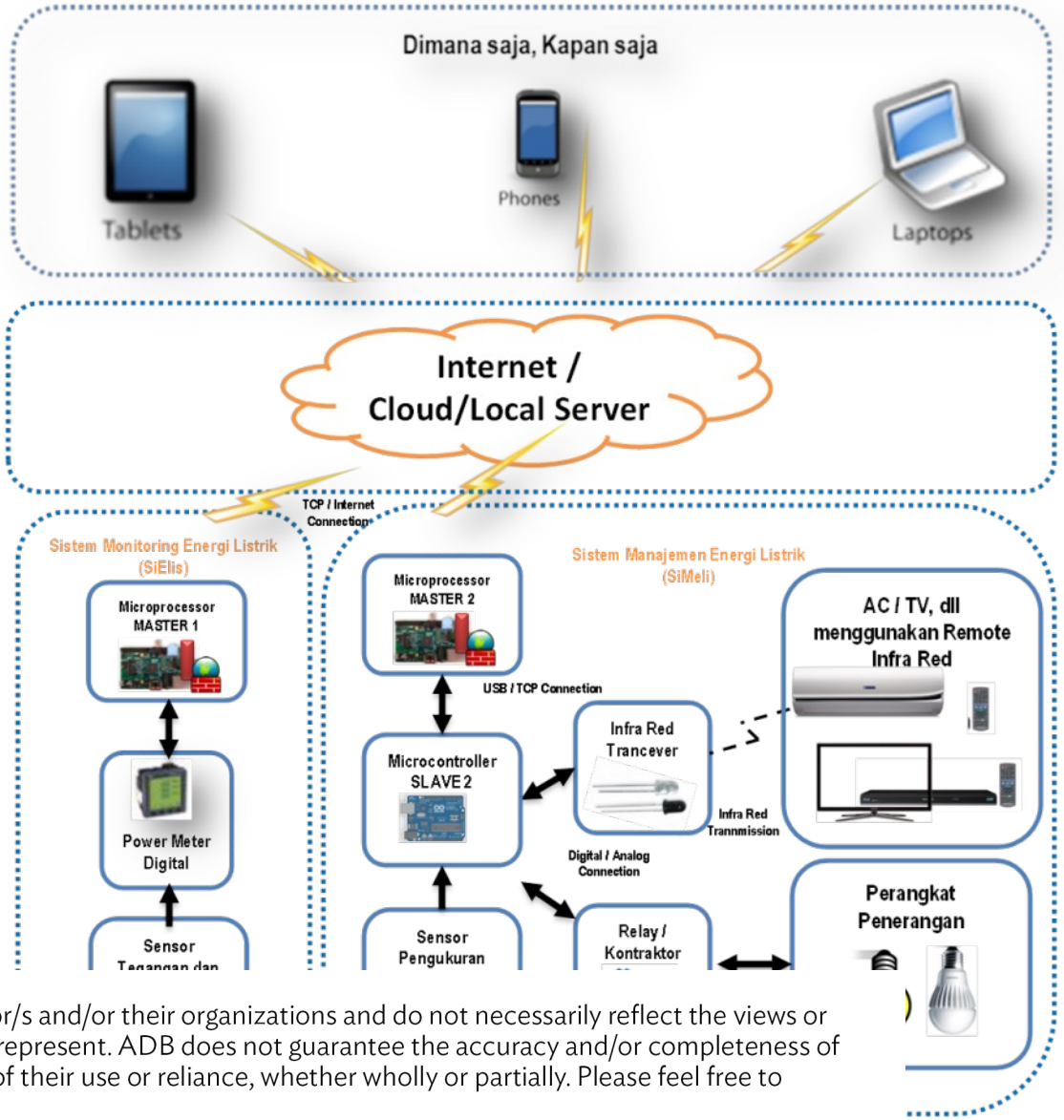
CLOUD NATIVE ENERGY MONITORING PLATFORM **CEMP**

Dr.-Ing. Justin Pradipta

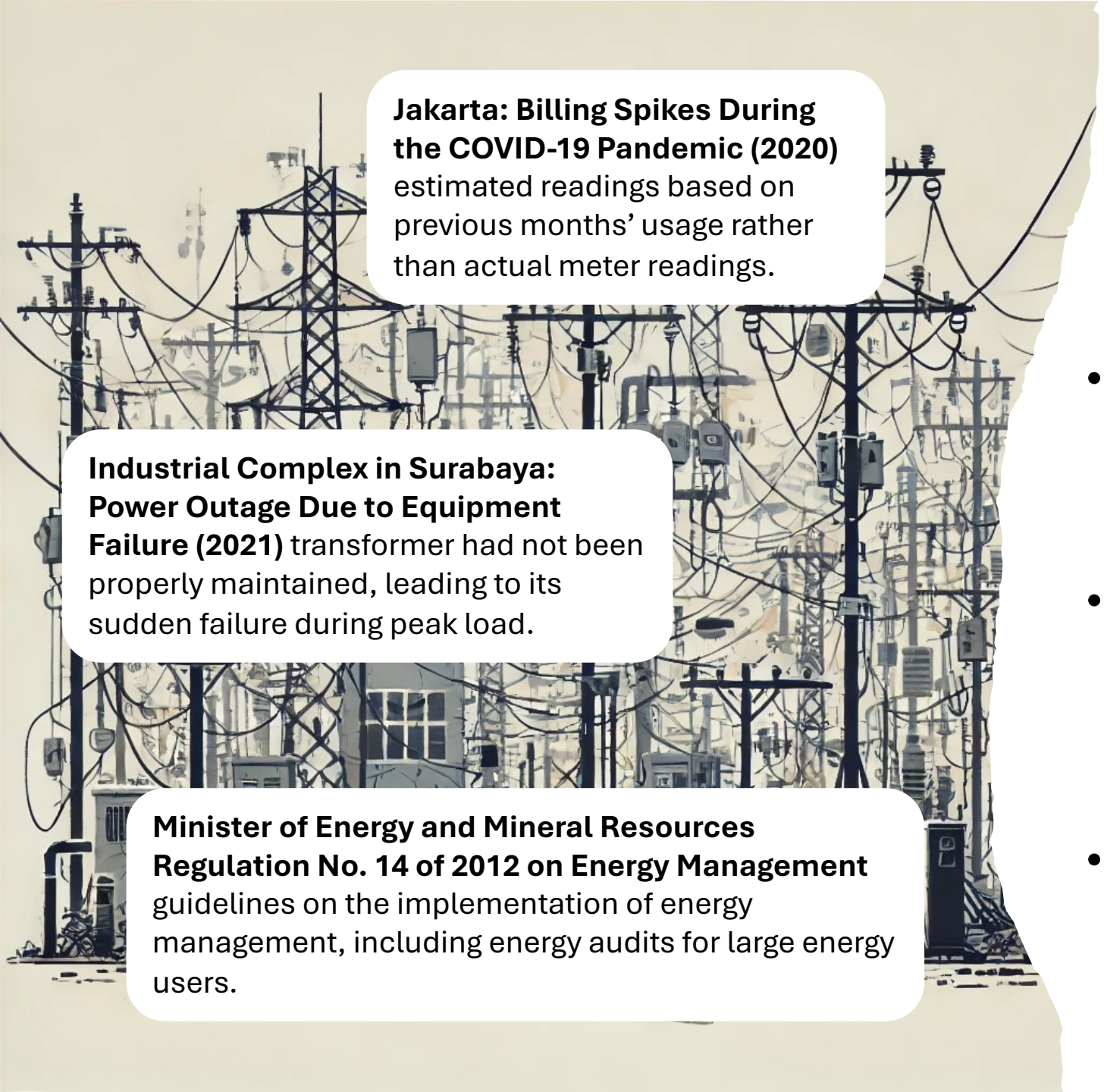
Laboratorium Manajemen Energi

Terknik Fisika



This is not an ADB material. The views expressed in this document are the views of the author/s and/or their organizations and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy and/or completeness of the material's contents, and accepts no responsibility for any direct or indirect consequence of their use or reliance, whether wholly or partially. Please feel free to contact the authors directly should you have queries.

Nomor Paten: P00202313219



Jakarta: Billing Spikes During the COVID-19 Pandemic (2020) estimated readings based on previous months' usage rather than actual meter readings.

Industrial Complex in Surabaya: Power Outage Due to Equipment Failure (2021) transformer had not been properly maintained, leading to its sudden failure during peak load.

Minister of Energy and Mineral Resources Regulation No. 14 of 2012 on Energy Management guidelines on the implementation of energy management, including energy audits for large energy users.

PROBLEMS WITH CONVENTIONAL ENERGY METER

- Lack of Real-Time Data
  - Billing Discrepancies and Delays
  - Unidentified Inefficient Energy Usage
- Lack of Renewable Integration
  - Limited Demand Response Capabilities
  - Inability to Integrate Renewable Energy Sources
- Regulatory Compliance

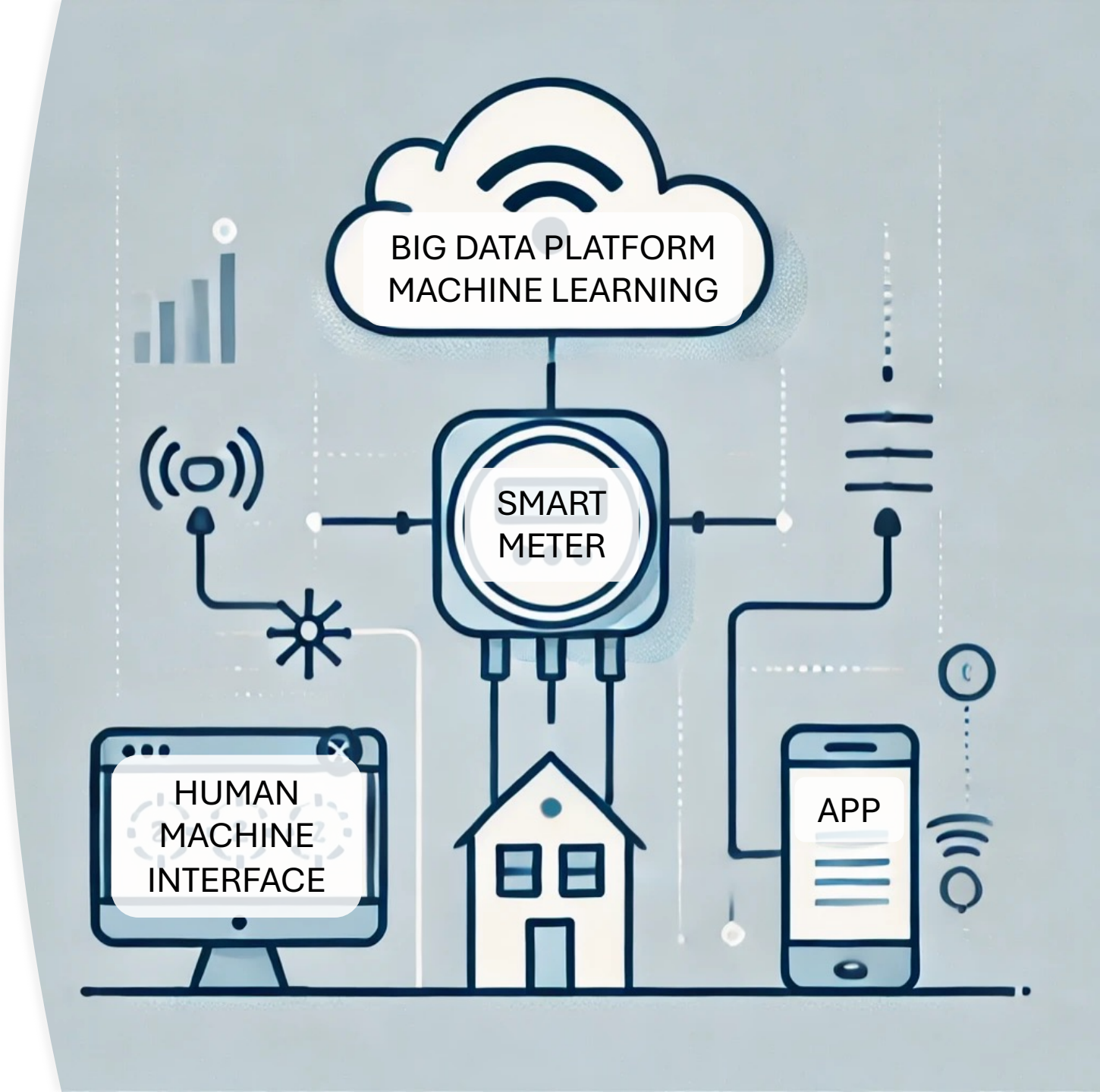
CLOUD NATIVE ENERGY MONITORING PLATFORM

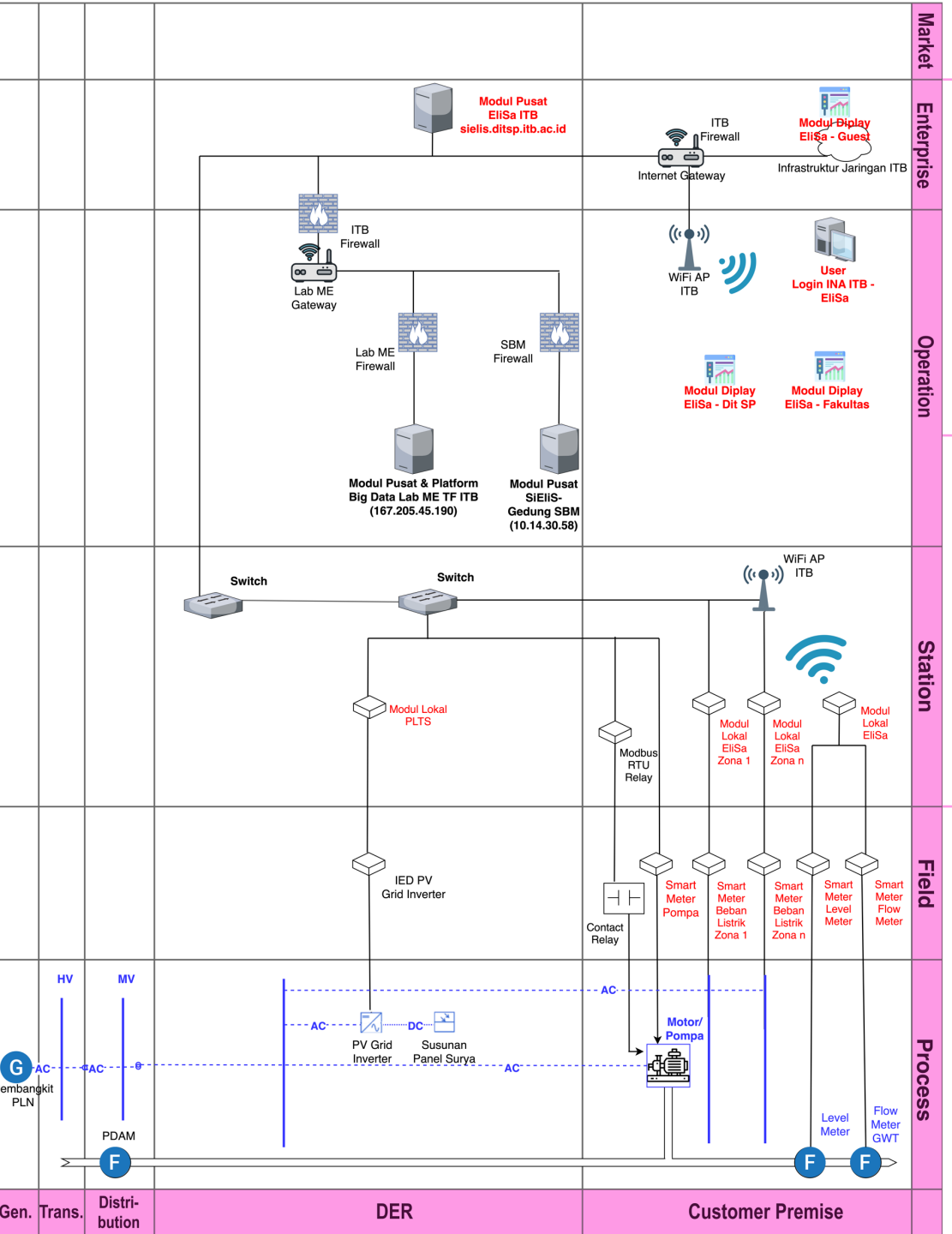
Function:

- Real-time Energy Data Collection
- Cloud Native Machine Learning Algorithm
- Secured Remote Access for Monitoring and Control

Enablers:

- Big Data Platform
- Smart Meters
- Internet of Things (IoT):
- Cybersecurity





Enterprise and Operation Zones

KEY BENEFITS

- User Engagement and Awareness
- Data-Driven Decision Making
- Preventive Maintenance

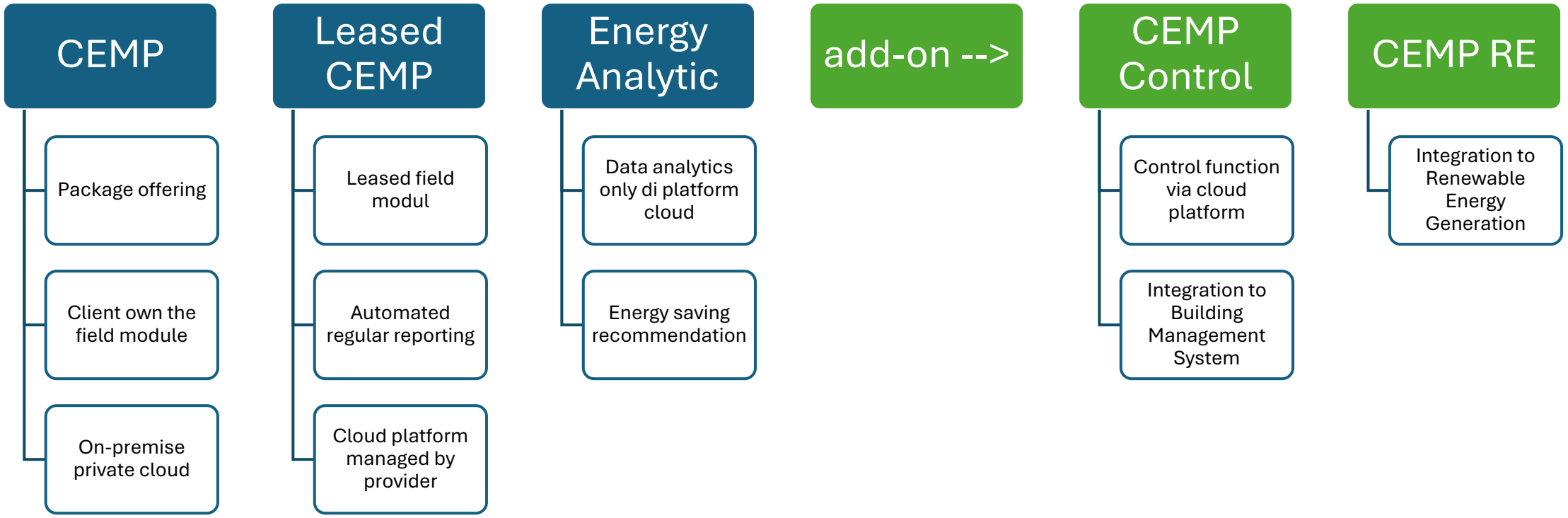
Operation and Station Zones

- Integration with Smart Grids
- Regulatory Compliance
- Cross Platform Interoperability

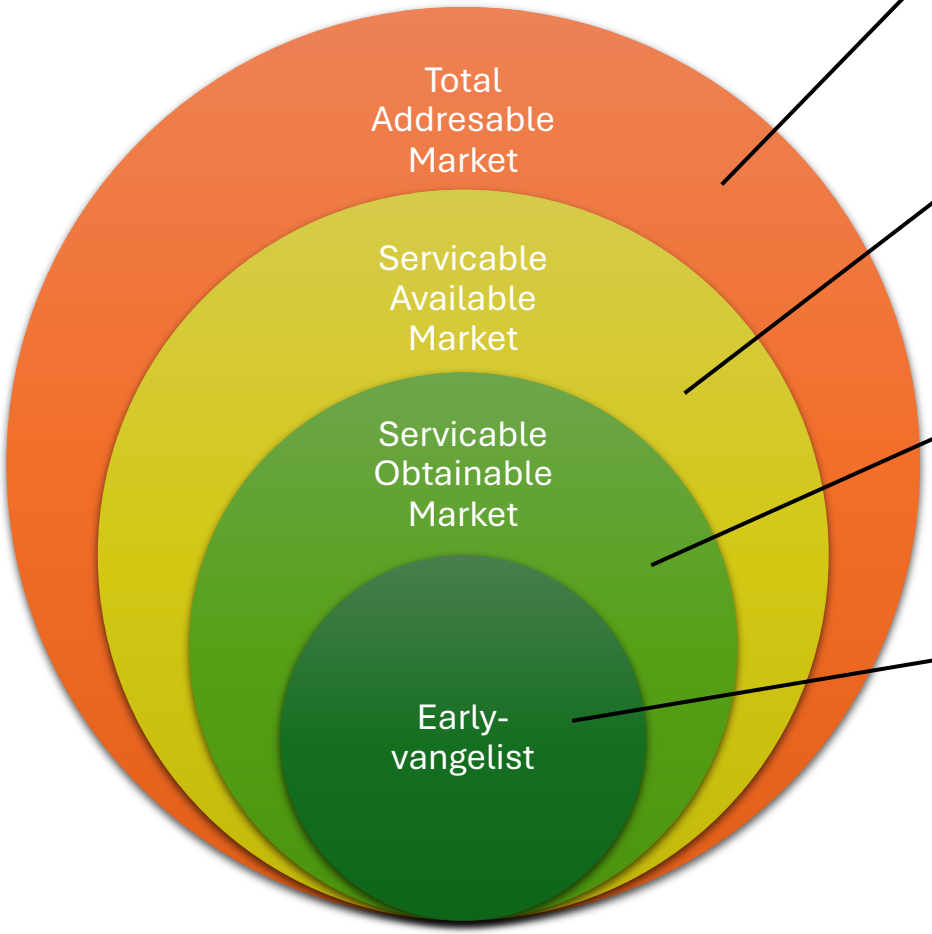
Field and Process Zones

- Enhanced Operational Control
- Energy Efficiency and Cost Saving
- Sustainable Energy Integration

CEMP Product Lineup



MARKET POTENTIAL



Indonesia's energy saving potential of all energy sector
USD 8.9 billion* (113 MBOE)

Energy saving potential of commercial and industrial sector
USD 3.25 billion (41.2 MBOE)

Identified Commercial and industrial with energy consumption > 6000 TOE/a
USD 1.5 billion (27 MBOE)

Reported commercial and industrial with energy consumption > 6000 TOE/a**
USD 425 million (5.7 MBOE)

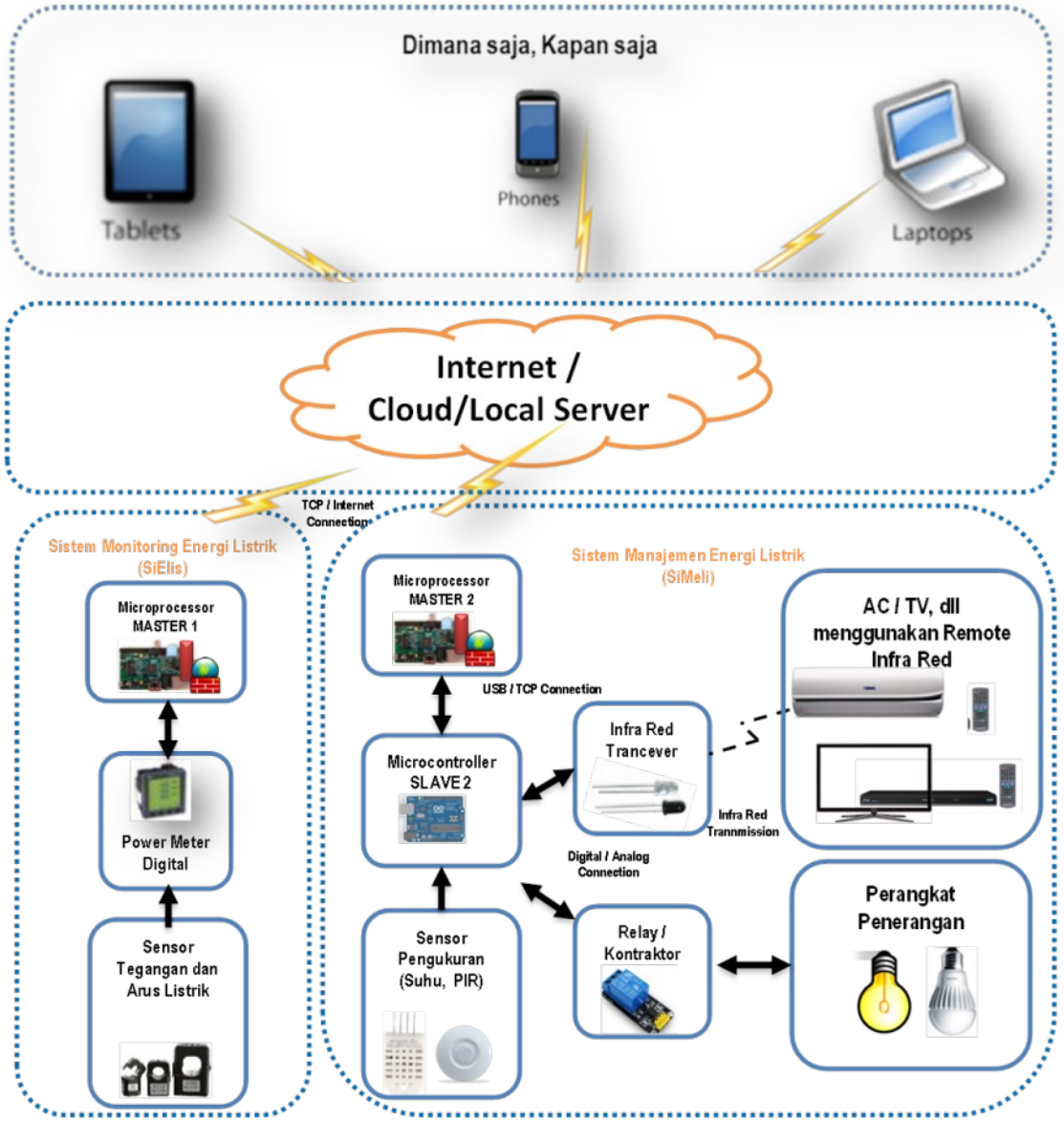
Key Drivers:
1. Growing Awareness of Energy Efficiency
2. Regulatory Support
3. Advancements in IoT and Data Analytics

Referensi:
* Potensi Penghematan Energi, ESDM, 2018 - 2023
** Pelaporan Online Manajemen Energi, ESDM, 2018 - 2023

CLOUD NATIVE ENERGY MONITORING PLATFORM

Dr.-Ing. Justin Pradipta
justinpradipta@itb.ac.id

Laboratorium Manajemen Energi
Terknik Fisika



Nomor Paten: P00202313219

Faculty

Choose Faculty

Building

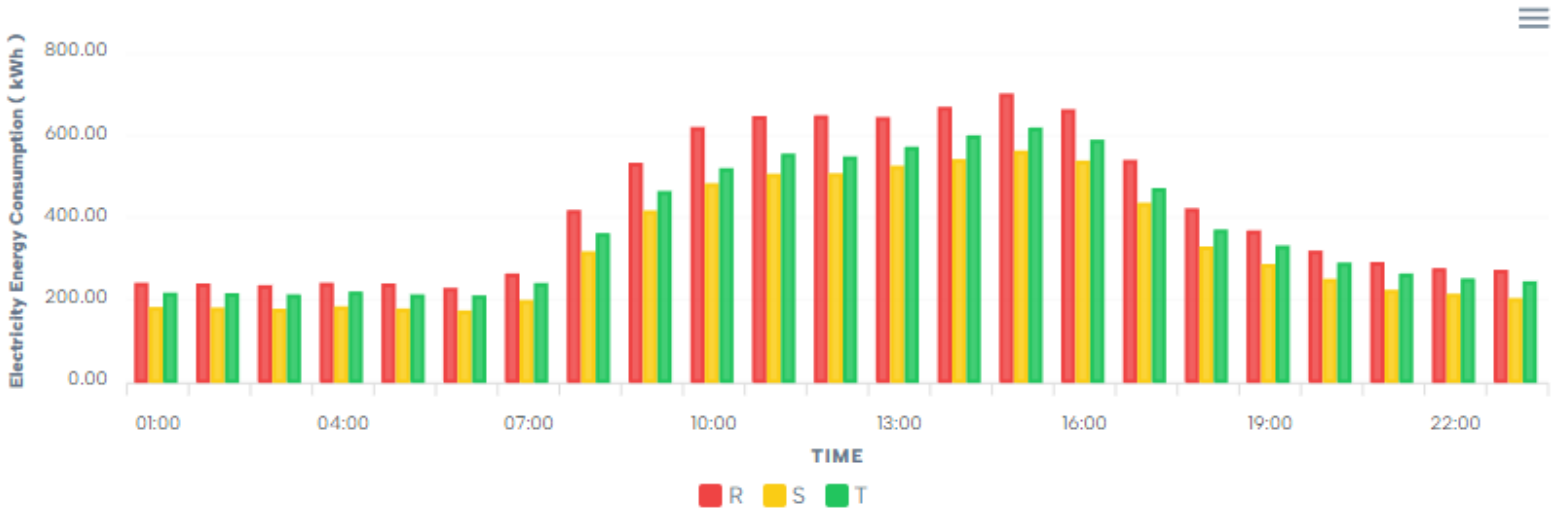
Choose Building

Floor

Choose Floor

11/Sep/2024

Electricity Energy Consumption (kWh)



Summary

-Rp. 2,712,608
-2,627.52 kWh/day

More Extravagant Compared to Last Month's Daily Average

Total Today
Rp. 25,918,304
24,927.15 kWh

Today Average
Rp. 1,126,882 /hour
1,083.79 kW

Total Prev Month
Rp. 711,917,609
684,120.94 kWh

Prev. Month (daily)
Rp. 23,205,696
22,299.63 kWh/day

Electricity Energy Consumption

HOUR	COST	ENERGY
01:00	Rp. 597,453	625.61 kWh
02:00	Rp. 593,634	621.61 kWh
03:00	Rp. 583,571	611.07 kWh

Faculty

Choose Faculty

Building

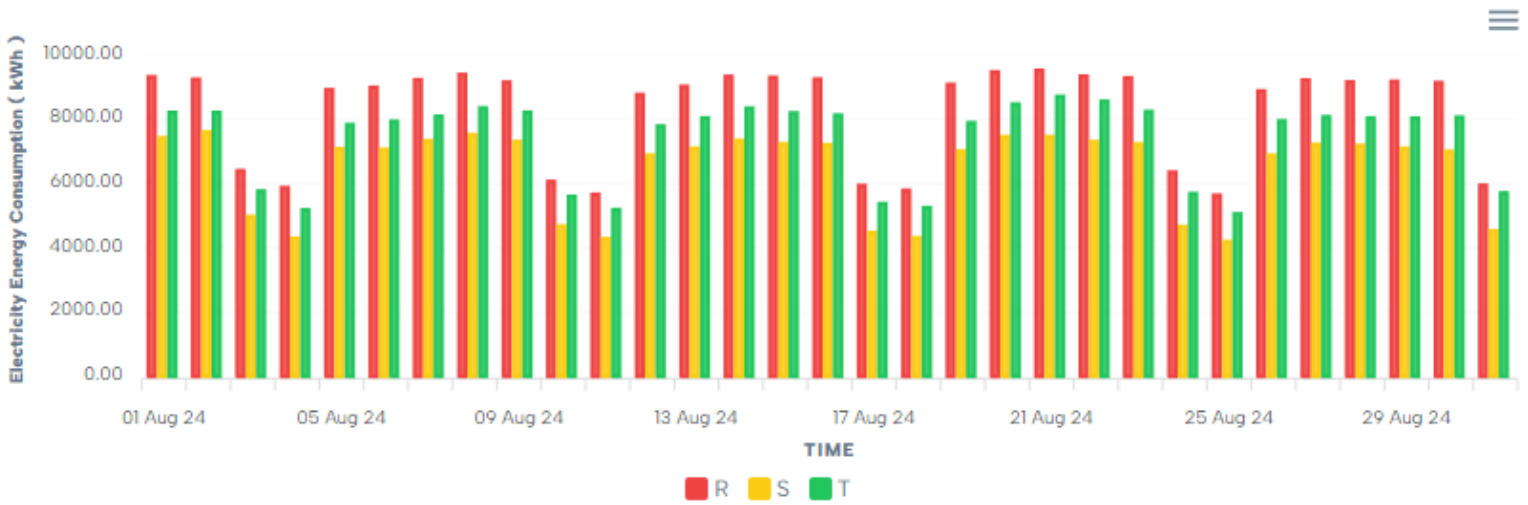
Choose Building

Floor

Choose Floor

Aug/2024

Electricity Energy Consumption (kWh)



Electricity Energy Consumption

TIME (UTC+7)	COST	ENERGY	PHASE 1	PHASE 2	PHASE 3
01 Aug 24	Rp. 25,877,679	24,970.57 kWh	9,322.30 kWh	7,430.00 kWh	8,218.28 kWh
02 Aug 24	Rp. 25,939,054	25,078.55 kWh	9,249.49 kWh	7,610.07 kWh	8,218.99 kWh
03 Aug 24	Rp. 18,060,190	17,174.56 kWh	6,409.66 kWh	4,985.60 kWh	5,779.30 kWh

Summary

-Rp. 7,469,940
-7,279.87 kWh

More Extravagant Compared to Last Month's Total Energy Consumption

Total
Rp. 711,917,609
684,120.94 kWh

Average
Rp. 23,205,696 /day
22,299.63 kWh/day

Total Prev Month
Rp. 704,447,669
676,841.07 kWh

Prev. Month (daily)
Rp. 23,096,644
22,191.51 kWh/day

Elisa

Electrical Energy and Water Information System
Institut Teknologi Bandung

Home | Daily | Monthly | Heatmap | Faculty

EN | Login

Faculty

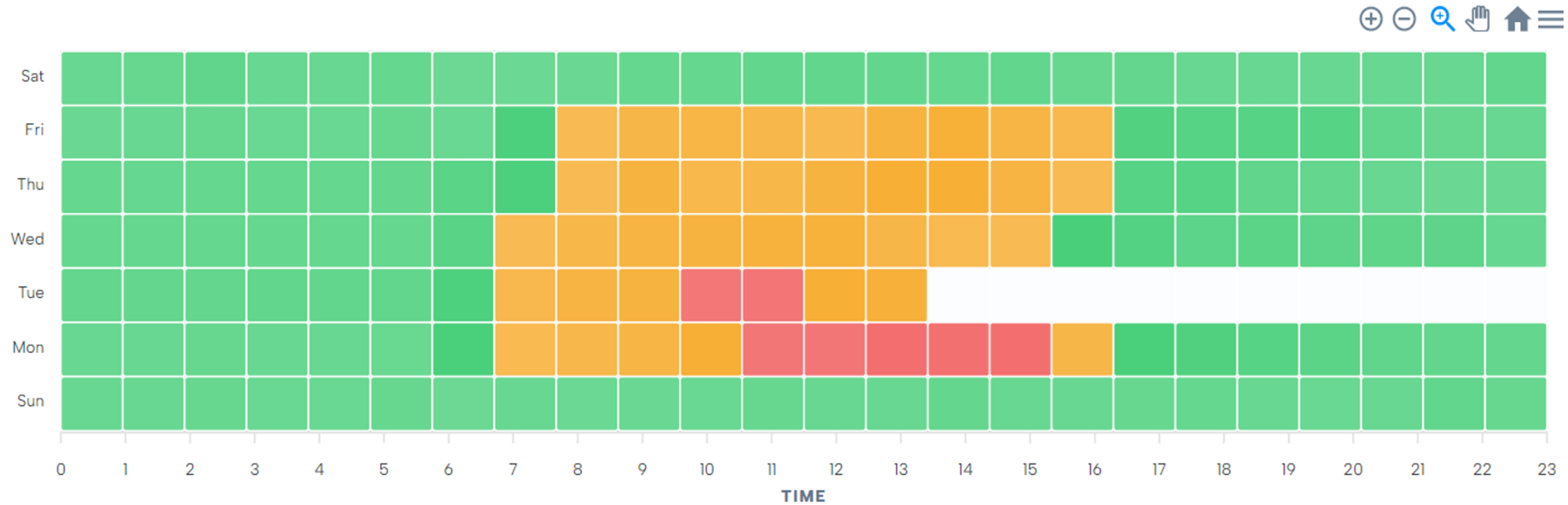
FTI

Building

-Choose Building-

Floor

-Choose Floor-

11/Jan/2023 TO 17/Jan/2023

Heatmap Chart (Watt)