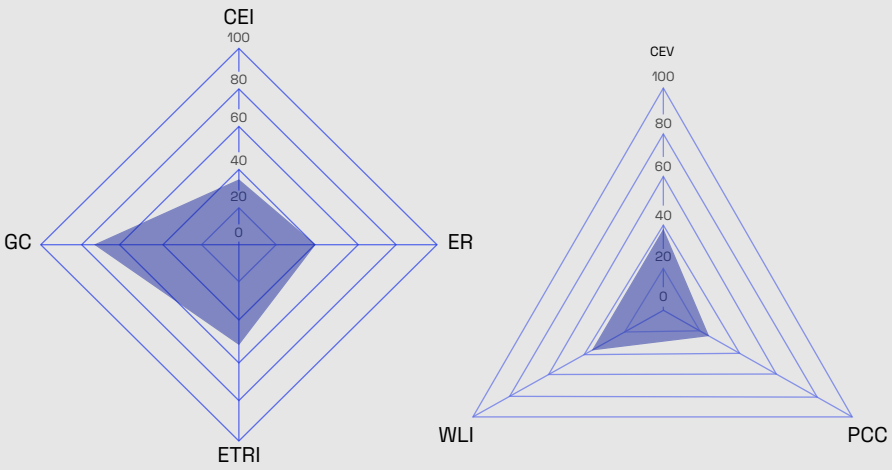
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,77	2,49

Indicator
Coordination of village leaders

Score	National Average
2,04	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,07
Polusi Udara Industri	0,93
Kekeringan	0,03
Tanah Longsor	0,05
Banjir	0,43
Banjir Bandang	0,02
Banjir Air Pasang	0,03
Kebakaran Hutan	0,01
Operasi Tambang Lokal	0,07

Top 3 Cities

City/Regency	ETRI Score
Banda Aceh	70,86
Simeulue	65,29
Lhokseumawe	63,15

Bottom 3 Cities

City/Regency	ETRI Score
Aceh Tengah	48,11
Pidie	50,40
Bireuen	51,11

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Bali

Population (2022)
4,41 million people

Province Area (2021)
5.780,06 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,03 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,20 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,01 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,44 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,38 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,11 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,13 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,08 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,52 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,30 **National Average** 1,20

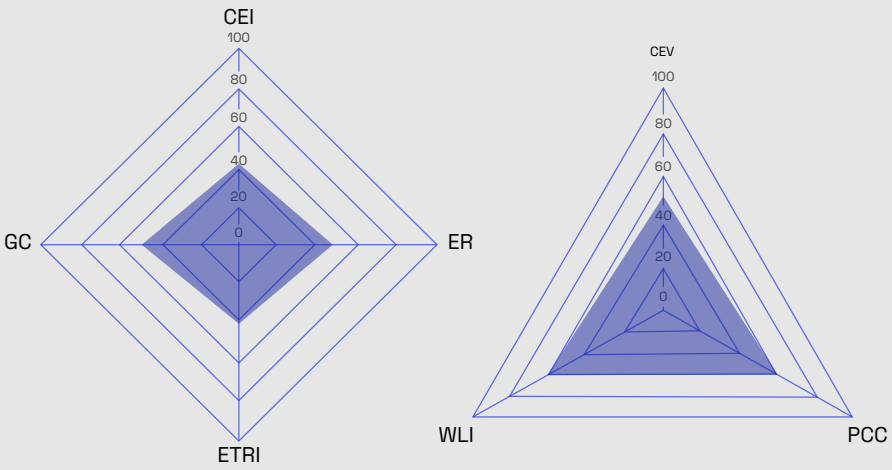
Indicator
Household as non-consumer of electricity
Score 0,00 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 0,99 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,70 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,77 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,02
Polusi Udara Industri	0,98
Kekeringan	0,00
Tanah Longsor	0,23
Banjir	0,09
Banjir Bandang	0,00
Banjir Air Pasang	0,00
Kebakaran Hutan	0,01
Operasi Tambang Lokal	0,09

Top 3 Cities

City/Regency	ETRI Score
Denpasar	69,69
Badung	63,18
Karang Asem	62,32

Bottom 3 Cities

City/Regency	ETRI Score
Klungkung	55,19
Tabanan	55,19
Bangli	57,69

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Banten

Population (2022)
12,25 million people

Province Area (2021)
9.662,92 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,04	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,24	0,34

Indicator
Initiation of biogas use

Score	National Average
0,00	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,27	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,21	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,19	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,20	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,02	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,55	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,43	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,00	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

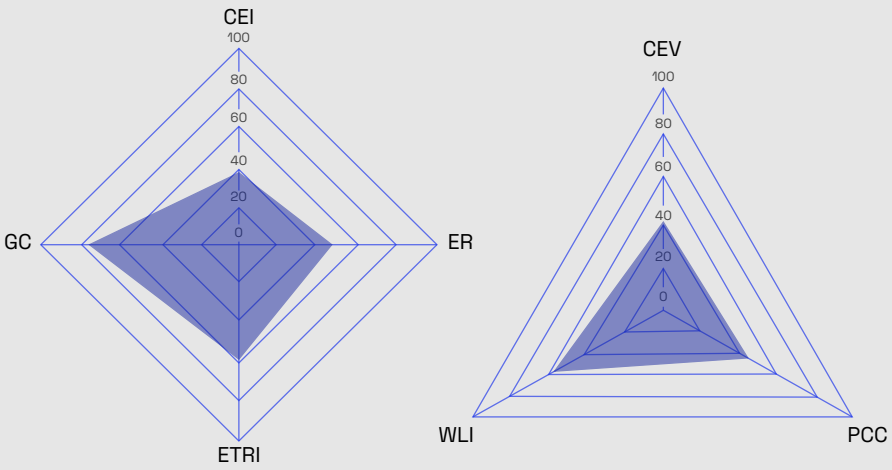
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,46	2,49

Indicator
Coordination of village leaders

Score	National Average
1,61	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,13
Polusi Udara Industri	0,87
Kekeringan	0,05
Tanah Longsor	0,09
Banjir	0,45
Banjir Bandang	0,03
Banjir Air Pasang	0,05
Kebakaran Hutan	0,01
Operasi Tambang Lokal	0,10

Top 3 Cities

City/Regency	ETRI Score
Tangerang Selatan	70,79
Cilegon	68,95
Tangerang	65,27

Bottom 3 Cities

City/Regency	ETRI Score
Serang	54,21
Pandeglang	55,06
Lebak	57,02

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Bengkulu

Population (2022)
12,25 million people

Province Area (2021)
9.662,92 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,09	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,24	0,34

Indicator
Initiation of biogas use

Score	National Average
0,00	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,24	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,05	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,06	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,05	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,01	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,40	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,12	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,01	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

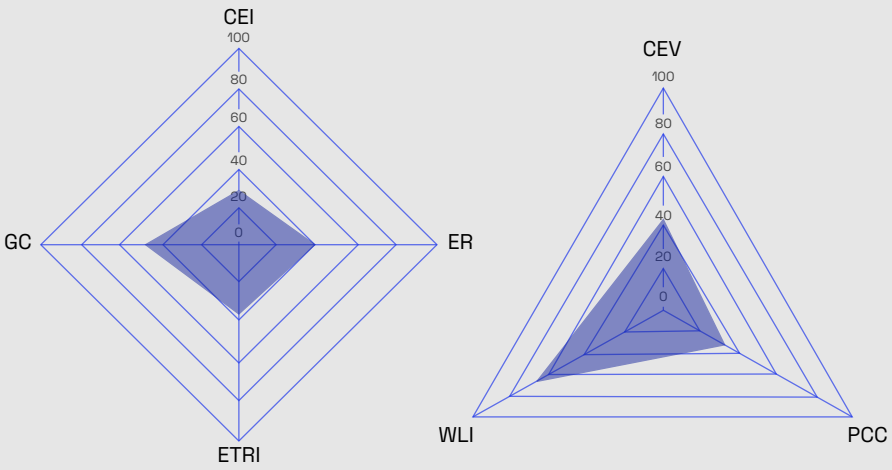
Score	National Average
0,99	0,99

Indicator
Availability of local financial systems

Score	National Average
2,66	2,49

Indicator
Coordination of village leaders

Score	National Average
1,78	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,05
Polusi Udara Industri	0,95
Kekeringan	0,02
Tanah Longsor	0,08
Banjir	0,22
Banjir Bandang	0,02
Banjir Air Pasang	0,02
Kebakaran Hutan	0,00
Operasi Tambang Lokal	0,14

Top 3 Cities

City/Regency	ETRI Score
Bengkulu	67,545
Bengkulu Selatan	53,31
Kaur	52,89

Bottom 3 Cities

City/Regency	ETRI Score
Mukomuko	49,78
Seluma	49,89
Bengkulu Tengah	50,75

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

DI Yogyakarta

Population (2022)
3,76 million people

Province Area (2021)
3.133,15 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,05	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,42	0,34

Indicator
Initiation of biogas use

Score	National Average
0,09	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,14	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,33	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,32	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,09	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,14	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,62	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,28	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,00	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

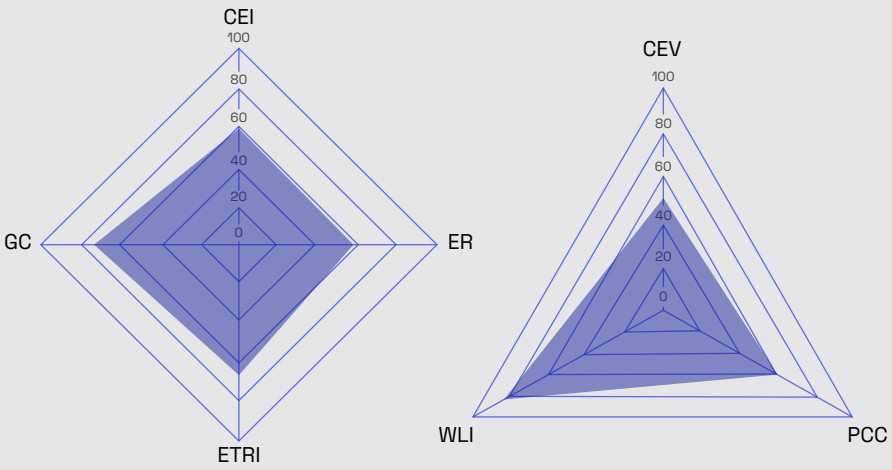
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,78	2,49

Indicator
Coordination of village leaders

Score	National Average
1,66	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,09
Polusi Udara Industri	0,91
Kekeringan	0,06
Tanah Longsor	0,25
Banjir	0,14
Banjir Bandang	0,00
Banjir Air Pasang	0,06
Kebakaran Hutan	0,01
Operasi Tambang Lokal	0,32

Top 3 Cities

City/Regency	ETRI Score
Bantul	74,90
Sleman	69,25
Yogyakarta	67,77

Bottom 3 Cities

City/Regency	ETRI Score
Gunung Kidul	61,66
Kulon Progo	62,67

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

DKI Jakarta

Population (2022)
10,68 million people

Province Area (2021)
664,01 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,14	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,22	0,34

Indicator
Initiation of biogas use

Score	National Average
0,04	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,71	0,28

Indicator
Availability of foreign language classes

Score	National Average
1,50	0,15

Indicator
Accessible computer literacy courses

Score	National Average
1,00	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,34	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,01	0,02

Indicator
Availability of Poor Certificate

Score	National Average
1,00	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
2,35	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,00	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

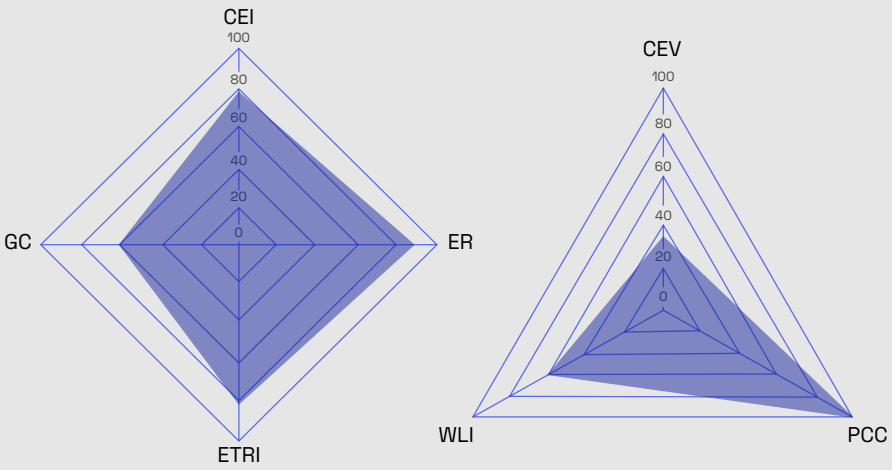
Score	National Average
0,99	0,99

Indicator
Availability of local financial systems

Score	National Average
1,00	2,49

Indicator
Coordination of village leaders

Score	National Average
1,80	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,16
Polusi Udara Industri	0,84
Kekeringan	0,00
Tanah Longsor	0,06
Banjir	0,75
Banjir Bandang	0,00
Banjir Air Pasang	0,00
Kebakaran Hutan	0,00
Operasi Tambang Lokal	0,00

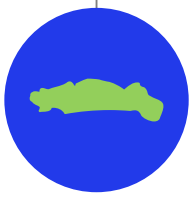
Top 3 Cities

City/Regency	ETRI Score
Jakarta Timur	88,50
Jakarta Barat	80,05
Jakarta Utara	76,90

Bottom 3 Cities

City/Regency	ETRI Score
Kepulauan Seribu	66,16
Jakarta Pusat	71,62
Jakarta Selatan	76,87

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.



Gorontalo

Population (2022)
1,19 million people

Province Area (2021)
11.257,07 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,25	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,66	0,34

Indicator
Initiation of biogas use

Score	National Average
0,01	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,10	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,02	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,04	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,01	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,02	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,39	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,16	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,02	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

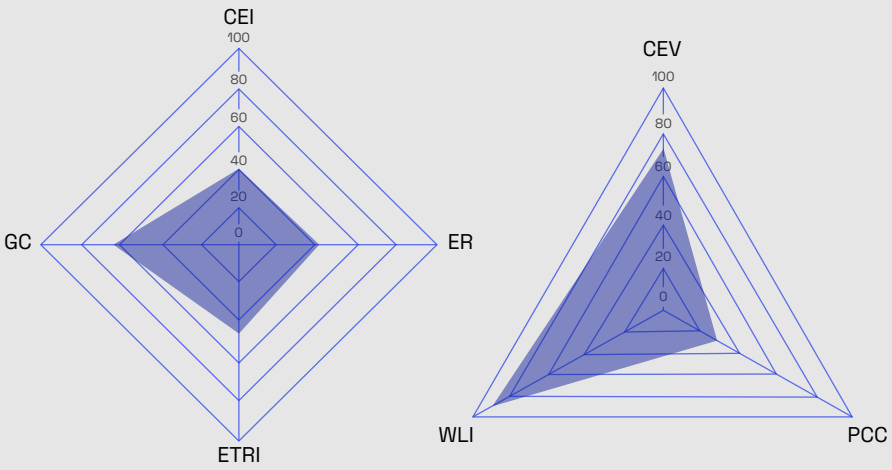
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,75	2,49

Indicator
Coordination of village leaders

Score	National Average
1,91	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,04
Polusi Udara Industri	0,96
Kekeringan	0,10
Tanah Longsor	0,11
Banjir	0,81
Banjir Bandang	0,04
Banjir Air Pasang	0,10
Kebakaran Hutan	0,01
Operasi Tambang Lokal	0,34

Top 3 Cities

City/Regency	ETRI Score
Kota Gorontalo	63,61
Boalemo	59,48
Bone Bolango	58,07

Bottom 3 Cities

City/Regency	ETRI Score
Pohuwato	53,77
Gorontalo Utara	54,90
Gorontalo	56,39

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Jambi

Population (2022)
3,63 million people

Province Area (2021)
50.058,16 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,10 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,42 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,01 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,13 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,09 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,18 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,14 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,02 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,34 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,10 **National Average** 1,20

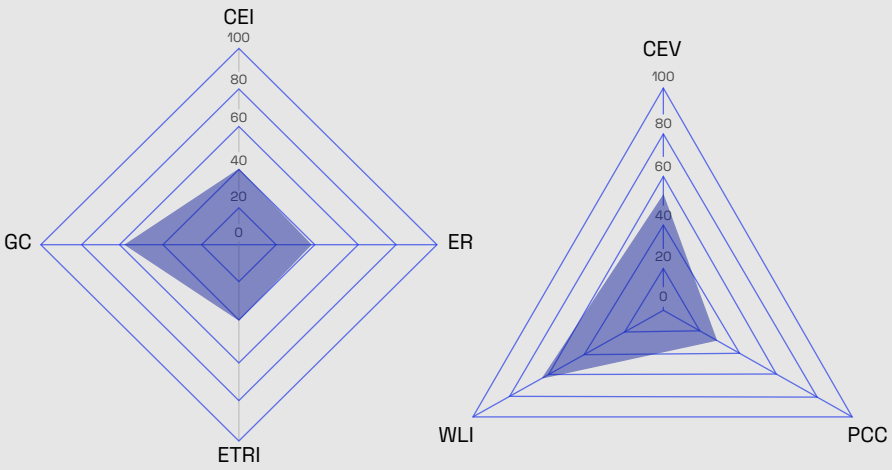
Indicator
Household as non-consumer of electricity
Score 0,01 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 0,99 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,66 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,89 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,02
Polusi Udara Industri	0,95
Kekeringan	0,01
Tanah Longsor	0,06
Banjir	0,60
Banjir Bandang	0,02
Banjir Air Pasang	0,01
Kebakaran Hutan	0,01
Operasi Tambang Lokal	0,17

Top 3 Cities

City/Regency	ETRI Score
Jambi	69,83
Sungai Penuh	61,23
Batang Hari	58,98

Bottom 3 Cities

City/Regency	ETRI Score
Tanjung Jabung Barat	48,55
Tanjung Jabung Timur	49,04
Sarolangun	52,00

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Jawa Barat

Population (2022)
49,40 million people

Province Area (2021)
35.377,76 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,04	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,32	0,34

Indicator
Initiation of biogas use

Score	National Average
0,01	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,64	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,20	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,21	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,15	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,03	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,61	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,35	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,00	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

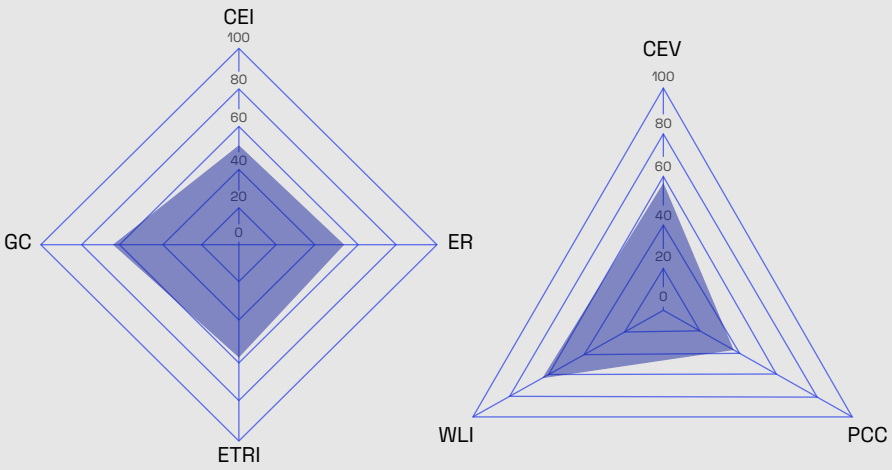
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,73	2,49

Indicator
Coordination of village leaders

Score	National Average
1,81	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,09
Polusi Udara Industri	0,91
Kekeringan	0,07
Tanah Longsor	0,38
Banjir	0,30
Banjir Bandang	0,01
Banjir Air Pasang	0,07
Kebakaran Hutan	0,02
Operasi Tambang Lokal	0,13

Top 3 Cities

City/Regency	ETRI Score
Depok	78,92
Kota Bekasi	73,49
Kota Bandung	73,28

Bottom 3 Cities

City/Regency	ETRI Score
Pangandaran	57.59
Karawang	57,65
Indramayu	57.98

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Jawa Tengah

Population (2022)
37,03 million people

Province Area (2021)
32.800,69 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,03	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,31	0,34

Indicator
Initiation of biogas use

Score	National Average
0,02	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,22	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,15	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,11	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,06	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,04	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,45	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,20	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,00	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

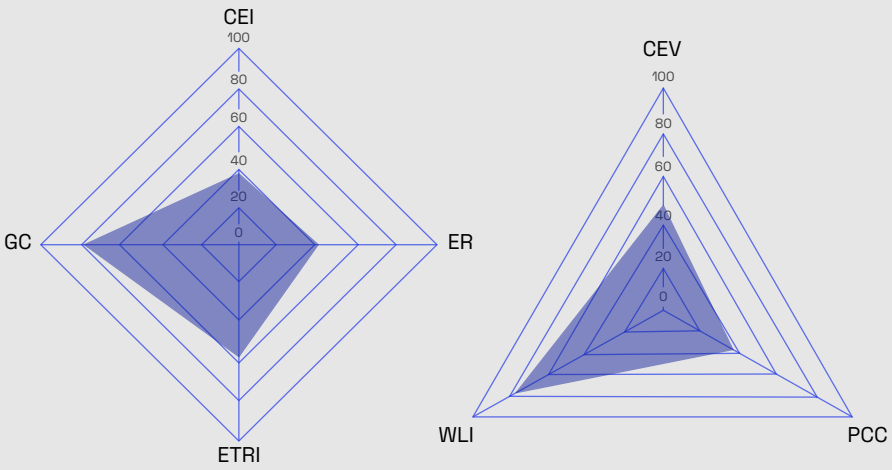
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,78	2,49

Indicator
Coordination of village leaders

Score	National Average
1,89	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,09
Polusi Udara Industri	0,91
Kekeringan	0,04
Tanah Longsor	0,25
Banjir	0,22
Banjir Bandang	0,01
Banjir Air Pasang	0,04
Kebakaran Hutan	0,01
Operasi Tambang Lokal	0,16

Top 3 Cities

City/Regency	ETRI Score
Kota Magelang	93,83
Salatiga	73,22
Kota Pekalongan	66,98

Bottom 3 Cities

City/Regency	ETRI Score
Purworejo	49,13
Banjarnegara	51,87
Blora	52,90

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Jawa Timur

Population (2022)
41,15 million people

Province Area (2021)
47.803,49 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,05	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,27	0,34

Indicator
Initiation of biogas use

Score	National Average
0,03	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,41	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,19	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,19	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,19	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,05	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,49	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,18	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,00	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

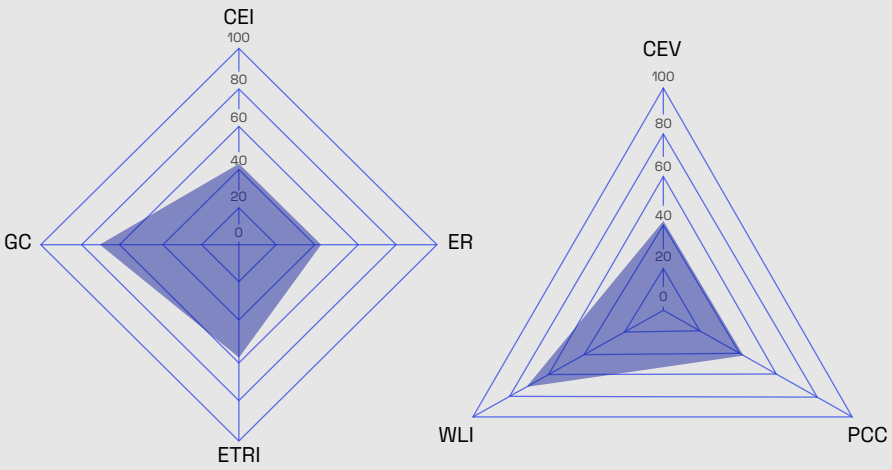
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,73	2,49

Indicator
Coordination of village leaders

Score	National Average
1,87	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,09
Polusi Udara Industri	0,91
Kekeringan	0,02
Tanah Longsor	0,10
Banjir	0,25
Banjir Bandang	0,01
Banjir Air Pasang	0,0
Kebakaran Hutan	20,0
Operasi Tambang Lokal	10,18

Top 3 Cities

City/Regency	ETRI Score
Batu	83,92
Kota Madiun	72,94
Kota Kediri	71,15

Bottom 3 Cities

City/Regency	ETRI Score
Bangkalan	52,73
Sampang	54,34
Nganjuk	55,94

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Kalimantan Barat

Population (2022)
5,54 million people

Province Area (2021)
147.307,00 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,05	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,19	0,34

Indicator
Initiation of biogas use

Score	National Average
0,00	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,19	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,07	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,09	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,07	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,01	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,32	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,07	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,08	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

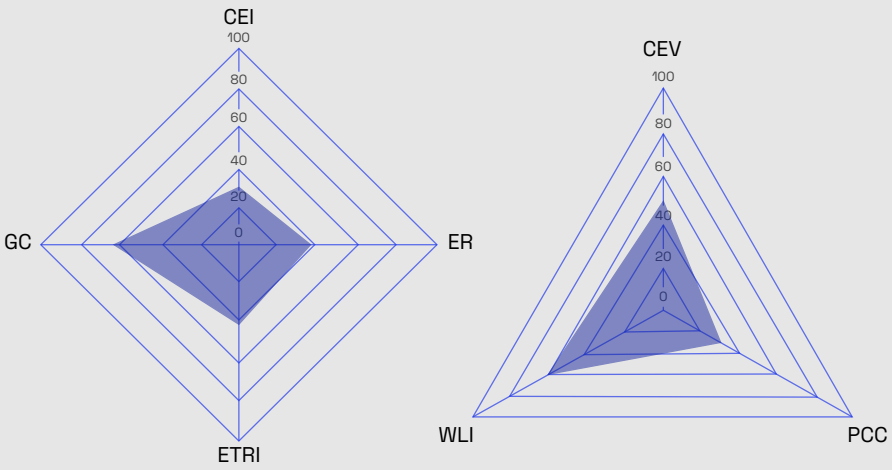
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,73	2,49

Indicator
Coordination of village leaders

Score	National Average
1,60	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,07
Polusi Udara Industri	0,93
Kekeringan	0,03
Tanah Longsor	0,04
Banjir	0,90
Banjir Bandang	0,02
Banjir Air Pasang	0,03
Kebakaran Hutan	0,08
Operasi Tambang Lokal	0,24

Top 3 Cities

City/Regency	ETRI Score
Pontianak	73,90
Singkawang	60,47
Kayong Utara	57,01

Bottom 3 Cities

City/Regency	ETRI Score
Sintang	47,61
Melawi	48,30
Sekadau	49,57

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Kalimantan Selatan

Population (2022)
4,18 million people

Province Area (2021)
38.744,23 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,10	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,22	0,34

Indicator
Initiation of biogas use

Score	National Average
0,00	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,06	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,05	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,14	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,04	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,02	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,28	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,15	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,01	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

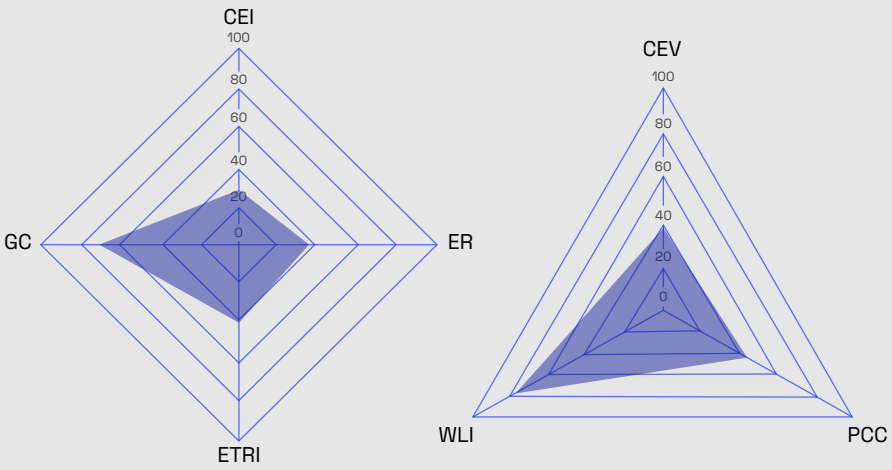
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,78	2,49

Indicator
Coordination of village leaders

Score	National Average
1,82	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,07
Polusi Udara Industri	0,92
Kekeringan	0,02
Tanah Longsor	0,03
Banjir	0,44
Banjir Bandang	0,00
Banjir Air Pasang	0,02
Kebakaran Hutan	0,07
Operasi Tambang Lokal	0,14

Top 3 Cities

City/Regency	ETRI Score
Banjar Baru	80,80
Banjarmasin	67,54
Tanah Bumbu	54,08

Bottom 3 Cities

City/Regency	ETRI Score
Tapin	48,29
Tabalong	49,25
Kotabaru	50,45

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Kalimantan Tengah

Population (2022)
2,74 million people

Province Area (2021)
153.564,50 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,65 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,22 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,00 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,13 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,04 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,11 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,05 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,01 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,29 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,05 **National Average** 1,20

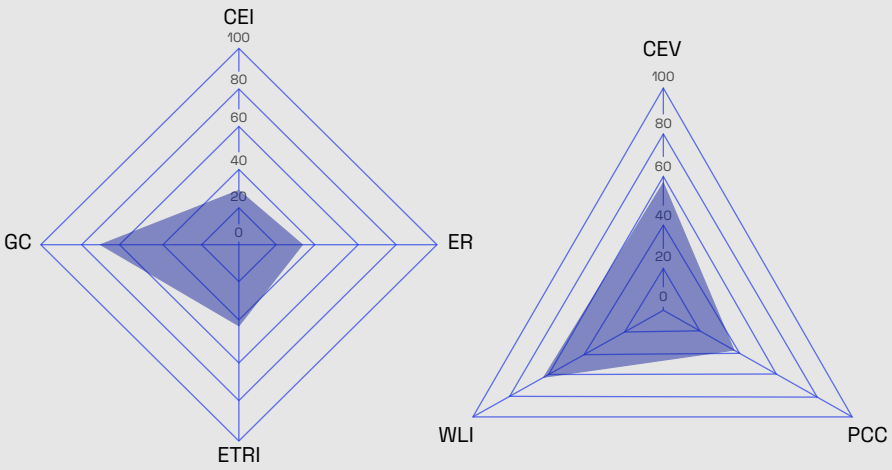
Indicator
Household as non-consumer of electricity
Score 0,04 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 1,00 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,64 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,61 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,06
Polusi Udara Industri	0,94
Kekeringan	0,02
Tanah Longsor	0,03
Banjir	1,11
Banjir Bandang	0,01
Banjir Air Pasang	0,02
Kebakaran Hutan	0,05
Operasi Tambang Lokal	0,27

Top 3 Cities

City/Regency	ETRI Score
Sukamara	57,24
Palangka Raya	56,36
Kota Waringin Barat	53,02

Bottom 3 Cities

City/Regency	ETRI Score
Murung Raya	47,83
Lamandau	48,81
Barito Timur	49,44

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Kalimantan Timur

Population (2022)
4,18 million people

Province Area (2021)
38.744,23 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,53	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,43	0,34

Indicator
Initiation of biogas use

Score	National Average
0,01	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,27	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,11	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,52	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,04	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,01	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,54	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,20	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,02	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

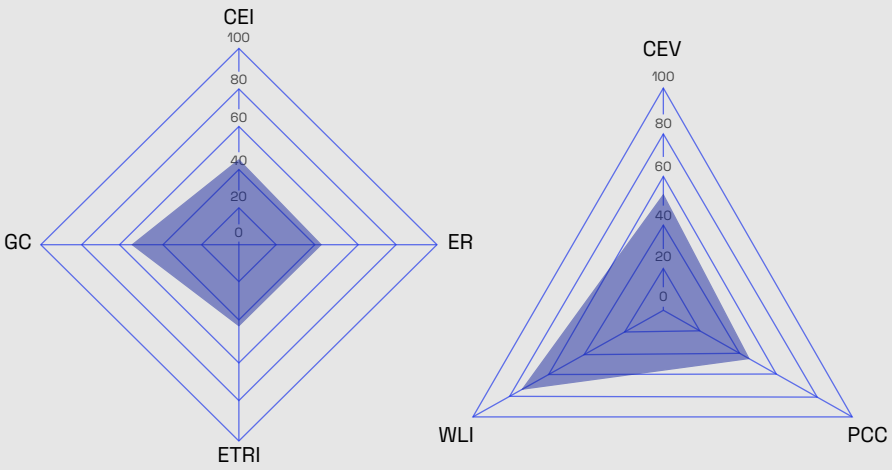
Score	National Average
0,99	0,99

Indicator
Availability of local financial systems

Score	National Average
2,50	2,49

Indicator
Coordination of village leaders

Score	National Average
1,76	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,09
Polusi Udara Industri	0,91
Kekeringan	0,04
Tanah Longsor	0,11
Banjir	0,62
Banjir Bandang	0,00
Banjir Air Pasang	0,04
Kebakaran Hutan	0,07
Operasi Tambang Lokal	0,30

Top 3 Cities

City/Regency	ETRI Score
Bontang	75,74
Samarinda	69,33
Paser	66,40

Bottom 3 Cities

City/Regency	ETRI Score
Kutai Barat	52,17
Mahakam Hulu	53,82
Kutai Kartanegara	54,10

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Kalimantan Utara

Population (2022)
0,72 million people

Province Area (2021)
75.467,70 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,42 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,29 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,00 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,19 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,09 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,13 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,10 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,00 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,26 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,06 **National Average** 1,20

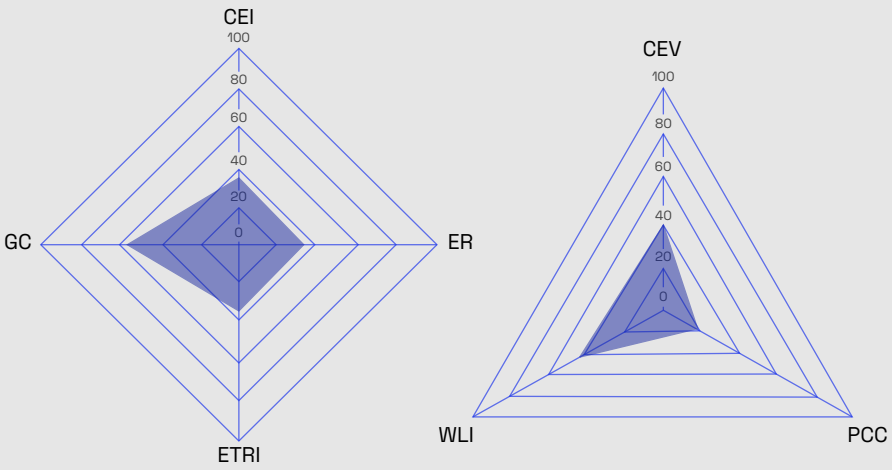
Indicator
Household as non-consumer of electricity
Score 0,04 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 0,99 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,47 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,51 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,09
Polusi Udara Industri	0,86
Kekeringan	0,01
Tanah Longsor	0,10
Banjir	0,43
Banjir Bandang	0,00
Banjir Air Pasang	0,01
Kebakaran Hutan	0,03
Operasi Tambang Lokal	0,29

Top 3 Cities

City/Regency	ETRI Score
Tarakan	58,08
Bulungan	55,50
Nunukan	51,63

Bottom 3 Cities

City/Regency	ETRI Score
Malinau	47,31
Tana Tidung	48,64

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Kepulauan Bangka Belitung

Population (2022)
1,49 million people

Province Area (2021)
16.424,06 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,05 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,55 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,00 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,39 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,18 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,17 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,03 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,01 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,54 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,25 **National Average** 1,20

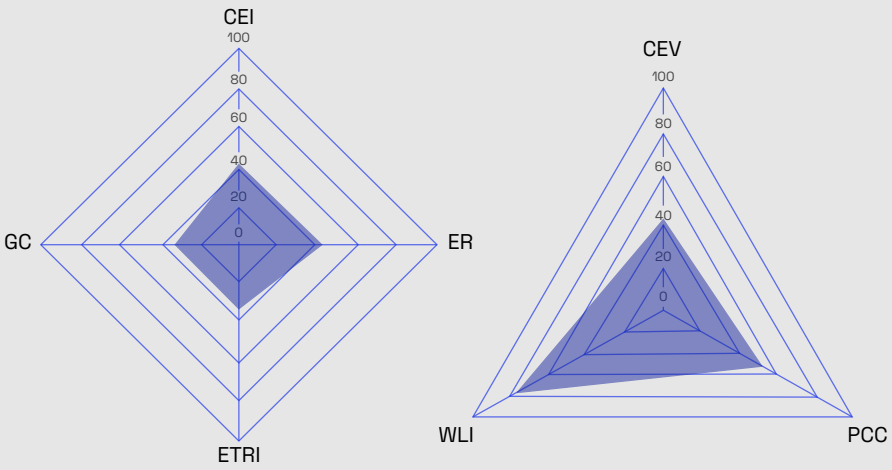
Indicator
Household as non-consumer of electricity
Score 0,00 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 0,99 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,53 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,89 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,09
Polusi Udara Industri	0,91
Kekeringan	0,00
Tanah Longsor	0,00
Banjir	0,32
Banjir Bandang	0,00
Banjir Air Pasang	0,00
Kebakaran Hutan	0,06
Operasi Tambang Lokal	0,50

Top 3 Cities

City/Regency	ETRI Score
Bangka Tengah	67,35
Pangkal Pinang	67,11
Belitung	60,01

Bottom 3 Cities

City/Regency	ETRI Score
Belitung Timur	54,36
Bangka Selatan	54,86
Bangka Barat	56,44

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Kepulauan Riau

Population (2022)
2,17 million people

Province Area (2021)
8.201,72 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,14	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,46	0,34

Indicator
Initiation of biogas use

Score	National Average
0,01	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,20	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,31	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,19	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,10	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,01	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,36	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,28	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,01	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

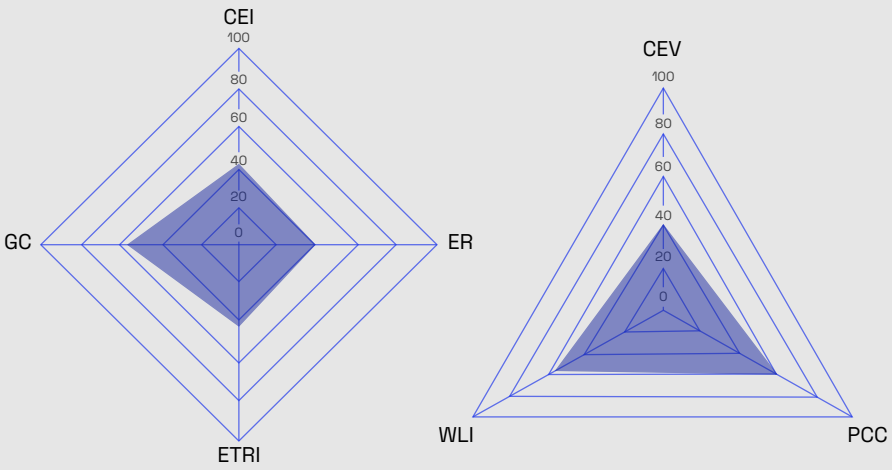
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,13	2,49

Indicator
Coordination of village leaders

Score	National Average
1,95	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,05
Polusi Udara Industri	0,90
Kekeringan	0,07
Tanah Longsor	0,06
Banjir	0,19
Banjir Bandang	0,00
Banjir Air Pasang	0,07
Kebakaran Hutan	0,17
Operasi Tambang Lokal	0,27

Top 3 Cities

City/Regency	ETRI Score
Batam	64,08
Tanjung Pinang	64,27
Karimun	57,94

Bottom 3 Cities

City/Regency	ETRI Score
Lingga	51,45
Natuna	54,28
Kepulauan Anambas	55,81

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Lampung

Population (2022)
9,17 million people

Province Area (2021)
34.623,80 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,10 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,23 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,01 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,33 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,07 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,29 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,20 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,01 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,46 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,11 **National Average** 1,20

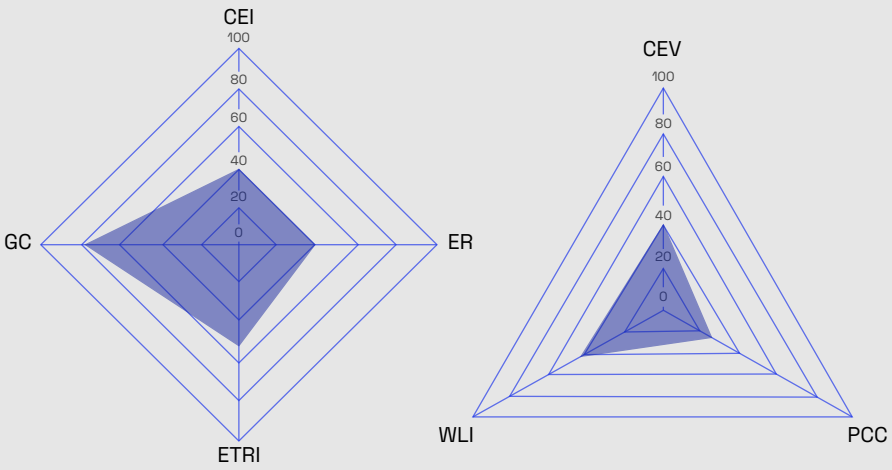
Indicator
Household as non-consumer of electricity
Score 0,00 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 1,00 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,71 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,79 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,08
Polusi Udara Industri	0,92
Kekeringan	0,01
Tanah Longsor	0,04
Banjir	0,21
Banjir Bandang	0,01
Banjir Air Pasang	0,01
Kebakaran Hutan	0,01
Operasi Tambang Lokal	0,19

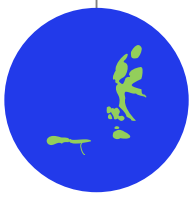
Top 3 Cities

City/Regency	ETRI Score
Bandar Lampung	68,70
Metro	61,71
Lampung Timur	60,31

Bottom 3 Cities

City/Regency	ETRI Score
Lampung Barat	51,83
Way Kanan	52,23
Pringsewu	52,42

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.



Maluku

Population (2022)
1,88 million people

Province Area (2021)
46.914,03 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,31 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,56 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,00 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,09 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,04 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,08 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,03 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,01 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,25 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,08 **National Average** 1,20

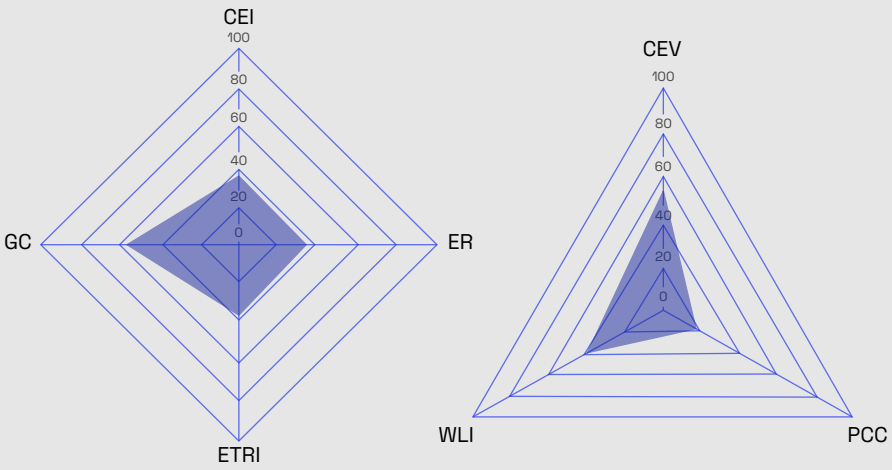
Indicator
Household as non-consumer of electricity
Score 0,11 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 0,99 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,59 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,35 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,02
Polusi Udara Industri	0,98
Kekeringan	0,02
Tanah Longsor	0,10
Banjir	0,22
Banjir Bandang	0,00
Banjir Air Pasang	0,02
Kebakaran Hutan	0,03
Operasi Tambang Lokal	0,48

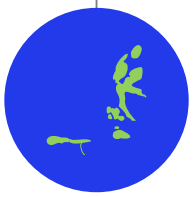
Top 3 Cities

City/Regency	ETRI Score
Ambon	67,32
Seram Bagian Barat	58,09
Tual	56,50

Bottom 3 Cities

City/Regency	ETRI Score
Maluku Barat Daya	47,18
Seram Bagian Timur	50,27
Maluku Tenggara Barat	50,95

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.



Maluku Utara

Population (2022)
1,31 million people

Province Area (2021)
31.982,50 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,28	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,55	0,34

Indicator
Initiation of biogas use

Score	National Average
0,00	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,17	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,04	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,10	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,07	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,00	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,24	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,33	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,05	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

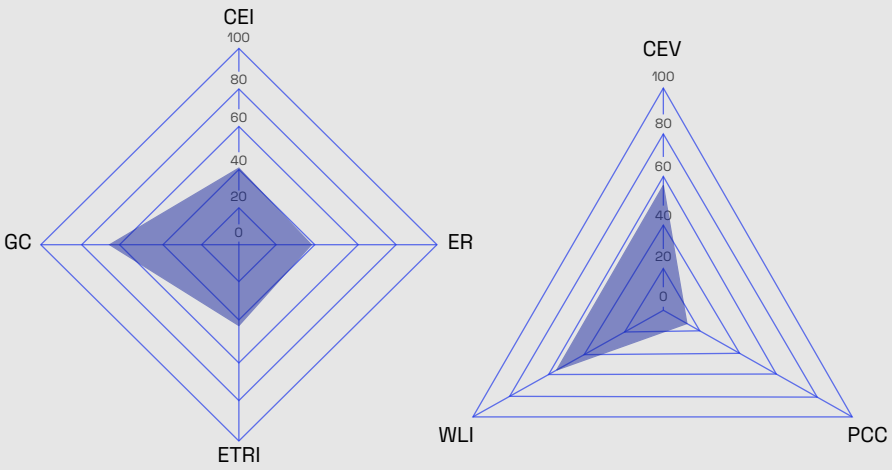
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,43	2,49

Indicator
Coordination of village leaders

Score	National Average
1,03	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,05
Polusi Udara Industri	0,94
Kekeringan	0,01
Tanah Longsor	0,09
Banjir	0,56
Banjir Bandang	0,02
Banjir Air Pasang	0,01
Kebakaran Hutan	0,02
Operasi Tambang Lokal	0,35

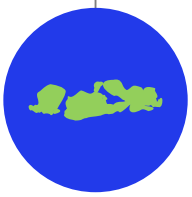
Top 3 Cities

City/Regency	ETRI Score
Ternate	61,72
Halmahera Selatan	59,24
Kepulauan Sula	56,01

Bottom 3 Cities

City/Regency	ETRI Score
Pulau Morotai	52,80
Halmahera Timur	53,08
Tidore Kepulauan	53,35

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.



Nusa Tenggara Barat

Population (2022)
5,47 million people

Province Area (2021)
18.572,31 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,07	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,25	0,34

Indicator
Initiation of biogas use

Score	National Average
0,02	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,51	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,24	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,15	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,13	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,08	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,55	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,13	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,00	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

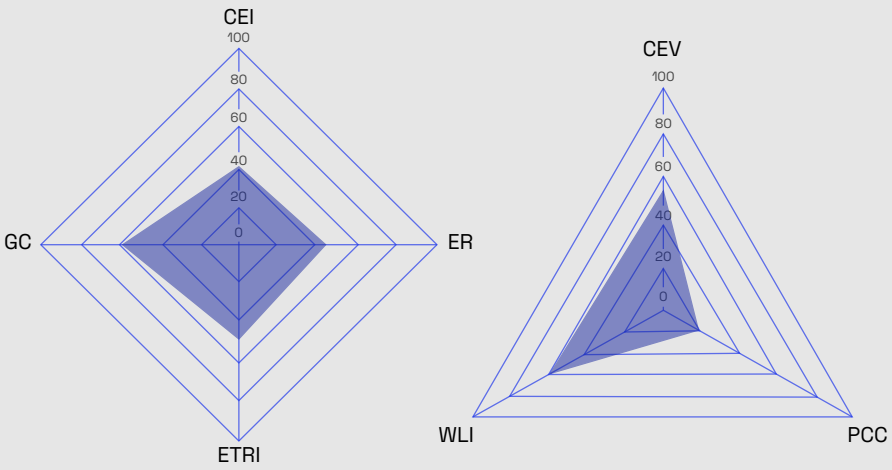
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,66	2,49

Indicator
Coordination of village leaders

Score	National Average
1,85	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,07
Polusi Udara Industri	0,93
Kekeringan	0,08
Tanah Longsor	0,05
Banjir	0,28
Banjir Bandang	0,02
Banjir Air Pasang	0,08
Kebakaran Hutan	0,05
Operasi Tambang Lokal	0,36

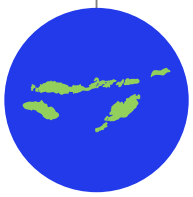
Top 3 Cities

City/Regency	ETRI Score
Kota Bima	66,41
Lombok Tengah	64,43
Lombok Barat	63,46

Bottom 3 Cities

City/Regency	ETRI Score
Sumbawa Barat	54,98
Dompu	55,10
Bima	55,39

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.



Nusa Tenggara Timur

Population (2022)
5,46 million people

Province Area (2021)
48.718,10 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,53 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,20 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,00 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,20 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,04 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,07 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,03 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,01 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,41 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,06 **National Average** 1,20

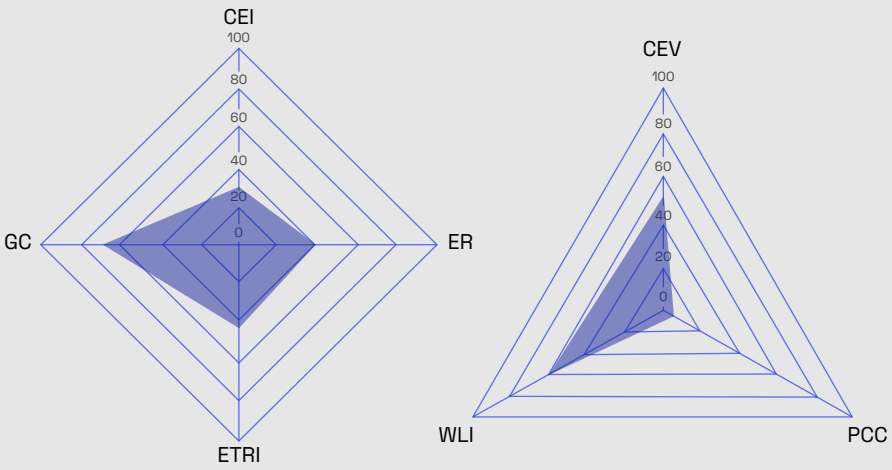
Indicator
Household as non-consumer of electricity
Score 0,13 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 1,00 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,64 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,54 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,06
Polusi Udara Industri	0,93
Kekeringan	0,14
Tanah Longsor	0,12
Banjir	0,10
Banjir Bandang	0,01
Banjir Air Pasang	0,14
Kebakaran Hutan	0,06
Operasi Tambang Lokal	0,33

Top 3 Cities

City/Regency	ETRI Score
Kota Kupang	74,06
Belu	58,19
Kupang	54,54

Bottom 3 Cities

City/Regency	ETRI Score
Manggarai	48,70
Sabu Raijua	49,21
Ende	49,30

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Papua

Population (2022)
4,41 million people

Province Area (2021)
319.036,05 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,84 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,06 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,00 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,02 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,02 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,07 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,03 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,00 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,04 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,05 **National Average** 1,20

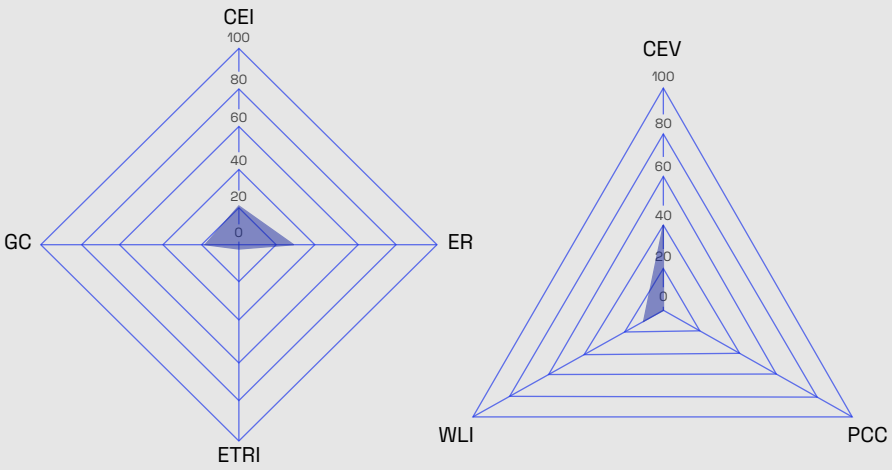
Indicator
Household as non-consumer of electricity
Score 0,42 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 0,99 **National Average** 0,99

Indicator
Availability of local financial systems
Score 1,55 **National Average** 2,49

Indicator
Coordination of village leaders
Score 0,86 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,02
Polusi Udara Industri	0,98
Kekeringan	0,00
Tanah Longsor	0,05
Banjir	0,06
Banjir Bandang	0,00
Banjir Air Pasang	0,00
Kebakaran Hutan	0,00
Operasi Tambang Lokal	0,10

Top 3 Cities

City/Regency	ETRI Score
Kota Jayapura	60,81
Paniai	53,56
Boven Digoel	51,57

Bottom 3 Cities

City/Regency	ETRI Score
Tolikara	27,07
Puncak Jaya	33,04
Yahukimo	35,47

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Papua Barat

Population (2022)
1,18 million people

Province Area (2021)
102.955,15 Km²

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,37 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,22 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,00 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,03 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,03 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,03 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,03 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,00 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,00 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,06 **National Average** 1,20

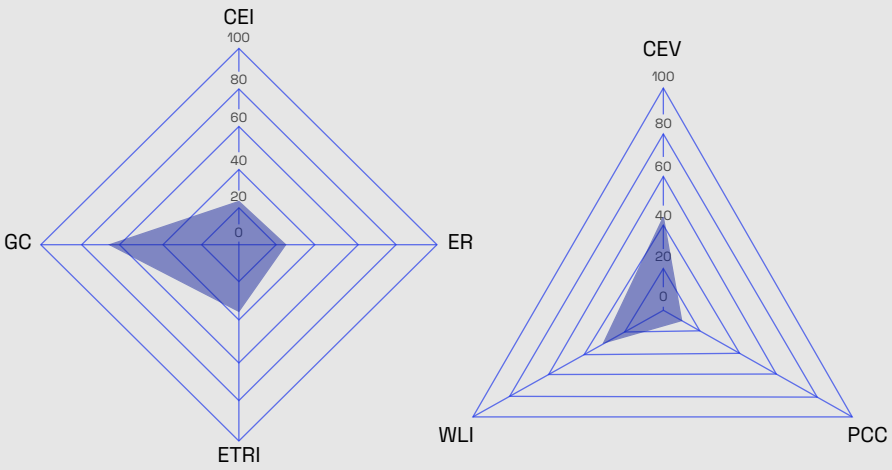
Indicator
Household as non-consumer of electricity
Score 0,13 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 1,00 **National Average** 0,99

Indicator
Availability of local financial systems
Score 1,75 **National Average** 2,49

Indicator
Coordination of village leaders
Score 0,73 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,01
Polusi Udara Industri	0,98
Kekeringan	0,00
Tanah Longsor	0,06
Banjir	0,14
Banjir Bandang	0,00
Banjir Air Pasang	0,00
Kebakaran Hutan	0,00
Operasi Tambang Lokal	0,21

Top 3 Cities

City/Regency	ETRI Score
Kota Sorong	65,22
Fakfak	54,15
Raja Ampat	49,87

Bottom 3 Cities

City/Regency	ETRI Score
Maybrat	36,81
Tambrauw	40,70
Sorong Selatan	42,93

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Riau

Population (2022)
1,18 million people

Province Area (2021)
102.955,15 Km²

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,12 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,30 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,00 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,54 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,11 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,17 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,14 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,02 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,51 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,12 **National Average** 1,20

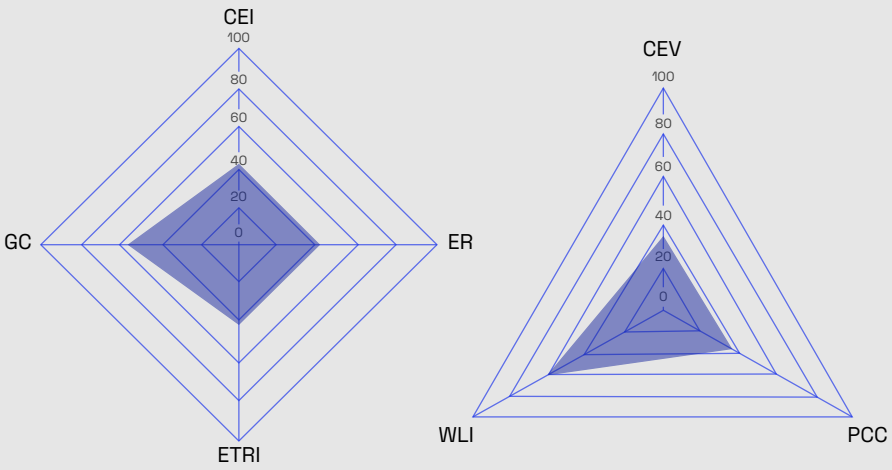
Indicator
Household as non-consumer of electricity
Score 0,02 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 0,99 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,48 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,99 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,08
Polusi Udara Industri	0,91
Kekeringan	0,03
Tanah Longsor	0,01
Banjir	0,41
Banjir Bandang	0,00
Banjir Air Pasang	0,03
Kebakaran Hutan	0,13
Operasi Tambang Lokal	0,12

Top 3 Cities

City/Regency	ETRI Score
Pekanbaru	63,93
Dumai	62,55
Bengkalis	62,51

Bottom 3 Cities

City/Regency	ETRI Score
Kuantan Singingi	53,61
Pelalawan	54.47
Kepulauan Meranti	54,67

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Sulawesi Barat

Population (2022)
1,45 million people

Province Area (2021)
16.787,18 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,23 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,41 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,00 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,51 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,08 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,03 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,01 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,03 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,48 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,06 **National Average** 1,20

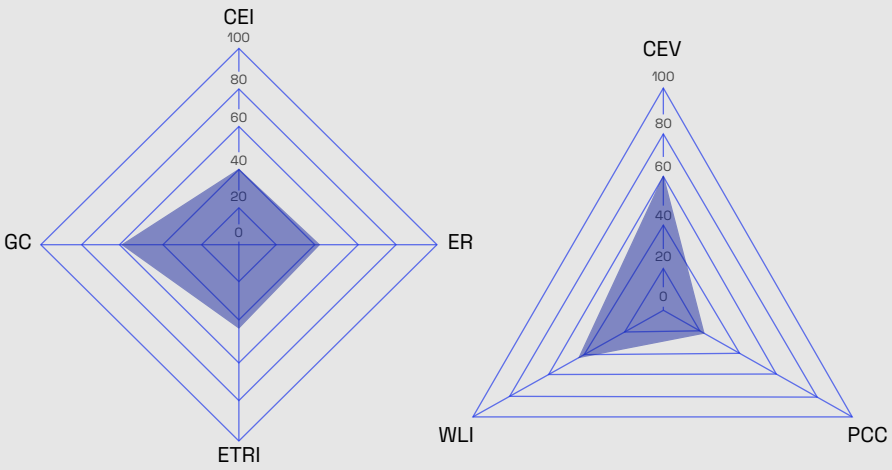
Indicator
Household as non-consumer of electricity
Score 0,02 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 1,00 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,56 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,71 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,07
Polusi Udara Industri	0,93
Kekeringan	0,03
Tanah Longsor	0,45
Banjir	0,30
Banjir Bandang	0,02
Banjir Air Pasang	0,03
Kebakaran Hutan	0,03
Operasi Tambang Lokal	0,29

Top 3 Cities

City/Regency	ETRI Score
Polewali Mandar	61,16
Majene	57,80
Mamuju	57,74

Bottom 3 Cities

City/Regency	ETRI Score
Mamasa	51,60
Mamuju Tengah	55,26
Pasangkayu	57,17

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Sulawesi Selatan

Population (2022)
9,22 million people

Province Area (2021)
46.717,48 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,16	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,44	0,34

Indicator
Initiation of biogas use

Score	National Average
0,02	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,33	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,07	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,08	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,08	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,03	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,49	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,14	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,01	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

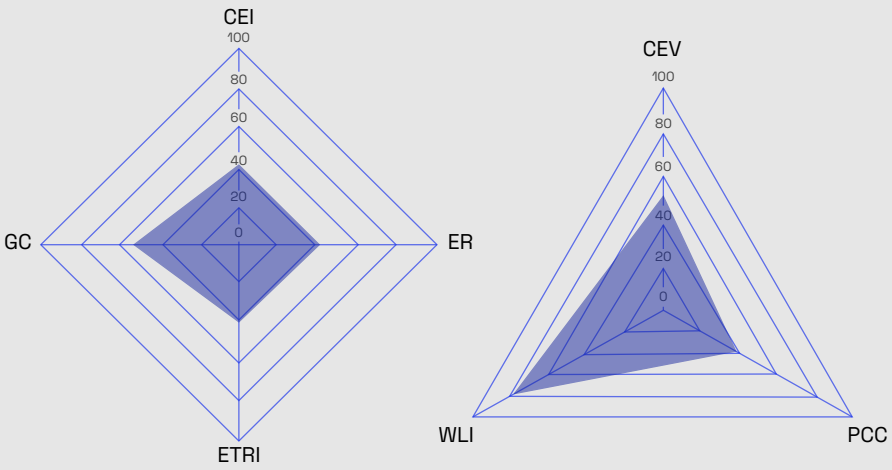
Score	National Average
0,99	0,99

Indicator
Availability of local financial systems

Score	National Average
2,38	2,49

Indicator
Coordination of village leaders

Score	National Average
1,76	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,07
Polusi Udara Industri	0,91
Kekeringan	0,02
Tanah Longsor	0,13
Banjir	0,37
Banjir Bandang	0,03
Banjir Air Pasang	0,02
Kebakaran Hutan	0,01
Operasi Tambang Lokal	0,19

Top 3 Cities

City/Regency	ETRI Score
Makassar	65,80
Parepare	63,33
Sinjai	63,15

Bottom 3 Cities

City/Regency	ETRI Score
Luwu Utara	51,13
Luwu	52,51
Toraja Utara	52,61

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Sulawesi Tengah

Population (2022)
3,06 million people

Province Area (2021)
61.841,29 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,25	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,41	0,34

Indicator
Initiation of biogas use

Score	National Average
0,00	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,30	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,03	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,06	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,04	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,02	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,35	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,08	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,04	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

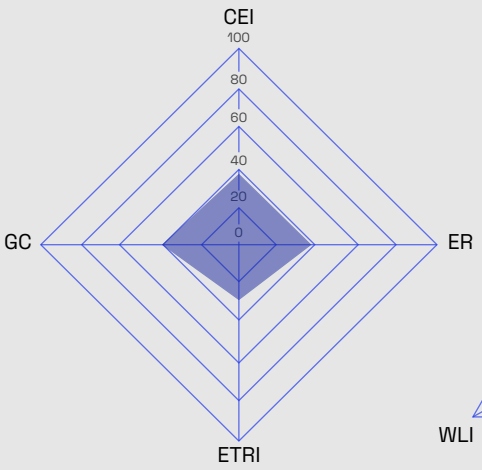
Score	National Average
0,99	0,99

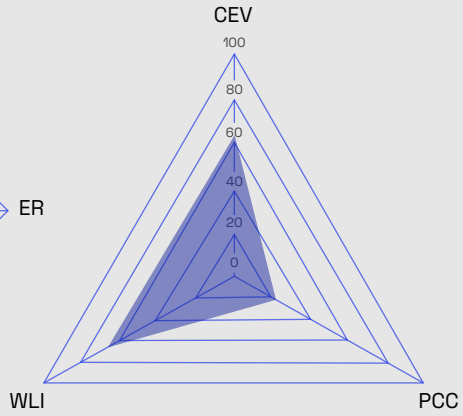
Indicator
Availability of local financial systems

Score	National Average
2,66	2,49

Indicator
Coordination of village leaders

Score	National Average
1,65	1,68





Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,03
Polusi Udara Industri	0,97
Kekeringan	0,02
Tanah Longsor	0,11
Banjir	0,59
Banjir Bandang	0,03
Banjir Air Pasang	0,02
Kebakaran Hutan	0,01
Operasi Tambang Lokal	0,38

Top 3 Cities

City/Regency	ETRI Score
Palu	69,78
Buol	57,40
Banggai	56,32

Bottom 3 Cities

City/Regency	ETRI Score
Morowali Utara	48,35
Banggai Kepulauan	49,24
Tojo Una-Una	52,44

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Sulawesi Tenggara

Population (2022)
2,70 million people

Province Area (2021)
38.067,70 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting

Score	National Average
1,24	1,21

Indicator
Main village street with solar lighting

Score	National Average
0,36	0,34

Indicator
Initiation of biogas use

Score	National Average
0,00	0,01

Indicator
Electrical fuel initiation

Score	National Average
0,21	0,28

Indicator
Availability of foreign language classes

Score	National Average
0,05	0,15

Indicator
Accessible computer literacy courses

Score	National Average
0,09	0,17

Indicator
Accessible skills development courses in electronics dengan elektronika

Score	National Average
0,06	0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E

Score	National Average
0,01	0,02

Indicator
Availability of Poor Certificate

Score	National Average
0,29	0,42

Indicator
Main sources of income (pre-, industrial, and post-)

Score	National Average
1,12	1,20

Indicator
Household as non-consumer of electricity

Score	National Average
0,01	0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government

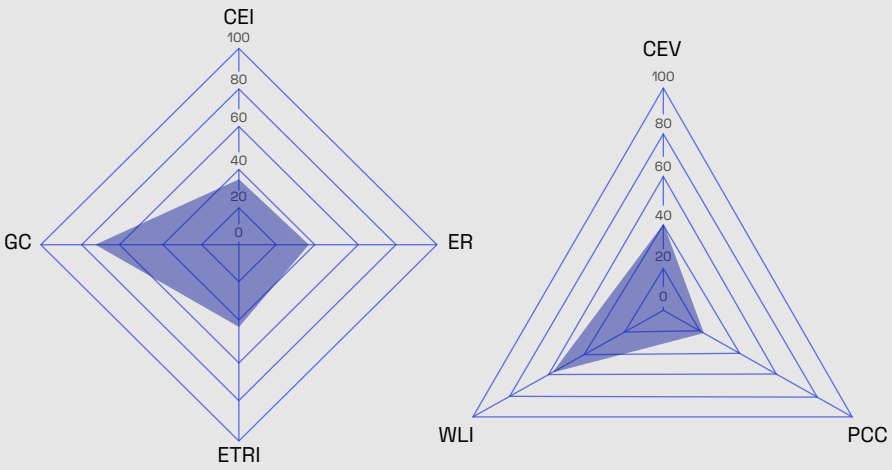
Score	National Average
1,00	0,99

Indicator
Availability of local financial systems

Score	National Average
2,48	2,49

Indicator
Coordination of village leaders

Score	National Average
1,67	1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,07
Polusi Udara Industri	0,91
Kekeringan	0,01
Tanah Longsor	0,03
Banjir	0,14
Banjir Bandang	0,00
Banjir Air Pasang	0,01
Kebakaran Hutan	0,01
Operasi Tambang Lokal	0,35

Top 3 Cities

City/Regency	ETRI Score
Kendari	62,29
Buton	58,28
Kolaka Utara	56,23

Bottom 3 Cities

City/Regency	ETRI Score
Kolaka Timur	47,67
Konawe Utara	47,79
Konawe Kepulauan	49,31

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Sulawesi Utara

Population (2022)
2,65 million people

Province Area (2021)
13.89247 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,06 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,55 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,00 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,22 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,04 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,06 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,06 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,02 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,30 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,17 **National Average** 1,20

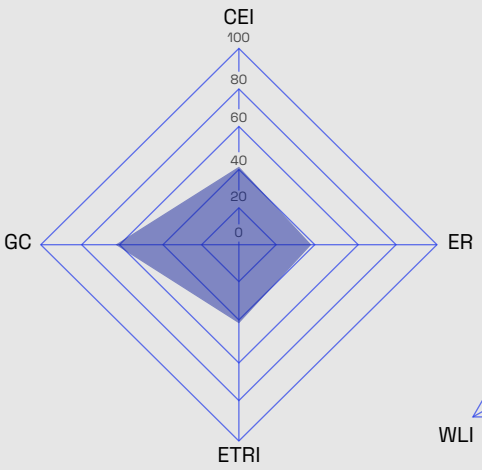
Indicator
Household as non-consumer of electricity
Score 0,01 **National Average** 0,04

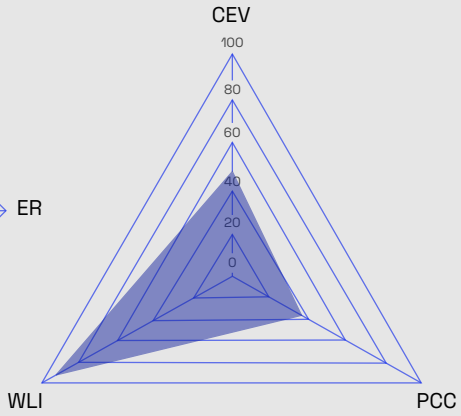
Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 1,00 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,57 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,54 **National Average** 1,68





Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,05
Polusi Udara Industri	0,95
Kekeringan	0,01
Tanah Longsor	0,15
Banjir	0,24
Banjir Bandang	0,02
Banjir Air Pasang	0,01
Kebakaran Hutan	0,02
Operasi Tambang Lokal	0,21

Top 3 Cities

City/Regency	ETRI Score
Manado	72,19
Minahasa Utara	59,74
Tomohon	59,56

Bottom 3 Cities

City/Regency	ETRI Score
Minahasa Tenggara	47,63
Bolaang Mongondow	51,72
Bolaang Mongondow Utara	52,29

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Sumatera Barat

Population (2022)
5,64 million people

Province Area (2021)
42.012,89 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,09 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,30 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,01 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,41 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,16 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,12 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,11 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,04 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,71 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,21 **National Average** 1,20

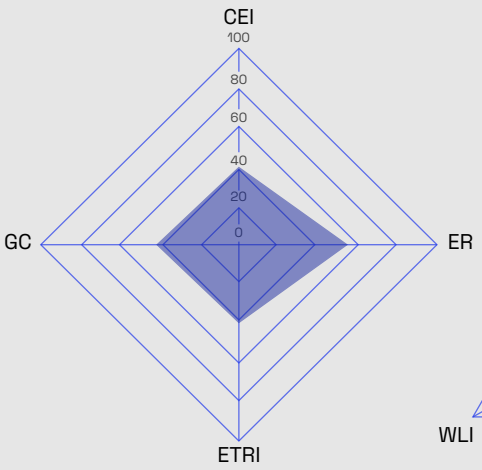
Indicator
Household as non-consumer of electricity
Score 0,01 **National Average** 0,04

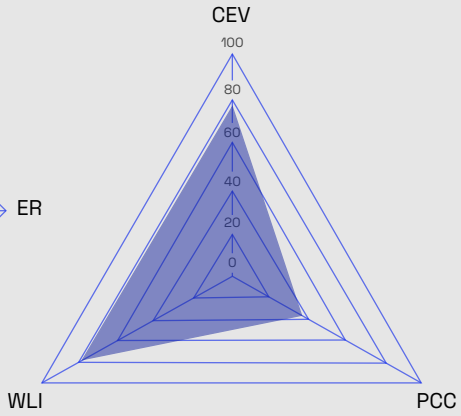
Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 0,99 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,41 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,94 **National Average** 1,68





Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,05
Polusi Udara Industri	0,95
Kekeringan	0,04
Tanah Longsor	0,34
Banjir	0,54
Banjir Bandang	0,06
Banjir Air Pasang	0,04
Kebakaran Hutan	0,02
Operasi Tambang Lokal	0,37

Top 3 Cities

City/Regency	ETRI Score
Kota Solok	72,72
Bukittinggi	67,19
Padang	67,00

Bottom 3 Cities

City/Regency	ETRI Score
Kepulauan Mentawai	54,68
Sijunjung	55,05
Padang Pariaman	55,33

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Sumatera Selatan

Population (2022)
8,65 million people

Province Area (2021)
91.592,43 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,14 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,40 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,00 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,24 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,13 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,21 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,12 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,01 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,42 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,12 **National Average** 1,20

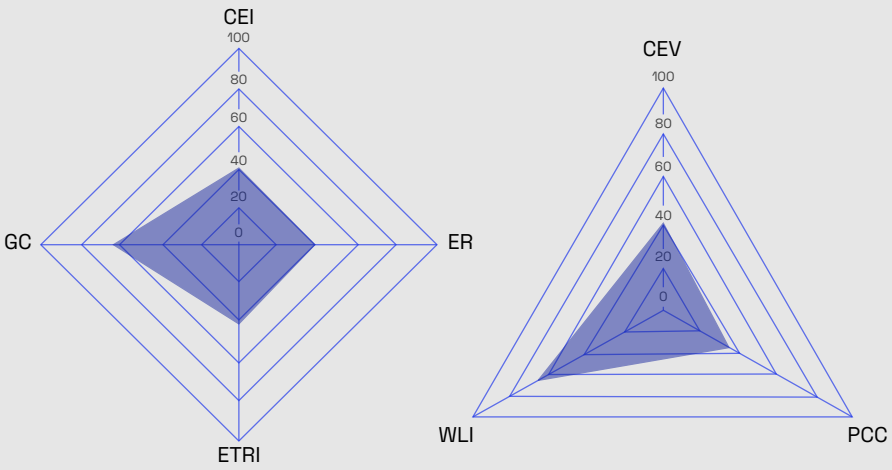
Indicator
Household as non-consumer of electricity
Score 0,01 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 1,00 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,55 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,66 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,07
Polusi Udara Industri	0,92
Kekeringan	0,03
Tanah Longsor	0,04
Banjir	0,17
Banjir Bandang	0,01
Banjir Air Pasang	0,03
Kebakaran Hutan	0,03
Operasi Tambang Lokal	0,17

Top 3 Cities

City/Regency	ETRI Score
Palembang	71,29
Pagar Alam	62,73
Lubuklinggau	61,29

Bottom 3 Cities

City/Regency	ETRI Score
Ogan Komering Ulu	51,12
Penukal Abab Lematang Ilir	51,72
Ogan Komering Ulu Timur	52,78

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

Sumatera Utara

Population (2022)
15,11 million people

Province Area (2021)
72.981,23 Km^2

Clean Energy Initiatives **(CEI)**

Indicator
Household with solar lighting
Score 1,07 **National Average** 1,21

Indicator
Main village street with solar lighting
Score 0,28 **National Average** 0,34

Indicator
Initiation of biogas use
Score 0,00 **National Average** 0,01

Indicator
Electrical fuel initiation
Score 0,35 **National Average** 0,28

Indicator
Availability of foreign language classes
Score 0,13 **National Average** 0,15

Indicator
Accessible computer literacy courses
Score 0,22 **National Average** 0,17

Indicator
Accessible skills development courses in electronics dengan elektronika
Score 0,09 **National Average** 0,09

Economic Resilience **(ER)**

Indicator
Availability of KKP-E
Score 0,01 **National Average** 0,02

Indicator
Availability of Poor Certificate
Score 0,41 **National Average** 0,42

Indicator
Main sources of income (pre-, industrial, and post-)
Score 1,15 **National Average** 1,20

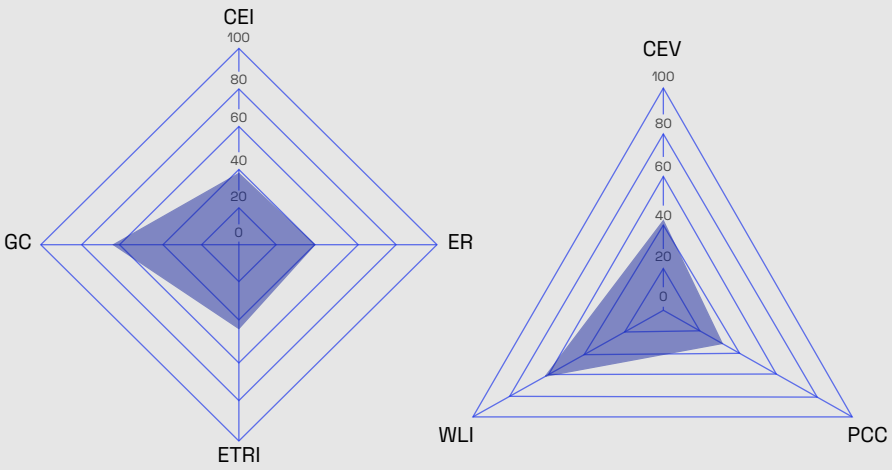
Indicator
Household as non-consumer of electricity
Score 0,05 **National Average** 0,04

Government Capacity **(GC)**

Indicator
Corruption cases in local government
Score 1,00 **National Average** 0,99

Indicator
Availability of local financial systems
Score 2,49 **National Average** 2,49

Indicator
Coordination of village leaders
Score 1,84 **National Average** 1,68



Climate-Energy Vulnerability **(CEV)**

Indicator	Score
Polusi Udara	0,05
Polusi Udara Industri	0,93
Kekeringan	0,03
Tanah Longsor	0,13
Banjir	0,25
Banjir Bandang	0,01
Banjir Air Pasang	0,03
Kebakaran Hutan	0,01
Operasi Tambang Lokal	0,17

Top 3 Cities

City/Regency	ETRI Score
Pematang Siantar	69,34
Binjai	67,30
Tebing Tinggi	65,54

Bottom 3 Cities

City/Regency	ETRI Score
Padang Lawas	49,72
Humbang Hasundutan	49,75
Padang Lawas Utara	49,77

Note The PCC value in this chart is not in thousands of rupiah, but it is the result of normalizing the minimum and maximum values.

References

[1] Keputusan Presiden Nomor 46 Tahun 1980 tentang Badan Koordinasi Energi Nasional. https://peraturan.bpk.go.id/Details/67044/keppres-no-46-tahun-1980
[2] Undang-Undang Nomor 30 Tahun 2007 tentang Energi. https://peraturan.bpk.go.id/Details/39928/uu-no-30-tahun-2007
[3] Peraturan Presiden Nomor 26 Tahun 2008 tentang Pembentukan Dewan Energi Nasional dan Tata Cara Penyaringan Calon Anggota Dewan Energi Nasional. https://peraturan.bpk.go.id/Details/42211/perpres-no-26-tahun-2008
[4] Herupurnomo, A. (2013). Pengembangan Energi Laut guna Mendukung Pembangunan Ekonomi dalam Rangka Ketahanan Nasional. Lembaga Ketahanan Nasional Republik Indonesia. Diambil dari http://lib.lemhannas.go.id/public/media/catalog/0010-011600000000128/swf/3718/mobile/index.html#p=7
[5] Ibid.
[6] Siswosoemarto, R. (2013). Intelijen Ekonomi: Teori dan Aplikasi. Gramedia Pustaka Utama.
[7] Herupurnomo, 2013, op. cit., p. 3.
[8] Sekretariat Panitia Teknis Sumber Energi (PTE). (2006). Blue Print (Cetak Biru) Pengelolaan Energi Nasional 2006 – 2025 sesuai Peraturan Presiden Nomor 5 Tahun 2006. Diambil dari policy.asiapacificenergy.org: https://policy.asiapacificenergy.org/sites/default/files/Blueprint%20Pengelolaan%20Energi%20Nasional%202005-2025%20%28Blueprint%20of%20National%20Energy%20Management%202005-2025%29_2006%20Ed%C2%A0.pdf
[9] Peraturan Presiden Nomor 5 Tahun 2006 tentang Kebijakan Energi Nasional. https://peraturan.bpk.go.id/Details/41945/perpres-no-5-tahun-2006
[10] Undang-Undang Nomor 17 Tahun 2007 tentang Rencana Pembangunan Jangka Panjang Nasional Tahun 2005 – 2025. https://peraturan.bpk.go.id/Details/39830
[11] Peraturan Presiden Nomor 32 Tahun 2011 tentang Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia 2011 – 2025. https://peraturan.bpk.go.id/Details/41157/perpres-no-32-tahun-2011
[12] Peraturan Presiden Nomor 61 Tahun 2011 tentang Rencana Aksi Nasional Penurunan Emisi Gas Rumah Kaca. https://peraturan.bpk.go.id/Details/41199/perpres-no-61-tahun-2011
[13] Institute for Essential Service Reform (IESR). (2011, September 12). Diambil dari iesr.or.id: https://iesr.or.id/ran-grk-rencana-implementasi-dan-sistem-mrv -untuk-mencapai-penurunan-emisi-grk-26-atau-41-pada-2020
[14] European Commission. (2022, November 15). Diambil dari ec.europa.eu: https://ec.europa.eu/commission/presscorner/detail/en/IP_22_6926
[15] Ibid.
[16] Ahdiat, A. (2023, Agustus 8). databoks.katadata.co.id. Diambil dari databoks.katadata.co.id/datapublish: https://databoks.katadata.co.id/datapublish/2023/08/08/indonesia-negara-penerima-dana-transisi-energi-jetp-paling-besar

[17] Institute for Essential Service Reform (IESR). (2020, September 19). Diambil dari iesr.or.id: https://iesr.or.id/pembahasan-draf-ruu-ebt-koalisi-masyarakat-menyerukan-agar-dpr-fokus-pada-energi-terbarukan

[18] Muliawati, F. D. (2023, November 20). www.cnbcindonesia.com/news. Diambil dari www.cnbcindonesia.com: https://www.cnbcindonesia.com/news/20231120131433-4-490381/ruu-energi-baru-lagi-disusun-ini-usulan-terbaru-pemerintah

[19] Muliawati, F. D. (2023, Juni 21). www.cnbcindonesia.com/news. Diambil dari www.cnbcindonesia.com: https://www.cnbcindonesia.com/news/20230621155215-4-448021/apa-kabar-ruu-energi-terbarukan-begini-nasibnya

[20] Kompilasi Handbook of Energy and Economic Statistics of Indonesia 2018 s.d. 2022 terbitan Kementerian Energi dan Sumber Daya Mineral.

[21] Jayani, D. H. (2021, Januari 8). databoks.katadata.co.id/datapublish. Diambil dari databoks.katadata.co.id: https://databoks.katadata.co.id/datapublish/2021/01/08/masih-terdapat-5-provinsi-dengan-rasio-elektrifikasi-di-bawah-95

[22] Badan Pusat Statistik (BPS). (2022). Statistik Keuangan Pemerintah Provinsi 2021 - 2022. Badan Pusat Statistik. Diambil dari https://www.bps.go.id/id/publication/2022/12/21/ac29079f83f37421940e4c29/statistik-keuangan-pemerintah-provinsi-2021-2022.html

[23] Ibid.

[24] Bayu, D. J. (2020, September 17). databoks.katadata.co.id/datapublish. Diambil dari databoks.katadata.co.id: https://databoks.katadata.co.id/datapublish/2020/09/17/masyarakat-jakarta-terbanyak-pasang-pembangkit-listrik-tenaga-surya-atap

[25] Lavinda. (2023, September 5). katadata.co.id/lavinda/berita. Diambil dari katadata.co.id: https://katadata.co.id/lavinda/berita/64f6cab80bf50/kementerian-esdm-pengguna-plts-atap-melonjak-26-per-juli-2023

[26] Institute for Essential Services Reform (IESR). (2022, Februari 11). Diambil dari iesr.or.id: https://iesr.or.id/permen-esdm-nomor-26-tahun-2021-disepakati-indonesia-targetkan-tercapainya-target-36-gw-plts-atap-di-tahun-2025

[27] Hubungan Masyarakat Direktorat Jenderal Energi Baru Terbarukand an Konservasi Energi. (2023, Juni 14). Diambil dari ebtke.esdm.go.id: https://ebtke.esdm.go.id/post/2023/06/14/3505/geliat.industri.dukung.pemanfaatan.energi.bersih

[28] Lavinda, 2023, loc. cit.

[29] Setiawan, V. N. (2021, Agustus 13). Diambil dari katadata.co.id: https://katadata.co.id/happyfajrian/ekonomi-hijau/61161cdde5d4c/pengguna-plts-atap-kini-lebih-4000-pelanggan-naik-1000-dari-2018

[30] Martha, F. P. (2022, Juni 3). Diambil dari ekonomi.bisnis.com: https://ekonomi.bisnis.com/read/20220603/47/1539539/iesr-beberkan-strategi-tekan-biaya-pemasangan-plts-atap-bagi-pengembang

[31] Pramayasa, I.P.Y., Kumara, I.N.S., Setiawan, I.N. (2022). Survei Biaya Investasi Awal PLTS Atap Di Indonesia Tahun 2022. Jurnal SPEKTRUM. 9(3): 94- 104. https://ojs.unud.ac.id/index.php/spektrum/article/view/92912

[32] Tim Redaksi Kompas. (2022, November 5). www.kompas.com/properti. Diambil dari www.kompas.com: https://www.kompas.com/properti/read/2022/06/04/080000221/berapa-biaya-pemasangan-plts-atap-di-rumah-simak-penghitungannya?page=all#google_vignette

[33] Asmarini, W. (2022, Februari 11). Diambil dari www.cnbcindonesia.com: https://www.cnbcindonesia.com/news/20220211122422-4-314694/biaya-plts-atap-bisa-puluhan-juta-rupiah-kapan-balik-modal
[34] Wibeck, V. (2013). Enhancing learning, communication and public engagement about climate change – some lessons from recent literature. Environmental Education Research, 20(3), 387–411. doi:10.1080/13504622.2013.812720
[35] Komendantova, N., Riegler, M., & Neumueller, S. (2018). Of transitions and models: Community engagement, democracy, and empowerment in the Austrian energy transition. Energy Research & Social Science, 39, 141–151. doi:10.1016/j.erss.2017.10.031
[36] Komendantova, N. (2021). Transferring awareness into action: A meta-analysis of the behavioral drivers of energy transitions in Germany, Austria, Finland, Morocco, Jordan and Iran. Energy Research & Social Science, 71, 101826. doi:10.1016/j.erss.2020.101826
[37] Zufrizal. (2021, Oktober 29). Diambil dari bisnisindonesia.id: https://bisnisindonesia.id/article/persentase-penggunaan-ebt-di-sumbar-di-atas-nasional
[38] Gates, B. T. (1996). A root of ecofeminism ecofeminisme. Interdisciplinary Studies in Literature and Environment, 3(1), 7–16. https://doi.org/10.1093/isle/3.1.7
[39] Badan Pusat Statistik (BPS). (2020). Keadaan Angkatan Kerja di Indonesia Agustus 2020. Jakarta: Badan Pusat Statistik (BPS).
[40] Ketlhoilwe, M. J., & Kanene, K. M. (2018). Access to energy sources in the face of climate change: Challenges faced by women in rural communities. Jàmbá: Journal of Disaster Risk Studies, 10(1). https://doi.org/10.4102/jamba.v10i1.375
[41] Kyayesimira, J., Muheirwe, F. Health concerns and use of biomass energy in households: voices of women from rural communities in Western Uganda. Energ Sustain Soc 11, 42 (2021). https://doi.org/10.1186/s13705-021-00316-2
[42] Misna, A. F. (2021, Maret 3). Diambil dari accept.aseanenergy.org: https://accept.aseanenergy.org/indonesia-perspective-of-women-towards-inclusive-energy-transition-in-asean/
[43] Csevar, S. (2020). The Compounding Impacts of Climate Change and Environmental Degradation on the Insecurity of Indigenous Women in Papua and West Papua, Indonesia. In U. W. United Nations Environment Programme, Gender, Climate, & Security: Sustaining Inclusive Peace on the Frontlines of Climate Change (p. 35). United Nations Environment Programme, UN Women, UNDP, & UNDPPA.
[44] Han, J. Y., Pross, C., Agarwal, R., & Torre, A. R. (2022). State of Gender Equality and Climate Change in ASEAN. Jakarta, Indonesia: ASEAN, UN Women, & Stockholm Environment Institute (SEI).
[45] Aung, M. T., Koski, J., Yonariza, Resurreccion, B. P., Kartha, S., Mahdi, & Yuerlita. (2020). Lob-Carbon Transitions in West Sumatra, Indonesia: Gender and Equity Dimensions. Stockholm, Sweden: Stockholm Environment Institute (SEI).
[46] Antara Babel. (2023, September 20). babel.antaranews.com/berita. Diambil dari babel.antaranews.com: https://babel.antaranews.com/berita/370314/babel-pln-kembangkan-plts-atap-di-pulau-pulau-kecil
[47] Kompas.com. (2023, Mei 18). www.kompas.com/properti. Diambil dari www.kompas.com: https://www.kompas.com/properti/read/2023/05/18/100030021/100-hektar-lahan-disiapkan-untuk-plts-belitung

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