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WRI Presentation for ACEF 2025:

Unlocking Financing Opportunities for Clean Heat Solutions in Textile Supply Chains

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WRI INDONESIA

WRI Indonesia is an independent research organization that works with governments, businesses, multilateral institutions, and civil society groups to develop practical solutions that improve people's lives and ensure nature can thrive in Indonesia.

WRI Indonesia was legally established as a foundation (Yayasan) in 2014.

We organize our work around seven crucial issues:

- **Food, Forest, and Water;**
- **Climate, Energy, Cities and Transportation, and Ocean**

Why must we decarbonize textile industries?

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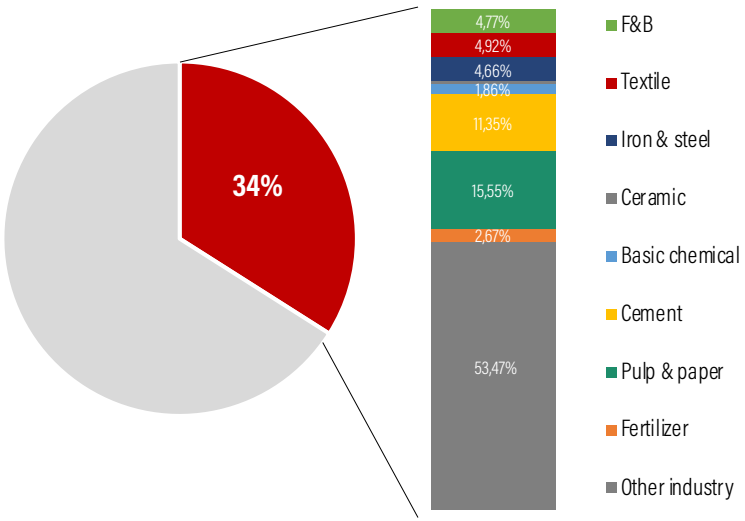
3 reasons on why industries' support are crucial in achieving the national emission reduction target (NDC)

1. Big environmental impact



34% of Indonesia's emission is sourced from industries.

5% of Indonesia's emission is generated from textile and apparel industries.

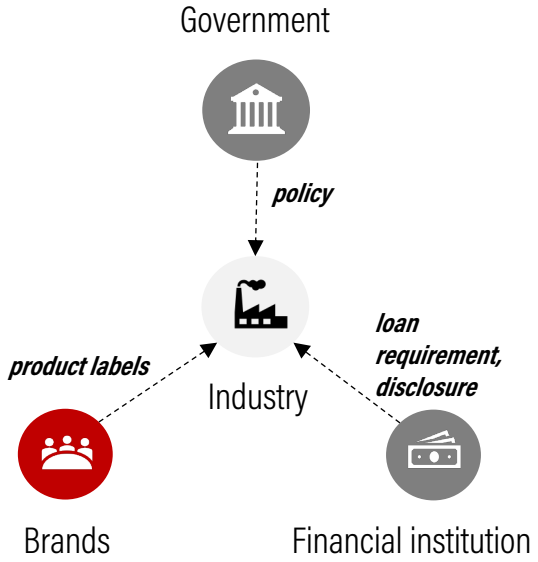
2. Massive economic modality

5%
of Indonesia's GDP is contributed by textile industry

3.9 million
Indonesian are employed by textile industry

Low carbon industry fuels low carbon economy.

3. Growing green demand from market



Various market players, especially **apparel brands**, are demanding textile industry to be greener through various levers.

Understanding textile value chain, energy and emission profile in Indonesia

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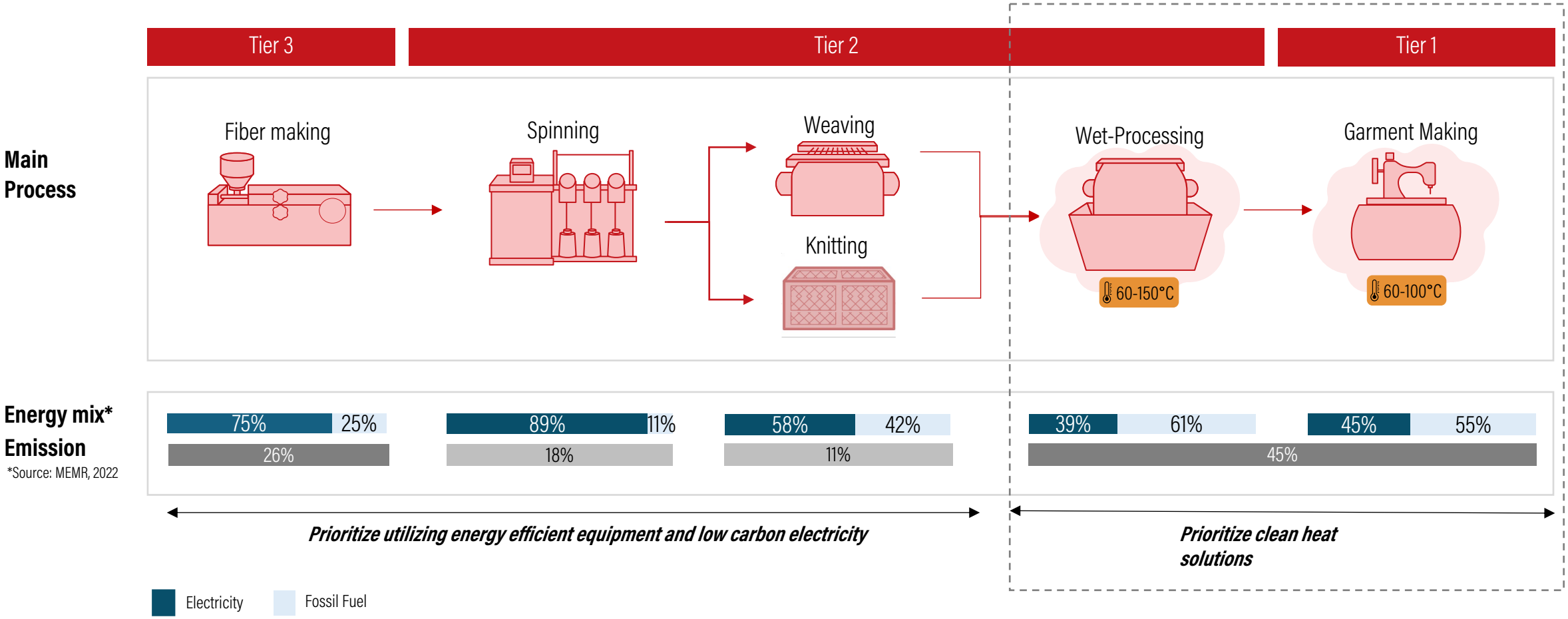

Clean heat solutions for textile industry are already available in the market, but lacking adoption due to high investment costs

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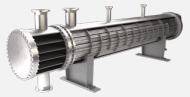
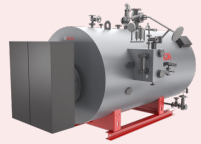
	Near-term (until 2030)		Medium to Long-term (until 2050)
Technology	 **Heat exchanger (waste heat recovery)**	 **Biomass (boiler fuel switching)**	 **Electric boiler**
Utilization	Boiler and wastewater systems for fabric wet processing and garment ironing	Boiler systems for fabric wet processing and garment ironing	Boiler systems for fabric wet processing and garment ironing
Energy savings or GHG emission savings	Energy savings: • Stenter: up to 30% • Boiler: up to 3-9% by using economizers	Emission reduction: **Up to 100% potential savings** by using sustainable biomass	Emission reduction: **Up to 100% potential savings** by using low carbon electricity
Investment needs estimation	• CAPEX: Varies on the size of heat exchanger to be installed • Energy cost: cost savings varies on energy savings	• CAPEX: **0 to >1.5Bn IDR** (boiler replacement)[1] ; • Energy cost: **potential increase** due to low fossil fuel prices	• CAPEX: **2-9Mn IDR/kW**[4] • Energy cost: **18k IDR/kW** (electric boiler fixed O&M) [4] - **potential increase in energy cost** due to low coal prices

Notes:
- * From interviews with several technology providers (5 ton/h boiler with maximum steam pressure at 10-12.5 bar)
- REC = Renewable energy certificate, GEAS = Green energy as a service -> Products provided by PLN
- Energy cost calculated for electric boiler includes REC cost, using reference price of Rp 1,035.78/kWh for non-peak load hours and Rp 1,553.67/kWh for peak load hours

Sectoral findings:

Textile suppliers face financial challenges in deploying clean heat techs

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Key considerations of textile suppliers for investing in clean heat technology

Decarbonization budget
Limited budget due to low profit margin

Production characteristics
Tier production, energy consumption level, existing systems, number of goods production

Implication:

Each supplier **has a different technology** (i.e., electric boiler, solar panel, EE utilities) **& financing preference**

Technology deployment issue	**Limited financial capacity, technology cost doesn't meet the required ticket size**
Potential financing solution	Corporate guarantee financing scheme, Energy as a Service

Other low- to medium-temperature sectors face similar challenges as textile suppliers, but the situation differs for high-temperature sectors

Low- to medium-temperature sectors	
Sector	Food & beverages, pulp & paper
Technology deployment issue	Limited financial capacity, technology cost doesn't meet the required ticket size
Potential financing solution	Corporate guarantee financing scheme, Energy as a Service

High-temperature sectors	
Sector	Iron & steel
Technology deployment issue	High investment cost but meets the required ticket size
Potential financing solution	Existing climate finance product/business-as-usual

Financing-related findings:

Limited access to affordable and innovative financing has slowed the adoption of clean heat solutions, particularly in the textile industry

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Technology providers:

Most of the currently available **clean heat solutions are imported,** and the majority of technology providers **have not yet offered innovative financing options**

Energy-as-a-Service Company (ESCOs) already exist, but only a few offer no-CAPEX schemes due to **limited financial capacity** ***(leading ESCOs: SES, BECIS)***

Financial institutions:

Commercial & development banks:

Several banks already provide sector-specific products for EE, technology upgrades; but **have limited interest on textile industry**

Leasing company:

Lower-cost leasing financing option are not available, and the companies only interested for investing in **heavy industry**

Main solutions for the textile industry are **already available** in the market, but **innovative financing options are needed** to make them more accessible

Solutions:

Potential financing interventions based on suppliers' investment preference

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Financing challenges	Mapped stakeholders	Possible interventions
High OPEX investment Due to increase in **energy cost** (i.e., fuel switching, purchase of green electricity)	Brands	• Supply chain financing • Preferential order (larger volume order, longer contract) • Additional buying price
High CAPEX and OPEX Investment (the solutions can tackle both challenges)	Government institutions	Provide fiscal and non-fiscal support, such as incentives, subsidies, etc.
	Energy as a Service Company (ESCO)	Tailored end-to-end energy solutions program through Energy Savings Performance Contract (ESPC)
	Financial institutions	• Collaborate with guarantor to lower cost of fund, hence reducing financial risk and create a low-interest green finance product • Developing financial consortium for de-risk green financing transaction or act as an aggregator
High CAPEX Investment Due to **machinery replacement and/or additional equipment** (i.e., self-generation electricity, boiler replacement, waste heat recovery, etc.)	Technology providers	No CAPEX method through leasing installment, rental, and subscription model

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Thank you!

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