RENEWABLE ENERGY IN WEST JAVA

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Outline

West Java Current Condition

The Illustration of Unmanage Solid Waste in West Java

Open Dumping Landfill

The Illustration of High Traffic Jam in West Java

The Condition Before Covid-19 Pandemic

The Condition During Covid-19 Pandemic

The impact

- The decomposition of garbage piles produces methane gas and has an impact on global climate change
- Unmanage waste has the potential to cause natural disasters
- Air Pollution
- Contributing to the increase in greenhouse gases due to unmanaged waste and the transportation sector

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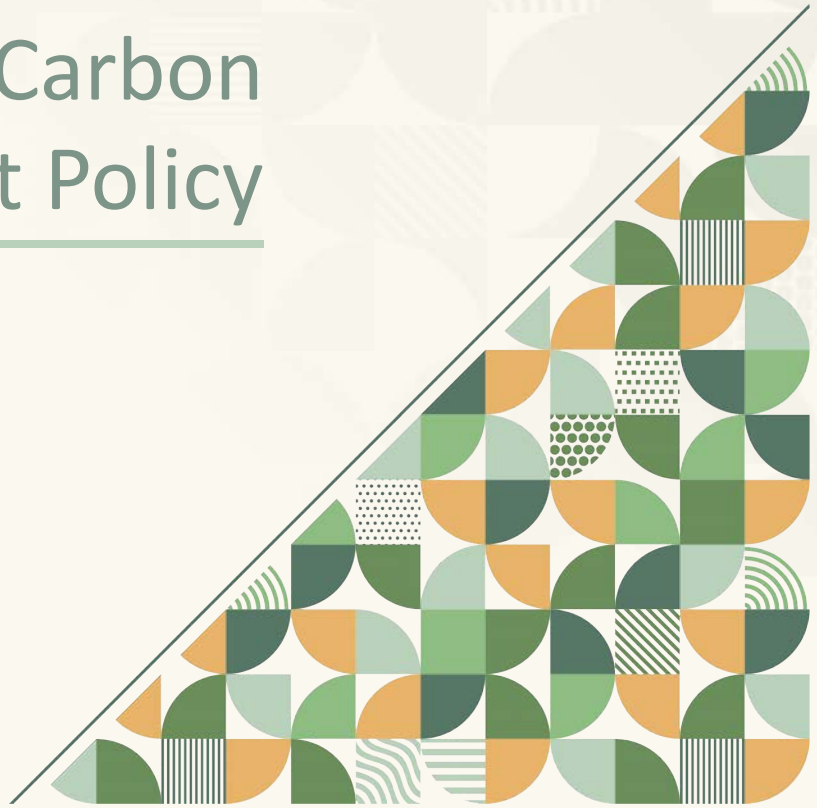
West Java Low Carbon Development Policy



Commitment Chronology
Global and National Low Carbon Development

2011 — RAN-GRK

- Determination of **President Regulation No. 61/2011** about RAN-GRK
- **National Emission Reduction Target** 26% of their own efforts and 41% external assistance, from the 2020 baseline projection

2014 — RPJMN 2015-2019

- Internalization in **RPJMN 2015-2019**

2015 — COP 21 - Paris Agreement

- **COP 21 UNFCCC – Paris Agreement** - Climate Change Agreement
- **Sustainable Development Summit** – New York 17 Goals of SDGs (Formally adopt 2030 Agenda for Sustainable Development)

2016 — Ratification Law of Paris Agreement

- Determination of **UU No.16/2016** about Ratification of Paris Agreement to The UNFCCC
- **National Emission Reduction Target** 29% of their own efforts and 41% external assistance, from the 2030 baseline projection

2017 — COP 23 - LCDI

- COP 23 UNFCCC di Bonn **– Low Carbon Development Initiatives**
- Stipulation of **President Regulation No. 59/2017** about Implementation of The Achievement of Sustainable Development Goals

2018 — RPJMN 2019-2024

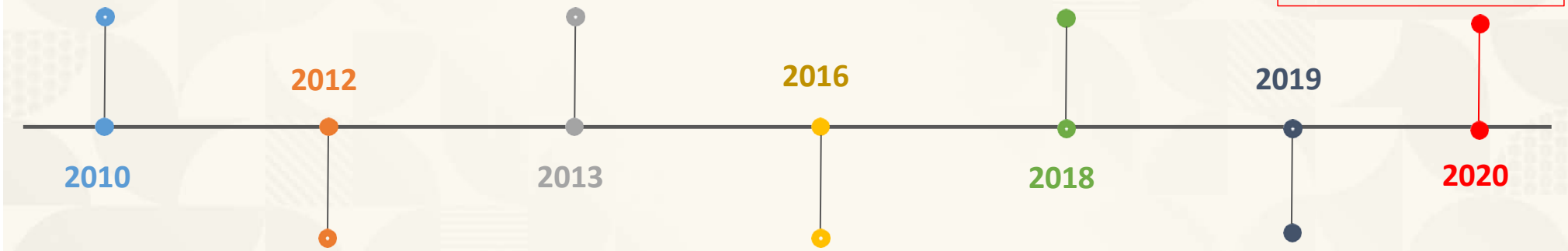
- Internalization in **RPJMN 2020-2024**

2019-2020 — LCDI Indonesia

- **Low Carbon Development Initiatives** Indonesia Launching by Bappenas
- **MoU Low Carbon Development Planning** with 7 Province (South Sulawesi, Central Java, **West Java,** Papua, West Papua, Bali, Riau)

Source : BAPPEDA Presentation Materials (2020)

Commitment Chronology
West Java Province Low Carbon Development



2010

Determination of Decree of the Governor of **West Java Climate Change Mitigation and Adaptation Coordination Team**

2012

1. Determination of **West Java Regional Regulation No. 1/2012** about Environmental Management and Compliance with Environmental Law
2. The Formation of **West Java RAD-GRK Working Group**
3. Compilation of **BAU Emission Baseline Study and West Java RAD-GRK**
4. Determination of **West Java Governor Regulation No. 56/2012** about West Java RAD-GRK
5. Submission of Results of **Monitoring, Evaluation and Reporting of RAD-GRK**/ emission reduction achievement (annually)

2013

1. RAD-GRK Internalization in **RPJMD 2013-2018 and RKPD** (annually)

2. **RAD-GRK Socialization** to districts / cities

2016

1. Compilation of **West Java RAD-GRK Review**
2. **West Java Emission Reduction Target** of **9,94%** against baseline in 2030

2018

1. Internalization of RAD-GRK Reviews in **RPJMD 2018-2023 and RKPD** (annually)

2. **RAD-GRK Socialization** to districts / cities

2019

1. **MoU Low Carbon Development Planning** Governor of West Java and Head of Bappenas

2. Implementing RAD-GRK activity **tagging** in 2019 – 2020 **e-planning**

2020

1. **Kick-off** West Java Low Carbon Development Planning
2. **Preparation of Local Low Carbon Development Plans** (Transformation of RAD - GRK)

Source : BAPPEDA Presentation Materials (2020)

Low Carbon Development Initiatives (LCDI) Indonesia

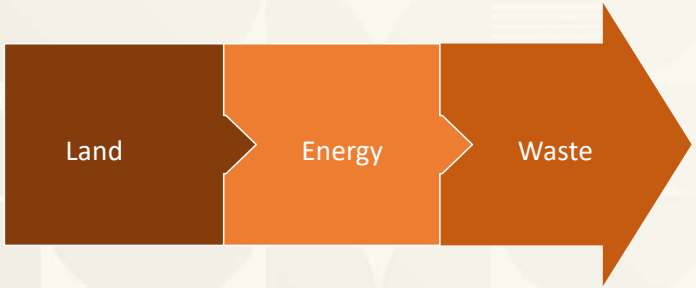
Low Carbon Development Initiatives Indonesia: A change in the development paradigms towards Indonesia's green economic growth.

Development policies that can **sustain economic growth, reduce poverty, and contribute to addressing climate change**, and conserving natural resources (Bappenas, 2019)

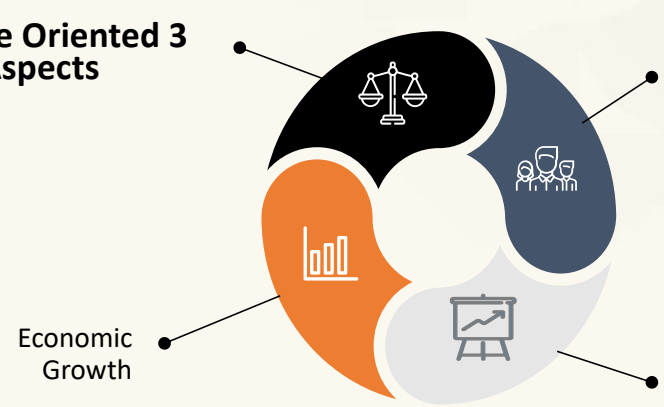
TRANSFORMATION

Action Plan to Reducing Greenhouse Gas Emissions (2020) towards a Low Carbon Development Plan (2030)

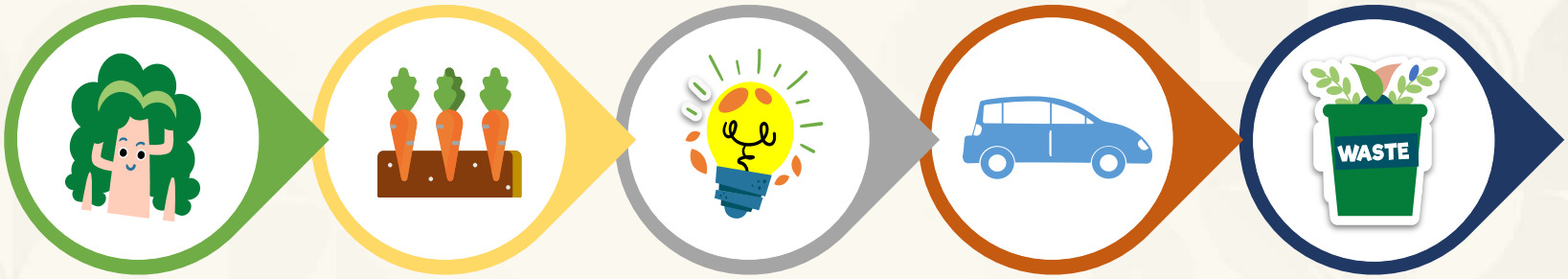
Focus on Decreasing Effort Greenhouse Gas Emissions



Balance Oriented 3 Aspects



Regional Action Plan for West Java Greenhouse Gas Emission Reduction 2010 - 2030



Forestry

- Rehabilitation of critical land and mangroves
- Forest protection and security

Agriculture

- Aplication of the fertilization system
- Cultivation Technology

Energy

- Renewable energy development
- Fossil Fuel Substitution
- Energy efficiency

Transportation

- ITS/ATCS development
- Bus Rapid Transit (BRT) Development
- Rejuvenation of general transportation
- Car Free Day
- Smart Driving Training
- Parking Management

Waste and Domestic Waste

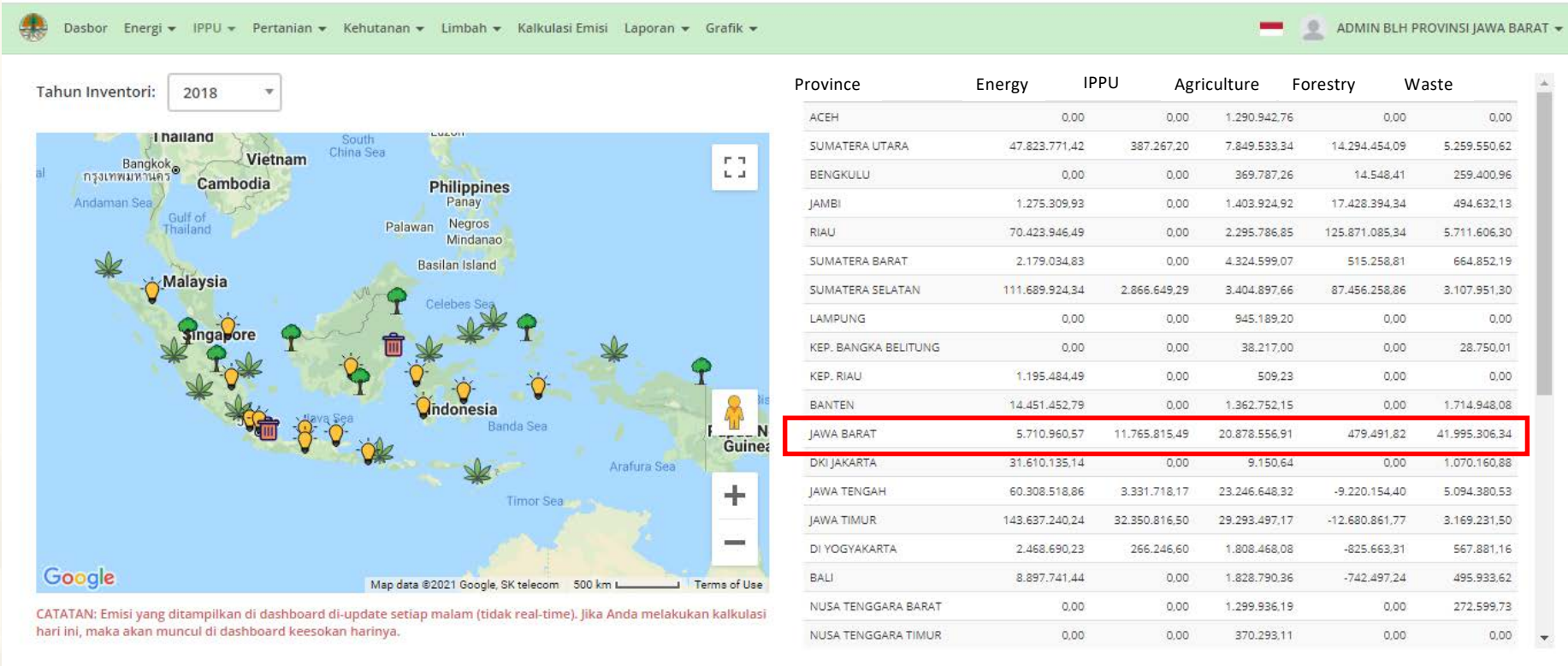
- Rehabilitation of open dumping landfill
- Development and operation of regional TPPAS
- Construction and operation of TPS3R
- Construction and operation of Waste Bank
- Sludge Treatment Plant Construction
- Construction and Operation of Sanimas (MCK++ or WWTP)

13,5 Million tonnes CO2eq Emission Reduction

9,94% of BAU Baseline Projection in 2030

Source: West Java RAD-GRK (Governor Regulation No. 56/2012) which was reviewed in 2016 and 2018

SIGN SMART Aplication

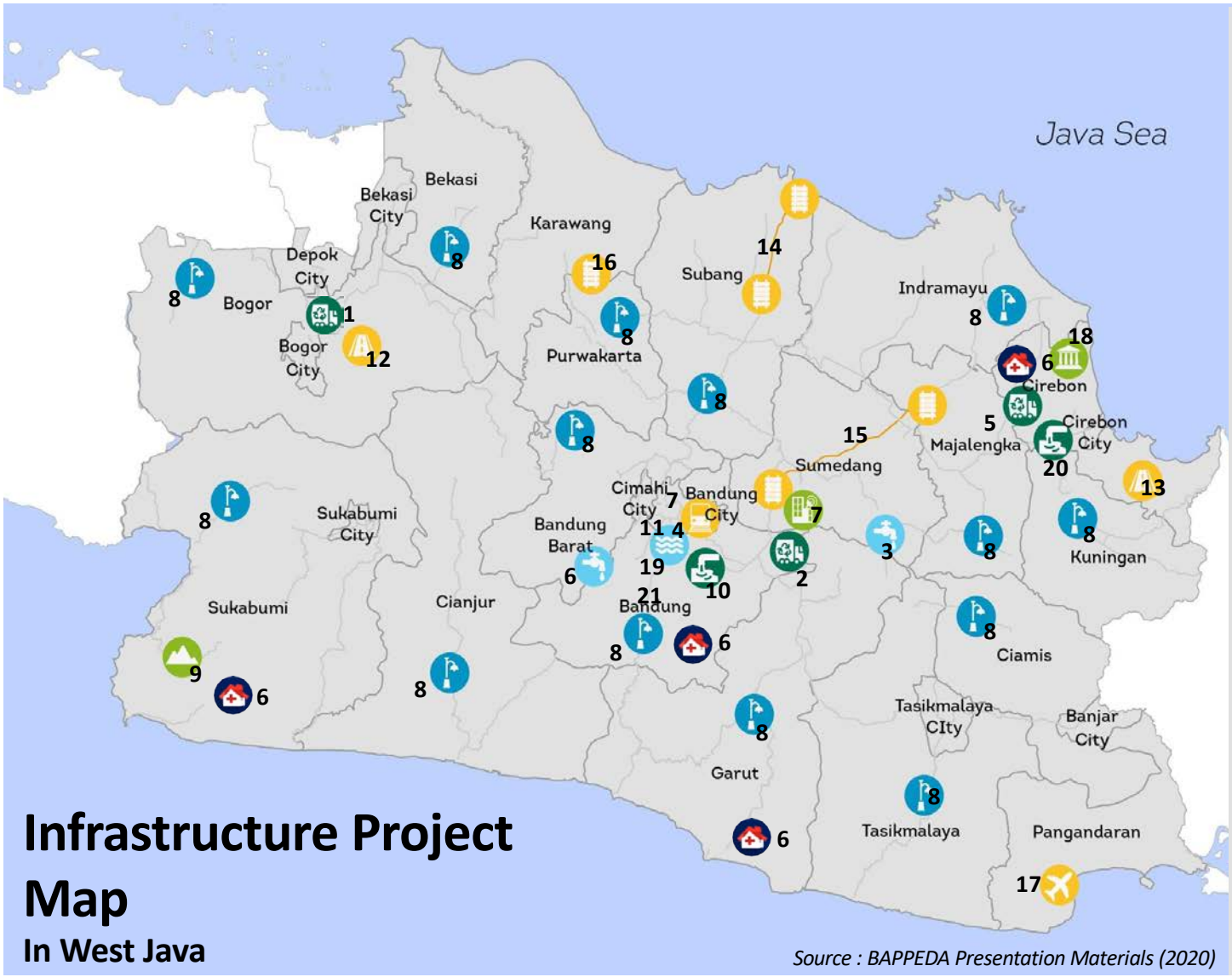


Province	Energy	IPPU	Agriculture	Forestry	Waste
ACEH	0,00	0,00	1.290.942,76	0,00	0,00
SUMATERA UTARA	47.823.771,42	387.267,20	7.849.533,34	14.294.454,09	5.259.550,62
BENGKULU	0,00	0,00	369.787,26	14.548,41	259.400,96
JAMBI	1.275.309,93	0,00	1.403.924,92	17.428.394,34	494.632,13
RIAU	70.423.946,49	0,00	2.295.786,85	125.871.085,34	5.711.606,30
SUMATERA BARAT	2.179.034,83	0,00	4.324.599,07	515.258,81	664.852,19
SUMATERA SELATAN	111.689.924,34	2.866.649,29	3.404.897,66	87.456.258,86	3.107.951,30
LAMPUNG	0,00	0,00	945.189,20	0,00	0,00
KEP. BANGKA BELITUNG	0,00	0,00	38.217,00	0,00	28.750,01
KEP. RIAU	1.195.484,49	0,00	509,23	0,00	0,00
BANTEN	14.451.452,79	0,00	1.362.752,15	0,00	1.714.948,08
JAWA BARAT	5.710.960,57	11.765.815,49	20.878.556,91	479.491,82	41.995.306,34
DKI JAKARTA	31.610.135,14	0,00	9.150,64	0,00	1.070.160,88
JAWA TENGAH	60.308.518,86	3.331.718,17	23.246.648,32	-9.220.154,40	5.094.380,53
JAWA TIMUR	143.637.240,24	32.350.816,50	29.293.497,17	-12.680.861,77	3.169.231,50
DI YOGYAKARTA	2.468.690,23	266.246,60	1.808.468,08	-825.663,31	567.881,16
BALI	8.897.741,44	0,00	1.828.790,36	-742.497,24	495.933,62
NUSA TENGGARA BARAT	0,00	0,00	1.299.936,19	0,00	272.599,73
NUSA TENGGARA TIMUR	0,00	0,00	370.293,11	0,00	0,00

National greenhouse gas inventory activities from the energy, waste, transportation, agriculture and forestry sectors are carried out in the **SIGN SMART Application** that can be access by all local government

Renewable Energy Plans

In West Java



Infrastructure Project Map

In West Java

Source : BAPPEDA Presentation Materials (2020)

1. TPPAS Lulut Nambo
2. TPPAS Legok Nangka
3. SPAM Regional Jatigede
4. Bandung Raya Metropolitan Railway Development
5. TPPAS Ciayumajakuning
6. Hospital Development:
   1. Jampang Kulon Hospital
   2. Pameungpeuk Hospital
   3. Idawangi Pulmonary Hospital
   4. Al-Ihsan Hospital
7. Rooftop PLTS in Provincial Government Building
8. Public Street Lighting
9. Ciletuh Geopark Tourism Development
10. SPALD Bandung Raya
11. SPAM Sinumbra
12. Puncak II Path
13. Cirebon Round Path Development
14. Railway access development to Patimban
15. Railway access development to Kertajati
16. *Shortcut* Cibungur – Tanjung Rasa
17. Nusawiru Airport Development
18. Cirebon MICE Complex
19. Bandung District Retention Pond
20. SPALD Cirebon Raya
21. LRT Bandung District

Refused Derived Fuel (RDF)
In TPPAS Lulut Nambo

Source : West Java KPBU Secretariat (2020)

TPPAS Lulut Nambo uses Mechanical Biological Treatment (MBT) technology to process waste into Refused Derived Fuel (RDF) and compost.

TPPAS Lulut Nambo capasity : 1500 ton/day

Waste to Energy Plant
In TPPAS Legok Nangka

Source : West Java KPBU Secretariat (2020)

TPPAS Legok Nangka is planned as a waste to energy development using thermal technology to produce electricity. Revenue is obtained from the sale of electricity to PLN and tipping fees from districts / cities.
TPPAS Legok Nangka capasity : 1820 ton/day

LRT Bandung Raya

Source : West Java KPBU Secretariat (2020)

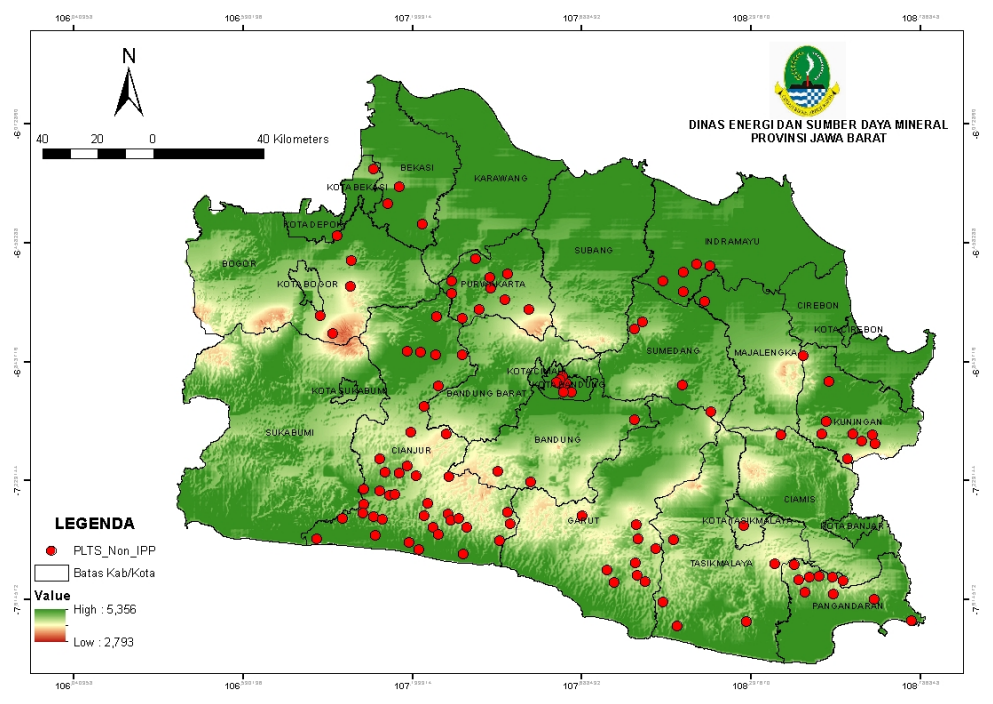
LRT Bandung Raya is planned to be a public transportation to serve Bandung Metropolitan area. Consists of 7 routes and will continue to be developed.

Solar Energy Rooftop

Source : West Java Energy and Mineral Resources Agency (2020)

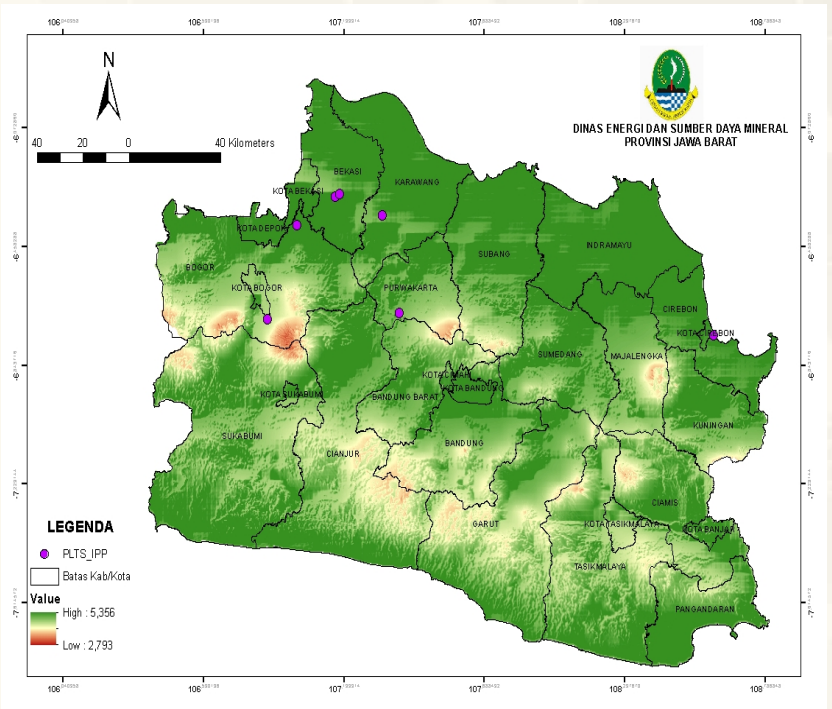
Solar Panel Rooftop is developed as a new renewable energy which is planned to be installed in government buildings, schools, sports buildings and health facilities.

Non IPP Solar Power Plant (PLTS) Map



There are **182 PLTS Non IPP**, located in Bogor, Depok, Bekasi, Purwakarta, Cianjur, Bandung, Garut, Sumedang, Indramayu, Kuningan, Ciamis, Tasikmalaya and Pangandaran.

IPP Solar Power Plant (PLTS) Map

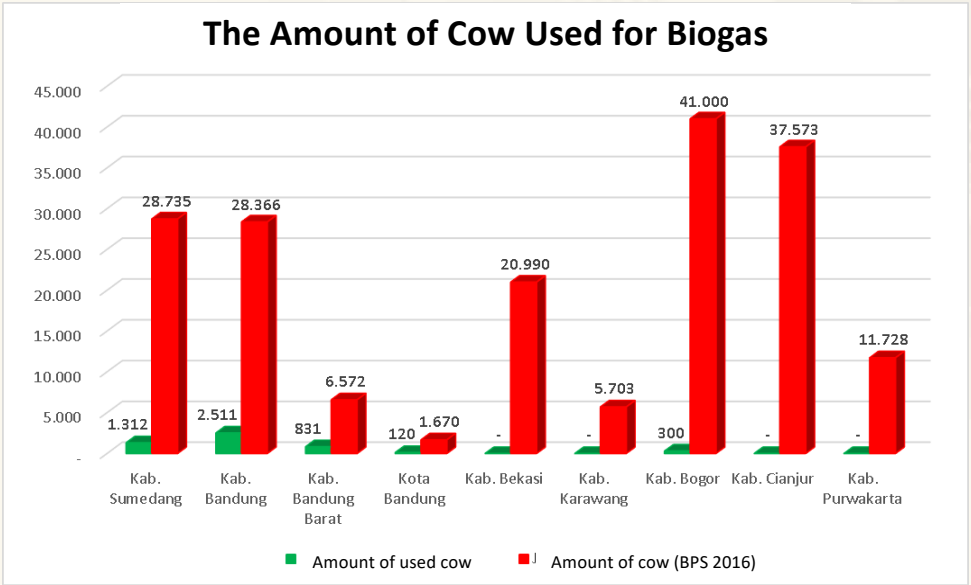


There are **11 PLTS IPP**, located in Bogor, Bekasi, Karawang, Purwakarta, and Cirebon.

Source : West Java Energy and Mineral Resources Agency (2020)

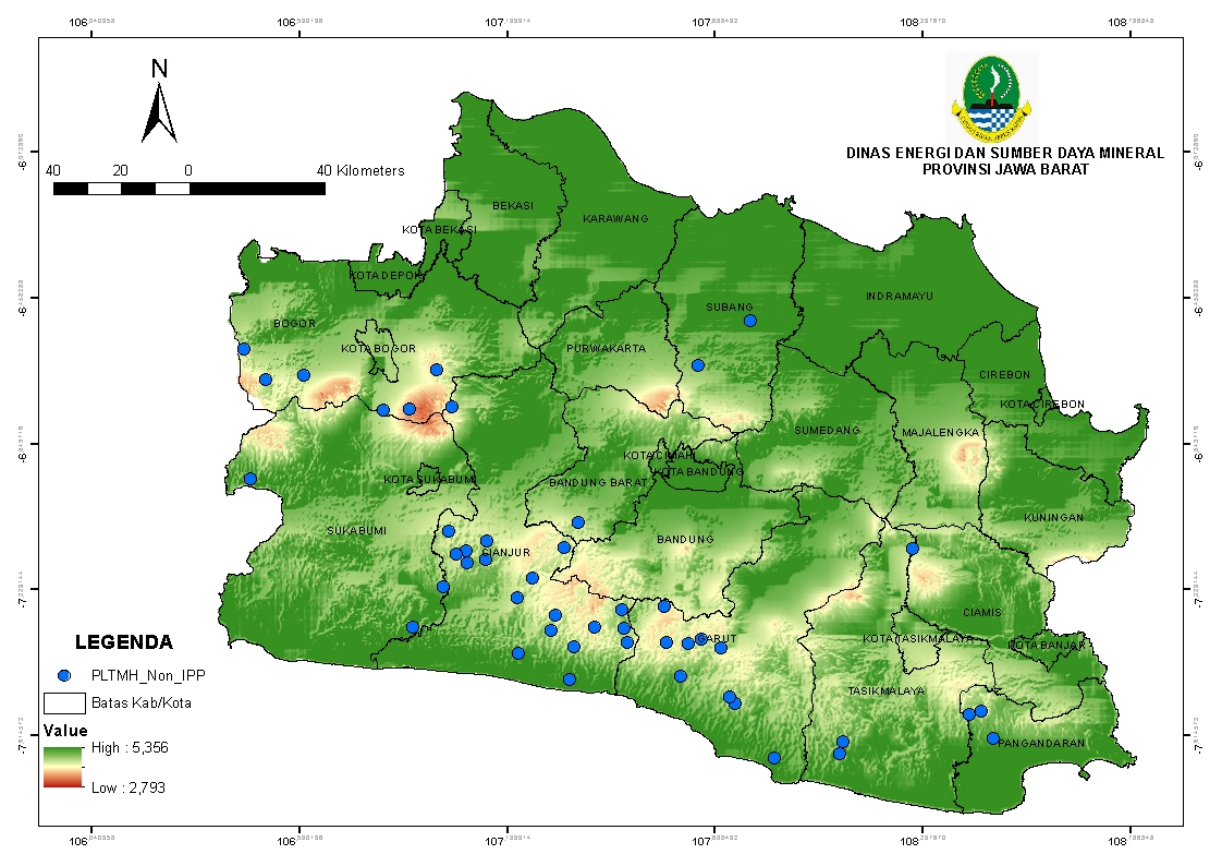
Biogas Distribution in Citarum Watershed

Distric / Cities	Number of villages	Infrastructure		Biogas Production (4 m^3)	Biogas Production (12 m^3)	Total Biogas Production	Amount of used cow	Amount of cow (BPS 2016)
		Individual	Communal					
Sumedang District	39	384	16	1,536	192	1,728	1,312	28,735
Bandung District	34	827	3	3,308	36	3,344	2,511	28,366
West Bandung District	6	277	-	1,108	-	1,108	831	6,572
Bandung City	9	-	12	-	144	144	120	1,670
Bekasi District	-	-	-	-	-	-	-	20,990
Karawang District	-	-	-	-	-	-	-	5,703
Bogor District	11	100	-	400	-	400	300	41,000
Cianjur District	-	-	-	-	-	-	-	37,573
Purwakarta District	-	-	-	-	-	-	-	11,728
Total	**88**	**1488**	**31**	**6352**	**372**	**6724**	**4774**	**182,337**



Source : West Java Energy and Mineral Resources Agency (2020)

Micro Hydro Technology

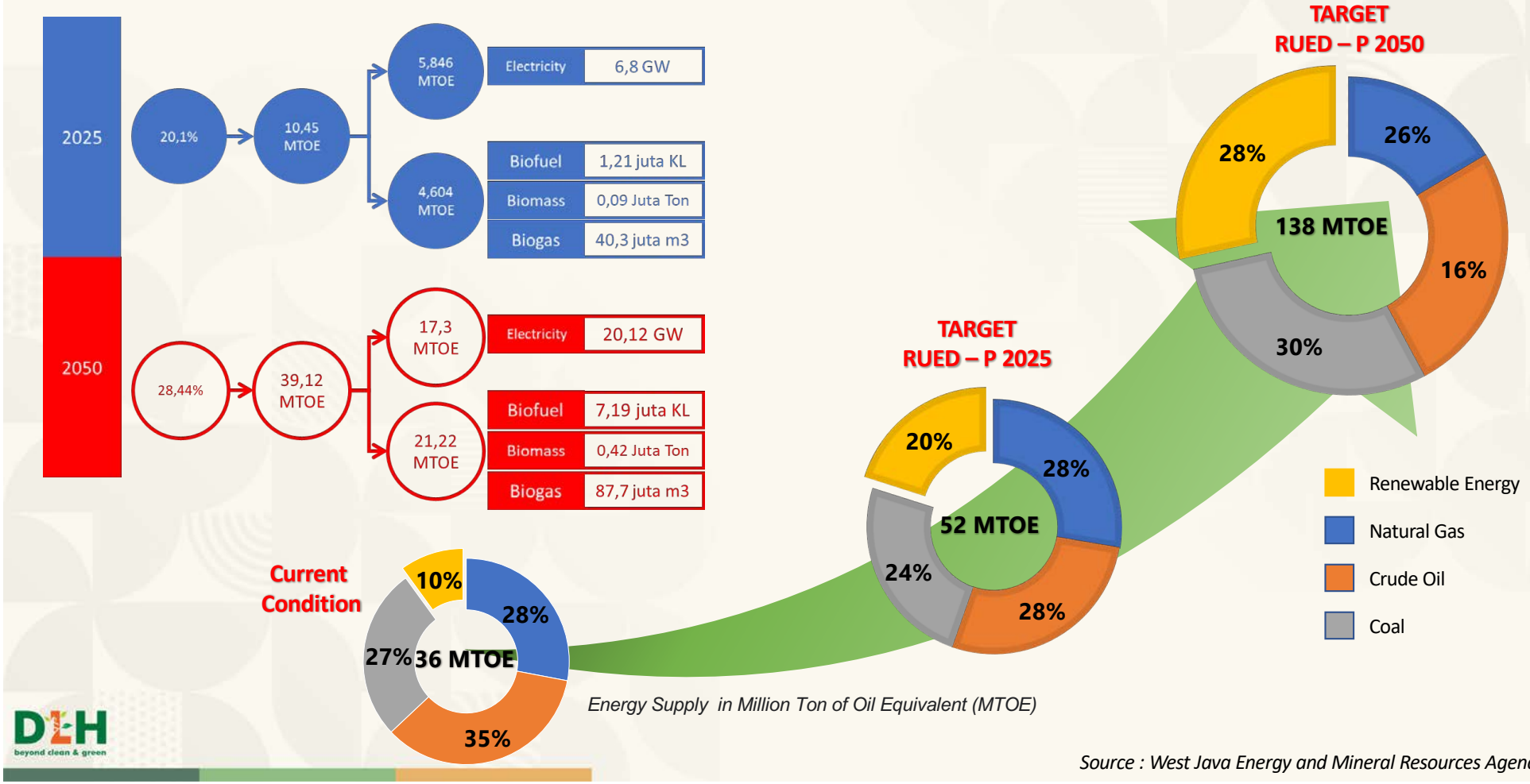


There are **65 Micro Hydro power Plant** (PLTMH) Non IPP point in Bogor District, Sukabumi District, Cianjur District, West Bandung District, Garut District, Tasikmalaya District, Pangandaran District, Ciamis District and Subang District.

No.	District	Total	
		Unit	Capacity (kW)
1	Bandung	1	3
2	West Bandung	2	36,45
3	Bogor	6	187,26
4	Ciamis	6	103,4
5	Cianjur	20	6858,83
6	Garut	18	524,8
7	Subang	4	120
8	Sukabumi	5	173,4
9	Tasikmalaya	6	106,74

Source : West Java Energy and Mineral Resources Agency (2020)

West Java Provincial Regional Energy General Plan (RUED – P) Target



Energy Supply in Million Ton of Oil Equivalent (MTOE)

Source : West Java Energy and Mineral Resources Agency (2020)

Climate Change Adaptation and Mitigation Efforts at The Community Level

In West Java

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Program Kampung Iklim (Climate Village Program)

Program Kampung Iklim is a national program developed by the Ministry of Environment and Forestry of the Republic of Indonesia (KLHK RI) to **encourage active participation of the community and all parties in implementing local actions to increase resilience to the impacts of climate change and reduction of GHG emissions**.

Liquid compost from gerbage

Bank Sampah (Waste Bank)

Methane capture from septic tank

Cooking using biogas fuel

New renewable energy

Composting

Energy efficient furnace

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Industrial Corporate Social Resposibility (CSR)

In the form of partnerships between government, society, **private sector**, media / influencers and academics (penthahelix strategy) in the context of developing a climate village. From the private sector, is **industrial CSR** activities.

List of Industrial CSR in West Java :

- Kampung Berseri Astra – PT. Astra
- Kampung Ramah Lingkungan – PT. Indocement Tunggal Prakasa
- Fuel Substitution Pragram – PT. Polytama Propindo
- Bank Sampah Dadali – PT. Pertamina EP Tambun Fields
- etc.

Kampung Berseri Astra

Source : Pekayon Environmntal Movement Foundation (2021)

Kampung Ramah Lingkungan – PT. Indocement

Source : PT. Indocement Tunggal Prakasa (2021)

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Thank You.

Dinas Lingkungan Hidup Provinsi Jawa Barat

Jl. Kawaluyaan Indah Raya No.6, Bandung - Jawa Barat, 40286