Kementerian Koordinator Bidang Kemaritiman dan Investasi
Republik Indonesia

Road To ISF 2024: The Future of Energy Value Chains in The Regional Low-Carbon Economy Development

Act. Assistant Deputy Coordinating Minister of Supporting Industry for Infrastructure

21 August 2024

Indonesia's Rich Natural Resource Deposits Enable Industrialization To Complement The World's Energy Transition Needs

Major energy transition trends	Required technology	Required resources
Low-carbon electricity generation	Solar PV panels Wind & hydro turbines Energy storage	Nickel Bauxite Copper Iron Quartz
Growth in electrification	Electric vehicles Batteries Low-carbon hydrogen	
Bio energy	Biomass co-firing Biofuel	Palm Algae

Abundant resources for low carbon economy

- 3,686 GW of potential RE[1]
- Ni — World's biggest nickel reserves
- Sn — World's 2nd biggest tin reserves
- Al — 6th biggest bauxite reserves
- Cu — 7th biggest copper reserves

1. KESDM – RUKN

Through Downstreaming, Indonesia Is Industrializing, Transforming Its Economy from Raw Commodities to High Value Industries

Nickle Sulphate exports supports increasing exports of derivatives despite contracting nickel market price

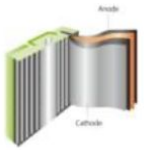
Nickel Ore → MHP, Ni, Co Sulphate → Chemical Components and Battery Cells → Cell, Module, and Battery → Electric Vehicles, Electricity Supply, ESS, and Infrastructure → Recycle

Nickel Ore

Nickel and Cobalt Sulphate

Battery Precursor

Cathode



Battery Cell and Pack

ESS

Charging Station

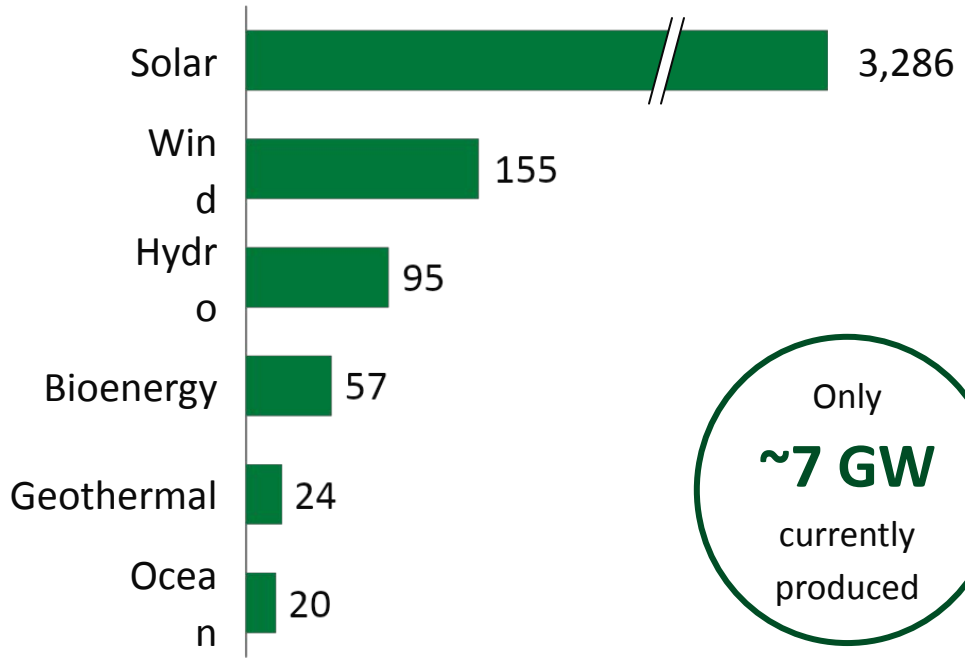
Battery Recycle

Source: Trademap

With 3,6k GW Worth of Renewable Energy, Indonesia Can Be The Green Energy Export Hub of ASEAN

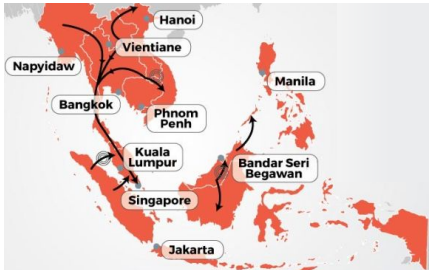
Indonesia has a huge potentials of renewable energy generation

RE Potential (GW)



Only **~7 GW** currently produced

Indonesia as actively forming energy partnership for cross border electricity trade, especially RE



Indonesia will support the ASEAN Power Grid Vision

Singapore: ~2 GW_{ac} cross-border **green power exports** from Batam, powered by solar energy (Singapore-Indonesia RE Partnership)

Malaysia (Sarawak-Sabah): Cross-border electricity trade from West Kalimantan

Papua New Guinea: Cross-border power exports from Skouw Papua, starting 5 MW

Source: CMMAI; ACE

Indonesia Plans to Expand the Domestic Value Chain for Solar PV and BESS

Solar PV value chain

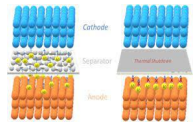




Polysilicon → Ingot / wafer → Cell → Module → Inverters, floats, etc.

BESS value chain





Refined materials → Sub-components → Cell and pack → Module → Management system

Through Collaboration with Singapore, Indonesia Has Attracted Investments in Green Power Exports and Solar Farm and BESS Supply Chain

Preliminary

	Power developer (PLTS)	Solar PV Manufacturers	Battery and Inverter Producers
Industry			
Supplier	MEDCOENERGI Power, adaro, edp Renewables, gurin ENERGY, gentari, Keppel Infrastructure	JinKO Solar, Trinasolar, JA SOLAR 晶澳太阳能, SERAPHIM, SUNTECH, LONGi	SUNGROW, HUAWEI, POWIN, REPT BATTERO 瑞浦兰钧, Gotion, ENERGY STORAGE INDUSTRIES ASIA PACIFIC
Investment	**USD 30-50 Billion**	**~USD 1,7 Billion**	**~USD 1,0 Billion**

The capacity that will be built by 2035:
2 GWac = 11 GWp panel + 21 GWh battery

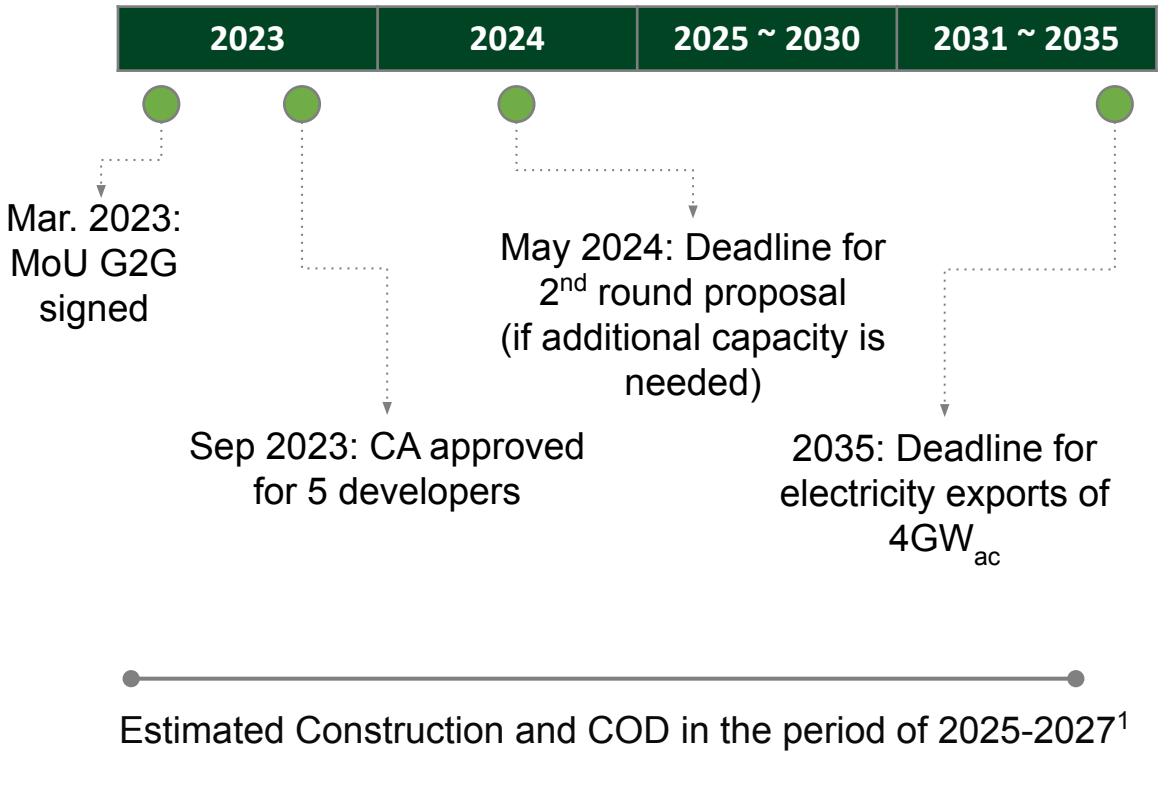
Potential addition of 3.3 GWac

+

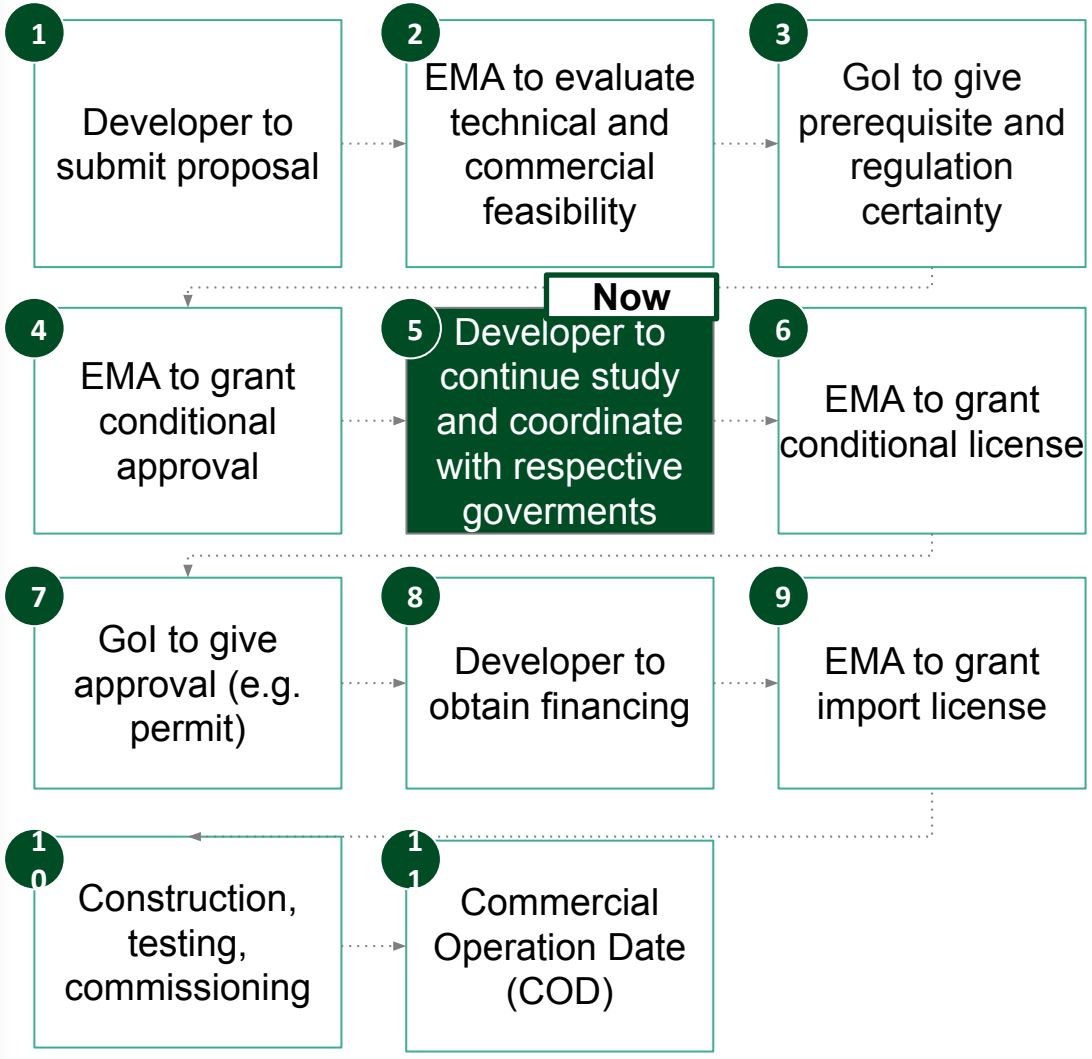
Green jobs as the substitute of job lost from fossil industry transition

Electricity Exports is Projected to Commence in 2027

Timeline

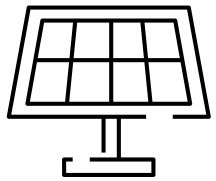


Process



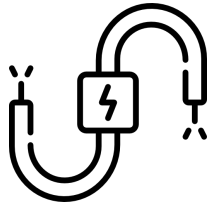
Source: EMA; Discussion with Potential Producer/Investor.1. Tergantung pada proses persetujuan dan penyelesaian kabel bawah laut.

The GoI Is Working on Several Fronts to Accelerate Solar PV Supply Chain Developments and Green Electricity Exports



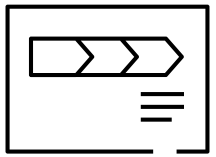
Supply chain developments

Developing Solar PV and BESS value chain that can meet LCR target and supporting policy



Transmission/ infrastructure

Subsea cable corridor for electricity exports



Electricity exports regulation

Permit and license for electricity exports

Indonesia Will Host Indonesia Sustainability Forum 2024, A Forum for Nations and Business to Collaborate in Accelerating Global Energy Transition

GoI seeks to elevate ISF 2024 to be an Indonesia 'International' Sustainability Forum

Snapshot from ISF 2023

ISF 2024 will be held on 5th– 6th Sept, with side events starting on 4th Sept

- 2 weeks before **UNGA 79th in New York**
- 9 weeks before **COP 29 in Azerbaijan**

250+ speakers & 5000+ participants from government, business, academia, to philanthropy

20+ topics in sustainability, decarbonization and climate actions

ISF main & side events

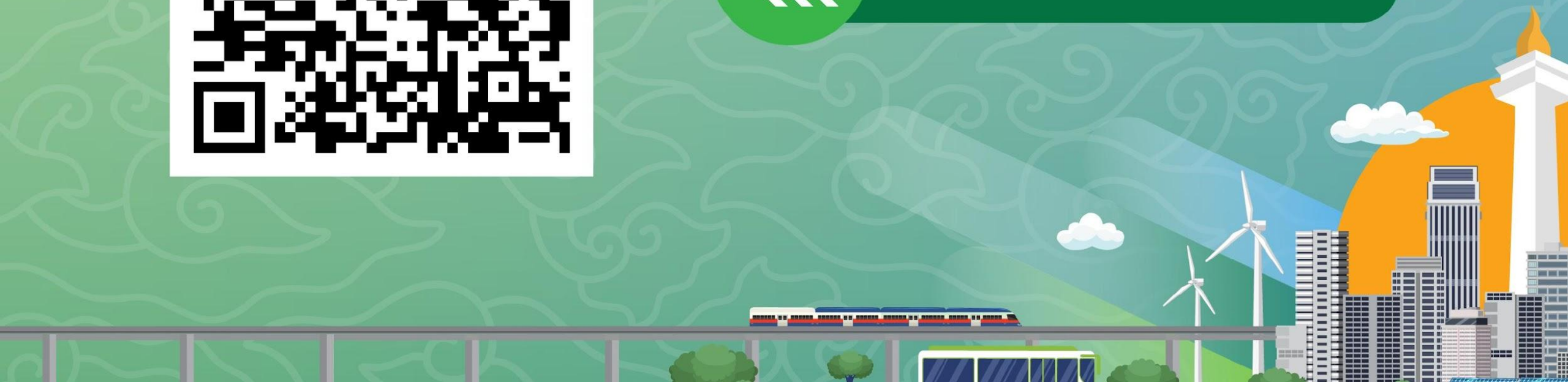
- Plenary Session
- Thematic Session
- Round-table Session
- Workshop Session
- Philanthropy forum
- MoU Signing

Indonesia welcomes partnership to improve understanding and collaboration in key decarbonization solutions through ISF events

INDONESIA INTERNATIONAL SUSTAINABILITY FORUM

The Indonesia International Sustainability Forum 2024 is now open for participant registration!

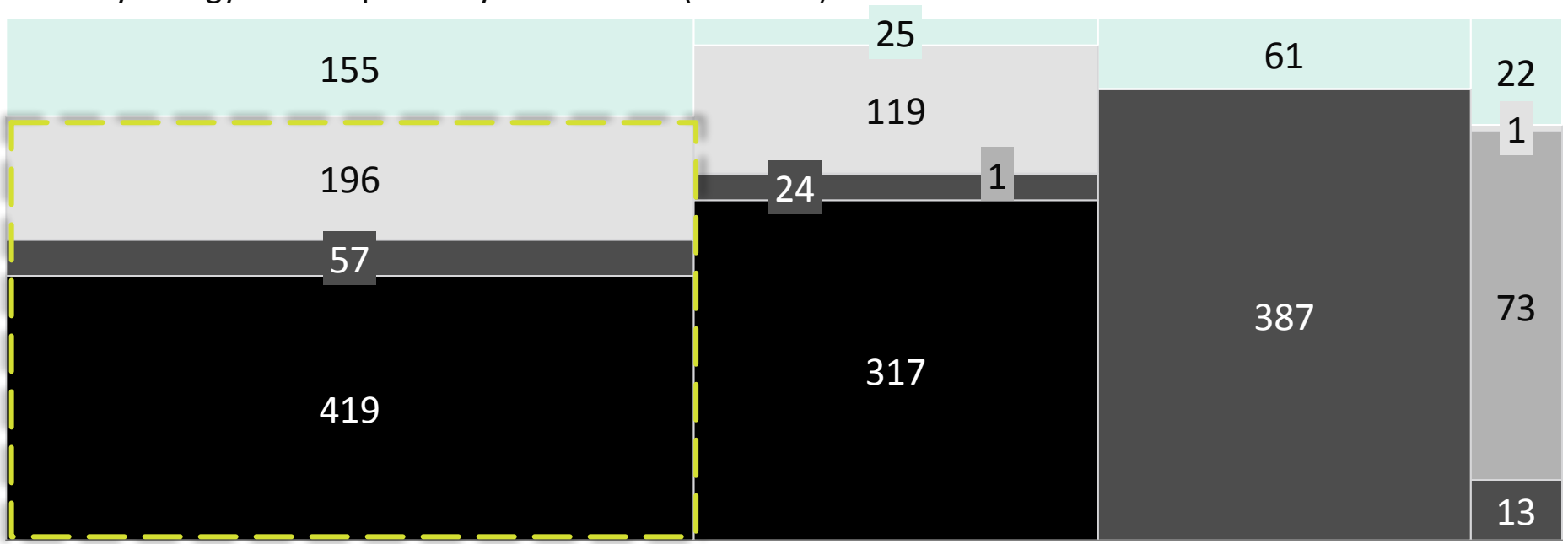
REGISTER NOW



Thank You

Fossil Make Up 86% of Energy Consumption, with ~3/4 Consisting of Coal for Electricity, Petrol for Transport, and Coal for Industry

Primary energy consumption[1] by sector 2023 (Mn BoE[2])



Shares of energy source

Non Fossil	14%
Natural gas	17%
LPG	4%
Petroleum	26%
Coal	39%

	Electricit		Industr		Transpor		Building			
Total primary	**826**	(44%)	**485**	(26%)	**448**	(24%)	**110**	(6%)	**1.870**	(100%)
Fossil	**671**	(36%)	**461**	(25%)	**388**	(21%)	**87**	(5%)	**1.607**	(86%)
Non Fossil	**155**	(8%)	**25**	(1%)	**61**	(3%)	**22**	(1%)	**263**	(14%)

Indirect fossil from electricity[4] *302 (37%)* *523 (63%)*

1. HEESI Chapter 5 for consumption per end-user sector; for energy consumption, power generation is derived from the difference between the total primary energy supply (Table 3.1) and the total primary energy consumption of the end-user sector; Biogasoil is assumed to comprise 70% fossil volume and 30% non-fossil volume; 2. Barrel Oil Equivalent; 3. Residential, Commercial, and other sector; 4. Reallocation of fossil energy consumption from electricity generation to end-sector; Electricity consumption in Mn BoE for end sector: industry 70, transportation 0.2, buildings 114

Source: HEESI ESDM 2023