



Industrial Decarbonisation in a Just Transition

5th Australia-Indonesia Energy Transition Policy Dialogue

17 June 2025: 9am WIB | 12pm AEST

Pre-reading materials



MODES OF ENGAGEMENT

Welcome to the fifth meeting of the Track 1.5 Australia-Indonesia Energy Transition Policy Dialogue, convened by the Centre for Policy Development (CPD) and Climateworks Centre.

The Dialogue is an **informal forum** for collaboration between **policy makers, regulators, business and non-government experts from Australia and Indonesia** to discuss policy ideas and areas of potential collaboration on energy transition issues.

The Dialogue is **not about admiring the problem, but about developing practical, workable solutions** to the energy challenges facing Australia and Indonesia. As such, topics for discussion at these meetings will be guided by participants.

This group has met four times to date:

- **December 2022:** Kick-off meeting: focus on just transition, infrastructure and governance
- **March 2023:** Public and private financing opportunities for just energy transitions
- **October 2023:** ASEAN and Australia: fostering regional energy transition collaboration
- **August 2024:** Social dimensions of just energy transition

As always we invite participants to **bring their curiosity, creativity and collegiality to the policy challenges confronting us**, and use this roundtable to test ideas, gain insight and build collaboration.

Dialogue 5:



Date:

Tuesday 17 June 2025



Time:

9:00-12:00 WIB / 12:00-15:00 AEST



Location:

Jakarta:

SBM-ITB Jakarta Campus
TK Low Center for Executive Education
Graha Irama (Indorama), 12th floor
Jl. HR. Rasuna Said Kav. 1-2
Jakarta 12950

Zoom:

<https://monash.zoom.us/j/81393401341?pwd=iQfrOxdhp6kPSfcp9DXEnDRHVrxnHP.1>

Meeting ID: 813 9340 1341

Passcode: 619793

Agenda and objectives

Agenda Item	Objective	Time (WIB)	Time (AEST)
WELCOME	Welcome new participants, recap prior meetings and outline objectives of this session <ul style="list-style-type: none">• Indonesian Vice Minister of Industry remarks• Australian Ambassador to Indonesia remarks	9:00am	12:00pm
SESSION 1:	Industrial Decarbonisation – A Pathway to Collaboration <ul style="list-style-type: none">• Deep dive into industrial decarbonisation as a key component of the transition• Case studies from Australia & Indonesia on place-based industrial decarbonisation• Outcome: Identifying crucial challenges and opportunities for potential collaboration	9:15am	12:15pm
SESSION 2:	Social and Human Aspects of Just Transition in the Industrial Sector <ul style="list-style-type: none">• How to integrate social and human aspects in the industrial decarbonisation journey• Best practices for workforce transition and capacity building• Outcome: Shared understanding of an inclusive and just transition approach	10:15am	1:15pm
SESSION 3:	Soft Commitments and Bilateral Collaboration Opportunities <ul style="list-style-type: none">• Discuss potential for concrete collaboration between Indonesia and Australia• Initial commitments from participants for how they can support this collaboration• Outcome: A plan for follow-up collaboration post-dialogue	11:15am	2:15pm
CLOSE	Agree next steps, including future dialogues and discussions	12:00pm	3:00pm

Participant List

In Jakarta

Andi Rizaldi	Head of Industrial Services Standardisation and Policy Agency, Ministry of Industry
Andrew Hudson	CEO, Centre for Policy Development
Andre Permana	Director, Indonesia Infrastructure Guarantee Fund
Anna Skarbek	CEO, Climateworks Centre
Chris Bloomfield	Counsellor - Energy and Climate Change, Department of Climate Change, Energy, the Environment and Water, Australian Embassy Jakarta
Delano Dalo	Head of Public Financing 2 Division, PT. SMI
Ellen Setiadi	Deputy Minister, Coordinating Ministry for the Economy
Eniya Listiani Dewi	Director General of New, Renewable and Energy Conservation, Ministry of Energy and Mineral Resources
Faisol Riza	Vice Minister of Industry for the Republic of Indonesia
Filda Yusgiantoro	Chair, Purnomo Yusgiantoro Center

Hindun Mulaika	Co-Director Indonesia, TARA Climate Foundation
John Brownlee	Director, KINETIK
Juniko Nur Pratama	Industry Decarbonization Program Manager, Institute for Essential Services Reform
Lucky Lontoh	Associate and Country Coordinator, International Institute for Sustainable Development
Moekti (Kuki) Soejachmoen	Executive Director, Indonesia Research Institute for Decarbonisation
Nirarta (Koni) Samadhi	Country Director, World Resources Institute (WRI) Indonesia
Purnomo Yusgiantoro	Special Adviser on Energy to the President of Indonesia
Randy Rakhmadi	Programme Director, ViriyaENB
Rod Brazier	Ambassador, Embassy of Australia in Jakarta
Wafi Chalid Abdat	Head of Government and Corporate Affairs, Suncable Indonesia
William P. Sabandar	COO. Indonesian Business Council

Online

Anjali Viswamohanan	Director of Policy, Asia Investor Group on Climate Change (AIGCC)
Judy Anderson	Vice President, Australia Indonesia Business Council
Larissa Taylor	Director, Savoir Consulting
Luke McClean	Director, Pollination
Kartika Cahyani	Project Manager (Industry, Science and Resources), Australian Embassy Jakarta
Siswo Pramono	Ambassador of Indonesia to Australia
Tennant Reed	Director, Climate Change and Energy, Australian Industry Group

Part 1: Industrial Decarbonisation - A Pathway to Collaboration

Discussion questions:

- What lessons can be learned from place-based industrial decarbonisation in Australia that can be useful for the Indonesian context?
- What are your thoughts on the five proposed locations of Net Zero Industrial Precincts in Indonesia?

Heavy industry has been late to abate around the world. Taking a “place based” approach is a way to accelerate action.



Just transition

Taking a place-based approach allows policy to respond to the needs of a particular community, working to leave no one behind. In the context of industrial decarbonisation, this ensures those working around the local industry (ie. transport, retail) are also supported.

Tailored to local geographies

Physical resources, land assets and existing infrastructure can all be taken into account in what works best in each location. Considerations like existing skills and jobs for specific sectors can help to determine what is feasible and equitable for particular regions.

Aligned with local policies

Policies, funding, and national and sub-national transition plans can act as either enablers or constraints for industrial decarbonisation, and should all be taken into account. Effective place-based policy can help to align local, regional and national policy.

Perceived as relevant

Regionally specific sectoral pathways lead to greater local political and societal buy-in. When the public can see the benefits of a place-based approach that is relevant to them, it is easier to gain their support and plans can be accelerated.

To be effective, transition planning should always balance drawing lessons from what has worked well elsewhere, with considering the local context.

Place-based industrial decarbonisation can be achieved through **Net Zero Industrial Precincts (NZIPs)**

The NZIP model facilitates collaboration through **building coalitions** between government, industry and civil society and **unlocking barriers** to hub-based decarbonisation planning and investment. The model also creates a **supportive policy environment** that catalyses implementation.

What

- NZIPs are **designated geographic clusters** of industry, low emissions energy, ports, suitably zoned land, skilled workforces and infrastructure.
- **Stakeholders agree to collectively decarbonise** through securing firm renewable energy; leveraging shared infrastructure; building enabling infrastructure; sharing risks, knowledge, costs and resources; implementing circular economy systems, energy efficiency and low carbon technologies.
- NZIPs aim to **produce competitive low carbon goods and stimulate new green exports** through decarbonising existing production and attracting new industries - creating jobs and economic growth in the process.

Why

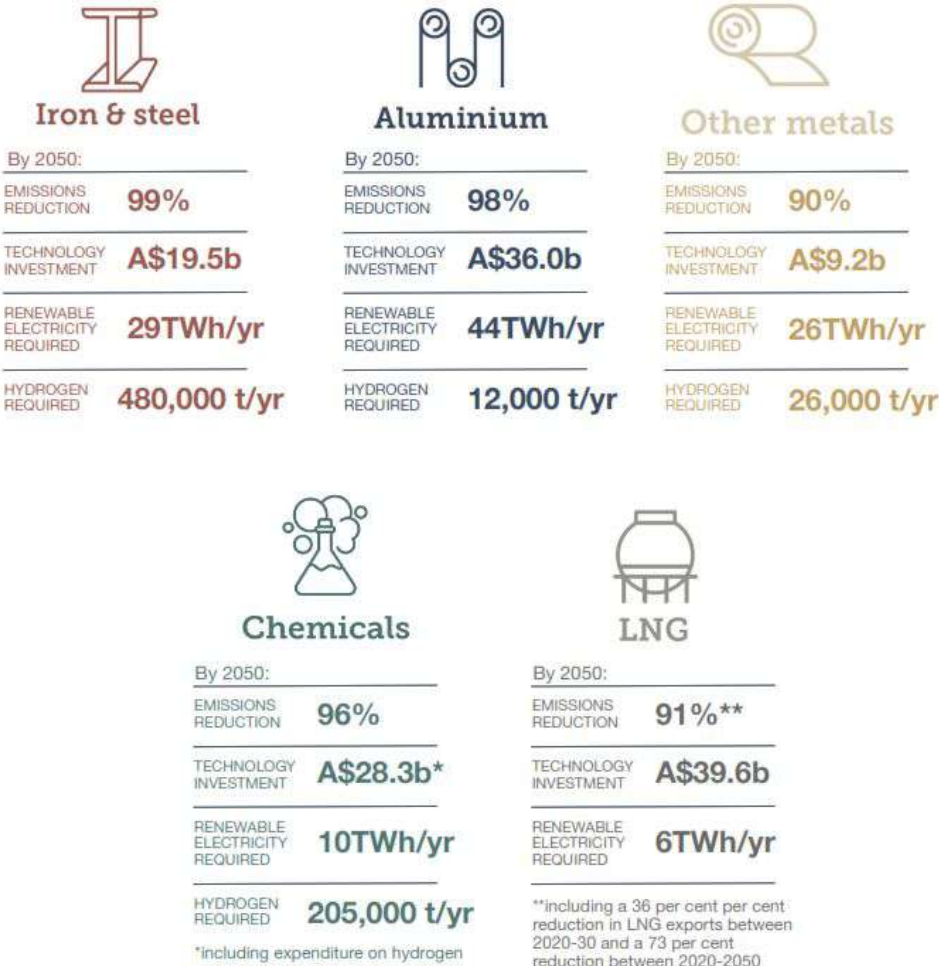
- Key barriers for unlocking investment in low-emissions production are the perceived risks and upfront costs in the face of uncertainty around demand and price for green products.
- To achieve the scale of investment required, **clear policy signals are needed** to drive market interest.
- These signals include de-risking investment in clean energy systems and industry processes, and certification of green production.
- At the moment around the world governments aren't moving fast enough to shape this favourable policy and regulatory landscape.

How

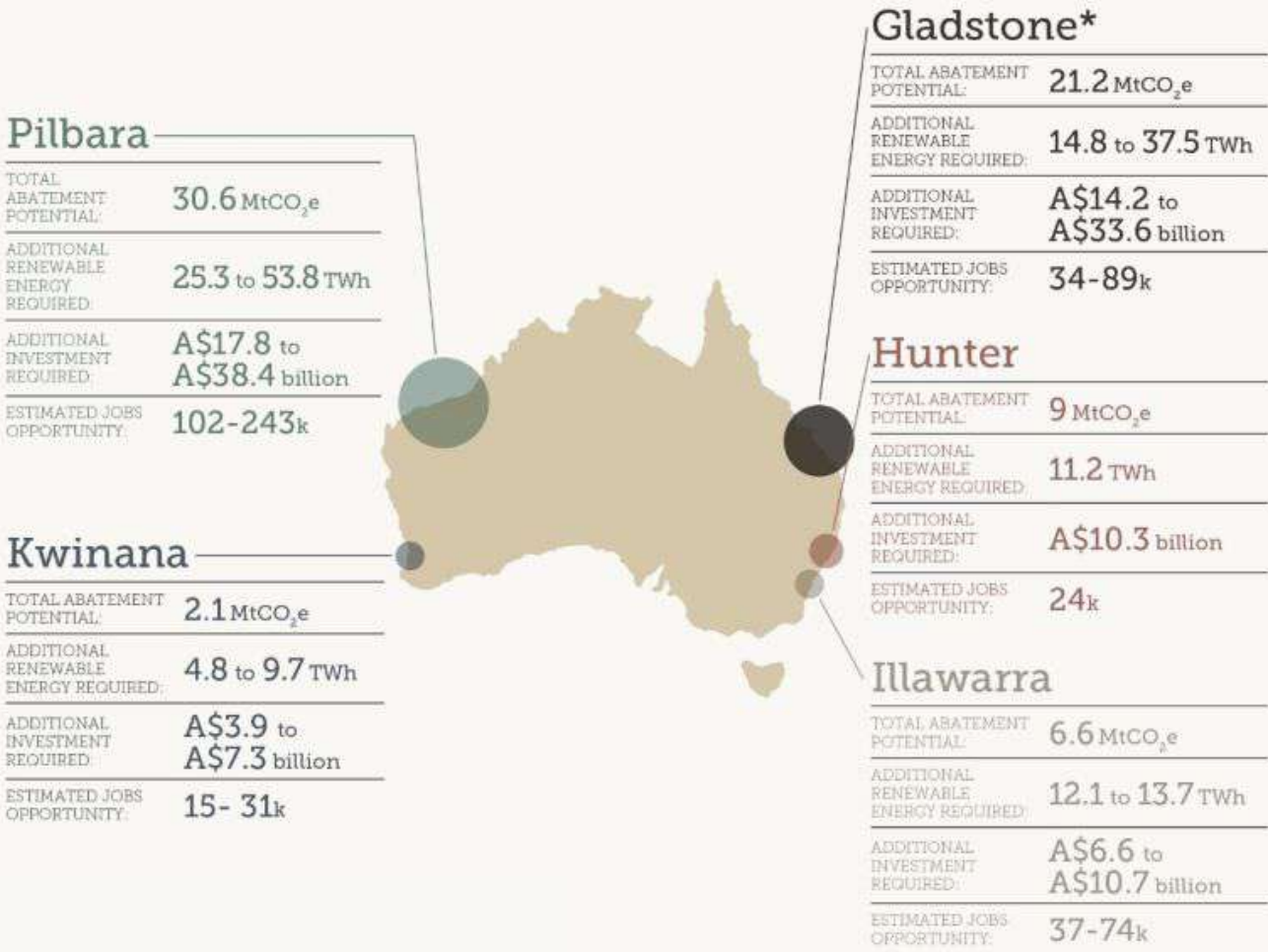
- **Convene key stakeholders** from government, investor groups and industrial facilities.
- **Work to unlock investment**, and harmonise policy and regulation to pursue precinct-level industrial decarbonisation.
- Establish national frameworks, foster knowledge exchange, achieve buy-in from policy makers, facilitate site selection to **begin implementation of NZIP**.

Australia has already begun its place-based industrial decarbonisation, and Indonesia can learn from this experience

Five industry sectors to be decarbonised in Australia:

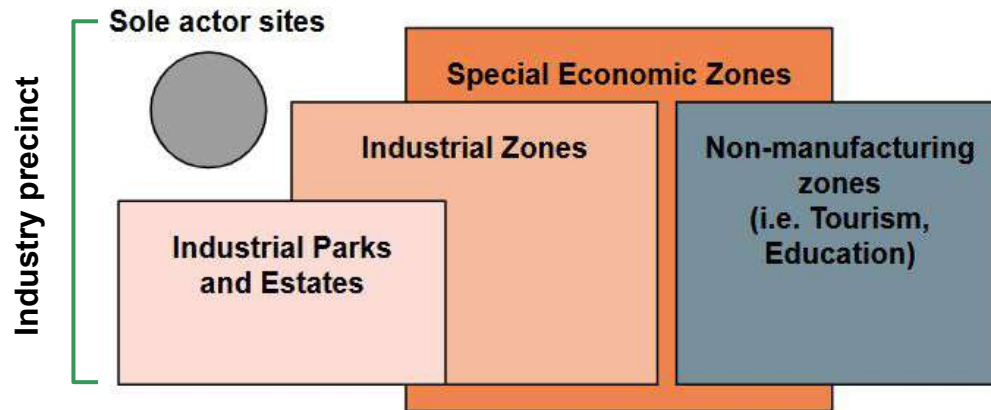


Five locations identified as most feasible for NZIPs in Australia:



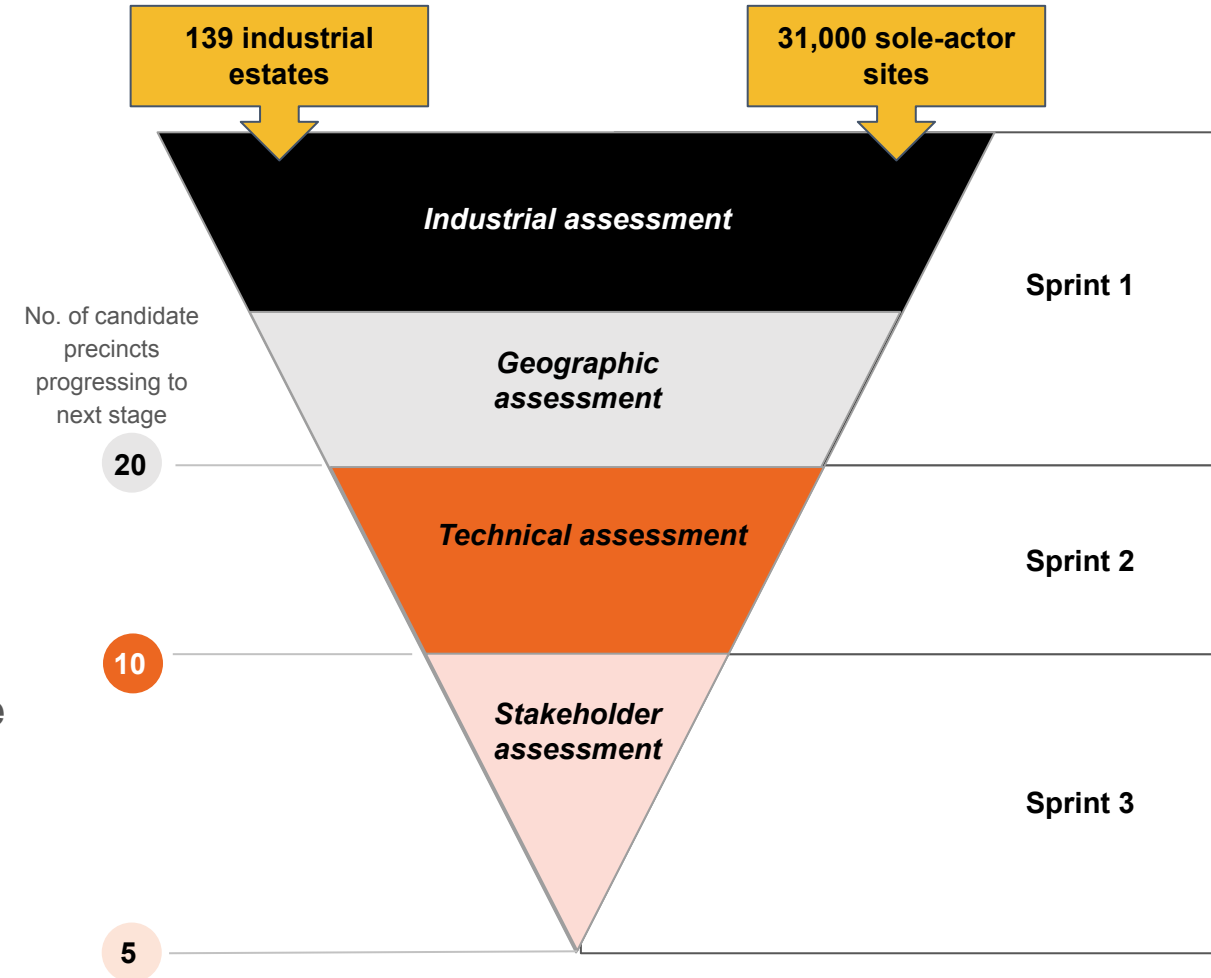
How to identify which sites in Indonesia have the greatest potential to decarbonise?

Indonesian manufacturing can be broadly divided into medium-large size 'sole actor' facilities and small-sized facilities located within industrial estates



Climateworks' research identified which of these **~31,000 sole actor facilities** and **139 industrial estates** would be the best candidates for decarbonisation through an NZIP strategy

The selection methodology reduced these large numbers into **5 precinct candidates**



Narrowing down the options...

Heatmap – how each precinct is scored

Category	Detailed criteria	LOW POTENTIAL	MEDIUM POTENTIAL	HIGH POTENTIAL	Summary of research	Score
Energy	Plans for new CCPPs			No entities have CCPPs planned		2
	RE Projects already in place		GRP: built roof solar on company facility with capacity of 9,283 kWp (largest in West Java in 2023). Power generated is used to support production activities			1
	Identified RE project pipeline		GRP: Plan to complete the roof top solar project with capacity target of 33,000 kWp by 2025		From an article: "GRP was in talks with Total Energies regarding RE procurement. PLN blocked it saying that they have excess power from its coal-based Java-Bali grid and has to put a cap on solar power installations. Lots of industries are facing the same problem. We have to keep lobbying and pushing"	1
	(High-density Precinct) Potential for VRE projects			Average solar potential is ~895 W/m ²		2
	Grid accessibility			All entities are connected	GRP Scope 2 is nearly 4x Scope 1. They disclose that they purchase a burn gas and oil (scope 1) and get electricity. I assume they are therefore connected to the grid. Source: GRP Sustainability Report 2023. Fajar Surya Wicaka is connected to PLN since March 2024 following the Captive Power Acquisition Program (CPAP) initiative. PLN successfully acquired segments of a 75 MVA coal-fired power plant and a 45.8 MVA gas turbine power plant located in Cikarang, West Java Province. Gunung Raji Paski is connected to PLN via a total power contract of 240MW (~240MW)	2
	Hydrogen potential usage		One application of hydrogen		Bekasi International Industrial Estate is grid connected with Cikarang Listrindo. Only GRP discloses hydrogen intentions - 1 application of hydrogen. GRP: Plan is to produce green H2. Signed in 2022 at B20 Summit a MOU with FFI and KADIN to explore green H2 and ammonia to produce low-emission steel.	1
	Gas network			All entities are connected	GRP: N/A. PSW: gas supplied via the South Sumatra West Java pipeline; dedicated downstream distribution owned by PSW. BIIE gas gas connection	2
	Direct fossil fuel consumption		14316.12 TJ/year		TJ/year Total consumption of Coal, Gas, Petroleum, Diesel (excludes Biofuels, electricity and ammonia for urea production)	1
	Electrification technologies			More than one facility with high potential		2
	Bioenergy technologies		More than three facilities with low potential or one with high potential			1
Technologies	Other technologies possible at commercial scale		More than three facilities with low potential / more than 1 facility with moderate potential / one with high potential		Steelmaking - high (assuming that the existing BAF will not have sufficient capacity for all current BF-BOF iron). Recycled paper - high	1
	Exports	Proximity to port/road and plans for infrastructure		Seaport 1: within 50km Seaport 2: within 110km Airport: within 75km Rail: within 30km Toll road: within 40km	GRP: Current export growth is at 5%. They aim to double/triple by 2026 PT Dongli Wigandar Metal (from BEEI): 50% production is exported, 50% is for domestic market	2
Decarbonisation Potential	CCS technical potential usage		Supply chain for one facility could require CCS		Steelmaking could use CCS - 1 potential usage	1
	Amount of energy used for process heat		25856.87 TJ/year			1
	Geographical proximity of entities in each precinct			All entities within 20km range	1.2 - 7.7 (km - distances between entities in precinct)	2
	Electricity consumption			5409.49 GWh/year		2
	Total emissions		7.95 Mt CO2/year			1
	Capacity of coal and gas plant		0.36 GW		Bekasi International Industrial Estate 1 coal, 1 gas supplying steel casting. Sources electricity from Cikarang Listrindo, likely from Cikarang Listrindo's 755 MW gas power plants located at Kawasan Industri Jababeka. Electricity capacity in the CCS park data says capacity of 231.6 for CCPP. Fajar Surya Wicaka 1 coal co-generation PP (55MW) https://www.greengroup.co.id/PPABR-power-plant/ 2 gas turbines (70MW) Gunung Raji Paski - N/A	1
	Grid emissions intensity				N/A	Criteria Unaddressed

20 candidate scores

Precinct	Total Score
Citeureup	33
Cilegon	30
Sumatera Utara	29
Bekasi	27
Bintuni Bay	26
Morowali	25
Surabaya	25
Sulawesi Selatan	24
Bontang	23
Palembang	21
North Tuban	19
Motui	19
Karawang	18
Bulungan	18
Semarang	16
Bandung	15
Riau	15
Batam	14
Pomalaa	13
Maluku Utara	13

10 precinct candidates

- + Citeureup
- + Cilegon
- + Sumatra Utara
- + Bekasi
- + Morowali
- + Surabaya
- + Bontang
- + Palembang
- + North Tuban
- + Motuli

5 precinct candidates

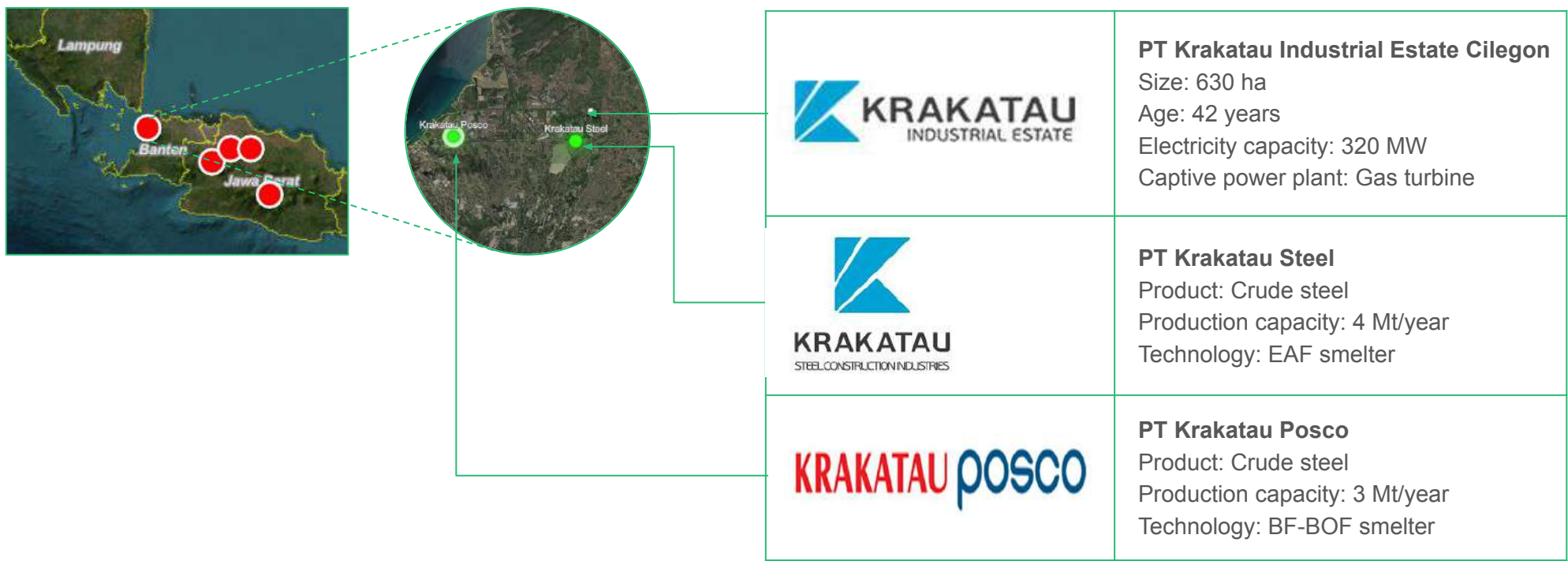
- + Cilegon
- + Gresik
- + Morowali
- + Tuban
- + Halmahera

accompanied by in depth consultation process with government

Example of Cilegon precinct

Cilegon's industrial performance is mainly driven by the iron and steel sector, with strong engagement from PT Krakatau Steel and PT Krakatau Posco.

In the heatmap, the precinct yielded a score of 2.14, which highlights a positive trend toward clean energy adoption that the two actors champion, but also indicates a need for broader integration of these practices across the estate.



Part 2: Just Transition in the Industrial Sector

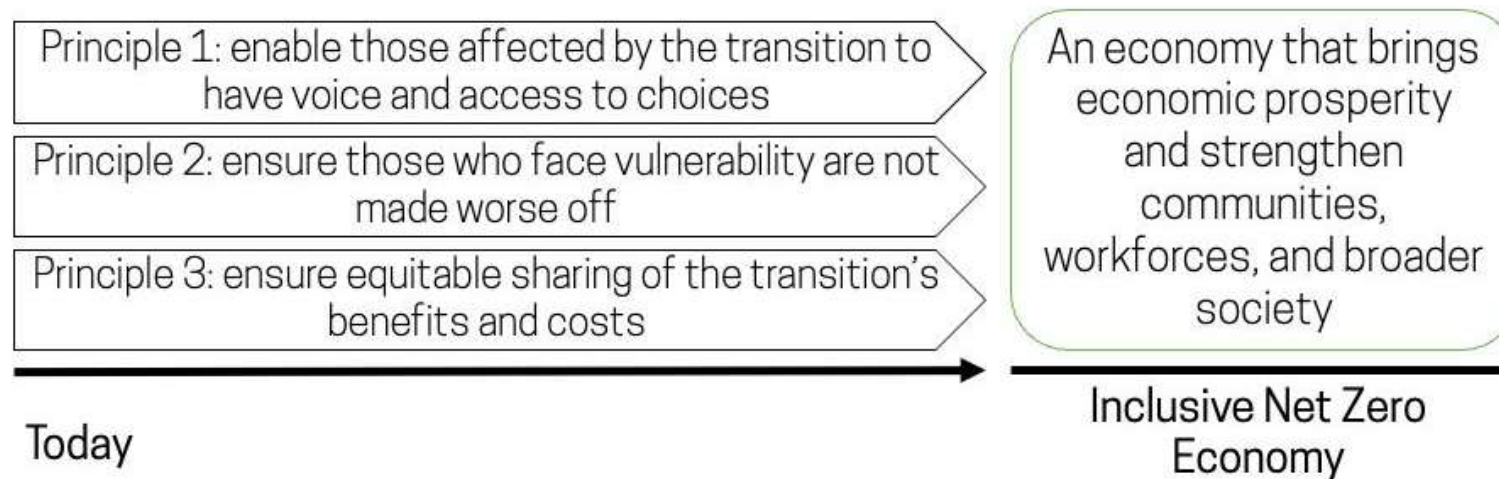
Questions for discussion:

- How can place-based decarbonisation projects support a just transition?
- What are the best mechanisms to ensure formal and informal workers are able to give input into the transition?
- What mechanism can best support multi-stakeholder collaboration in the Indonesian context? Could a model like the Net Zero Economy Authority in Australia be useful?

In the race to decarbonise, there is a risk that the social and human impacts will be treated as secondary.

Australia and Indonesia each face complex challenges in transitioning to low carbon economies, in part due to their reliance on carbon intensive industries both domestically and for export. As demonstrated by ongoing public discourse in both countries, just transition efforts largely centre around fossil fuel industry workers and regions. However the transition will impact everyone across all **households, workforces and regions**.

That is why we propose the following three principles to guide the transition:



Aligned with Indonesia's work on the JETP CIPP and the Just Transition White Paper, this report also recognises the need to prioritise the impacts of transition policies on people and communities at all stages of the project design and implementation. Alongside identifying risks, governments should require the development of proactive plans to prevent negative consequences, using an **“impact first”** approach.



Households

- Globally, households with higher incomes are more likely to be early adopters of new low-emissions technologies, as they can more easily afford upfront costs and have access to the types of resources, such as their own homes, in which to install them.
- Research in both Australia and Indonesia finds that **higher income households are more likely to have access to renewable energy sources like rooftop solar.**¹
- Indonesia's current energy policies increase household inequality. One clear example of this is the energy subsidy policy. In 2022, the Indonesian Government spent IDR 502 trillion (~USD 35 billion) on energy subsidies and compensation, constituting about 22.3% of total government expenditure for that year.²



Workers

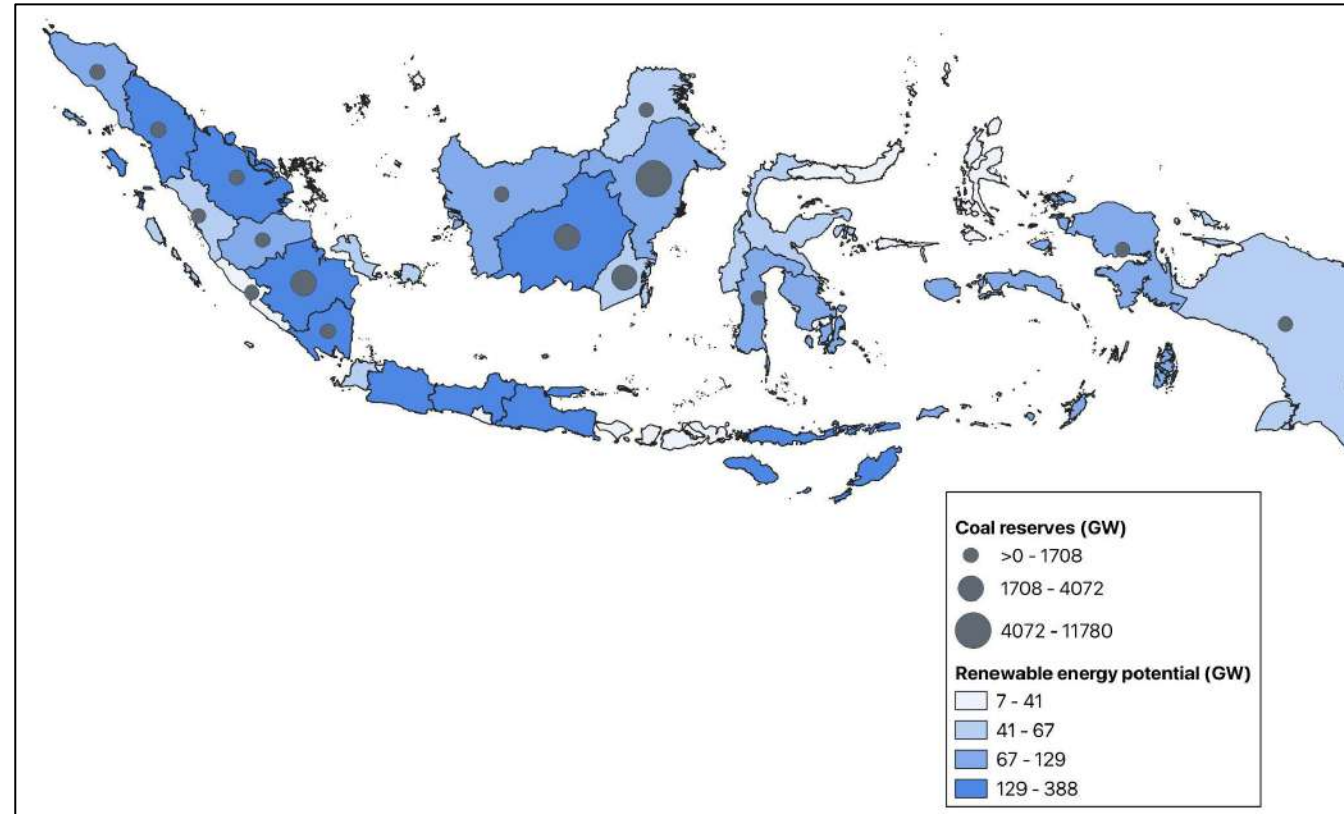
- While fossil fuel workers are a major focus of the transition, other sectors like transportation, hospitality and manufacturing will also undergo significant changes.
- Workers employed informally will face different challenges to formally employed workers. Indonesia had approximately **300,000 formal workers in 2023 in just the mining sector**, including coal.¹ Assuming that 60% of workers are informal,² this means that **up to 750,000 workers** (both formal and informal) will be directly affected by closures of mining companies.
- Being realistic about potential workforce benefits of things like critical minerals development is important. Estimates show that in resource-rich Central Sulawesi, only 1.3% of the total local workforce can be employed in the nickel mining industry.³
- The JETP CIPP projects the creation of 383,000 new formal jobs in the renewable energy sector by 2030. Estimates show that in resource-rich Central Sulawesi, only 1.3% of the total local workforce can be employed in the nickel mining industry.³



Regions

- The map to the right shows that the regions with the most coal reserves in Indonesia are East Kalimantan (44%), South Kalimantan (15%) and South Sumatra (15%).
- In East and South Kalimantan, coal production currently contributes 44% and 30% of regional GDP respectively.¹ Unless managed carefully, these regions will face large shocks to employment and regional output from the closures of coal mines.
- The map also shows renewable energy potential: South Sumatra is amongst the regions with the highest potential, while South Kalimantan and East Kalimantan are not. Despite the potential in South Sumatra, it currently generates only about 6% of the total renewable energy it could potentially produce. Maluku, Papua, and Nusa Tenggara also have a high potential for renewable energy infrastructure but very limited access to energy.
- In Australia, CPD research has explored the “adaptive capacity” of regions exposed to fossil fuel transition to identify which are best placed to adapt.² This could be valuable to replicate in the Indonesian context.

Figure 2: Variation in coal reserves and renewable energy potential across Indonesia



Source: Dewan Energi Nasional (DEN)/National Energy Council, 2024

Example: applying the framework to Indonesia's critical minerals and EV battery industry

Principles	Households	Workers	Regions
Principle 1: enable those affected by the transition to have voice and access to choices	Require free, prior, and informed consent for affected communities; allow sufficient time and information to gather this before the project begins.	Strengthen the role of unions and open up spaces for participation for informal workers through community forums.	Carry out in-depth consultation between industry players, communities, and local workers; Encourage fair compensation and community representation in decision-making.
Principle 2: ensure those who face vulnerability are not made worse off	Consider agriculture and fisheries affected by mine pollution; legal recognition of land rights, ensure support and compensation to address any negative impacts.	Address poor and unsafe working conditions; implement common national standards and work practices across the workforce.	Develop downstream industries near the mine; develop a social safety net program; ensure benefits of EV supply chain projects flow to the local region as well as the capital.
Principle 3: ensure equitable sharing of the transition's benefits and costs	Reform EV subsidies as they are enjoyed disproportionately by high-income groups; develop more inclusive incentives and EV-based public transportation.	Develop a re-training plan for both informal and local workers moving from other industries; ensure those working in EV battery supply chains have good conditions	Develop a Special Allocation Fund for mine-producing areas to support local development;

You can't approach the transition from a single sector viewpoint:

The importance of multi-stakeholder collaboration

“ Collaboration across various sectors is vital for ensuring fairness and sustainability in the mining and electric vehicle (EV) battery industries.

National-level government ministries/agencies	Local government	Private and state-owned enterprises	Civil society	International development partners
<p>Ministry of Industry, Ministry of Energy and Mineral Resources, Ministry of Environment and Forestry, Ministry of Manpower, Ministry of Social Affairs, BPJS, and Danantara</p> <p>Set and enforce standards, provide social protection, funding/investment and benefit-sharing schemes.</p>	<p>Manage local impacts, ensure the use of funds for inclusive development, and facilitate community dialogue.</p>	<p>Implement high environmental, social and governance (ESG) practices, provide compensation and benefits to local communities.</p>	<p>Independent monitoring and accountability, land and labour rights advocacy, public awareness campaigns and supporting consultation with affected communities.</p>	<p>Technical assistance, training, and sharing of global best practice</p>

Part 3: Collaboration Opportunities

Questions for discussion:

- How can we centre place-based decarbonisation in existing Australia-Indonesia commitments, eg. EV supply chain collaboration?
- What other areas of collaboration have the biggest potential for impact, including any of the proposals on slide 20?

In the face of some high profile retreat from climate ambition, Australia and Indonesia are well placed to take a leadership role



Upcoming opportunities to take joint action:

- + Implementing KINETIK green infrastructure commitment
- + Supporting the implementation of Indonesia's 2nd NDC into concrete policies and programs
- + Implementing MOU on EV supply chain cooperation
- + Australia's bid to host COP31 in 2026
- + Support the implementation of RPJMN 2025 - 2029

Proposals for consideration

1. Formalise the sharing of lessons from place-based decarbonisation experiences in Australia and Indonesia through industry visits, comparative analysis and convening stakeholders.
2. Co-design re-training and/or re-skilling programs with impacted industrial workers, supported by training institutions in Indonesia and Australia.
3. Develop a cross-sector coordination mechanism to support a just transition in Indonesia, drawing lessons from models like the Net Zero Economy Authority.
4. Embed just transition principles across all high level regulations to ensure a whole-of-government approach is taken and that all parts of government are working towards a low emissions future.

CPD and Climateworks Centre stand ready to support both governments in implementing industrial sector decarbonisation policies and addressing the social impacts of the transition.

ABOUT THE ORGANISERS

Centre for Policy Development

CPD is an independent policy institute with staff based in both Australia and Indonesia. CPD works on practical solutions to complex long-term policy challenges affecting Australia and the Indo Pacific, including just transition, wellbeing, forced migration and social services reform.

Contact: caitlin.mccaffrie@cpd.org.au and ruddy.gobel@cpd.org.au

Climateworks Centre

Climateworks Centre is a specialist in climate transitions for Australia, Southeast Asia and the Pacific, working as an independent centre within Monash University with staff based in Australia and Indonesia.

Contact:

egi.giwangkara@climateworkscentre.org

The Energy Transition Policy Development Forum (ETP Forum)

This initiative continues the collaborative work of members of the Energy Transition Policy Development Forum, which comprises CPD, Climateworks Centre, the Institute for Essential Services Reform (IESR), the Indonesia Research Institute for Decarbonization (IRID), the International Institute for Sustainable Development (IISD) and the Purnomo Yusgiantoro Center (PYC).

Together this group co-convened a successful [G20 Seminar Series](#) with the G20 Energy Transition Working Group in July 2022, and worked closely with Indonesia as 2023 ASEAN Chair, conducting a [series of official side events](#) between June and October 2023.

To scale up our future collaboration we will be formalising the partnership with an MOU signed on 17 June 2025 following the 5th Australia-Indonesia Dialogue.