1. What is the Australian Industry Energy Transitions Initiative?
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Introduction

What is the Australian Industry Energy Transitions Initiative?
The Australian Industry Energy Transitions Initiative is a platform for Australia’s emissions-intensive industry and related businesses to coordinate learning and action on net zero emissions supply chains.

This pioneering initiative convenes Australian industry and business leaders to collectively explore and address the challenges associated with climate change.

Together, we are developing pathways and taking action towards achieving net zero emissions supply chains by mid century, in Australia’s emissions-intensive industries.
Australian Industry ETI Partners

The initiative is convened by:

With research support from:

With funding from:

Industry & Business Partners:

Supported by:
The Australian Industry Energy Transitions Initiative will develop pathways towards net zero emissions and support tangible on the ground action projects.

**PATHWAYS**
- Modelling decarbonisation pathways with scenarios

**PROJECTS**
- Identifying priorities, milestones and actions to reach net zero emissions
- Early actions, demonstrations, system transition actions
End of Phase 1
Current State and Future Possibilities
One year since launch, the first phase of the Australian Industry Energy Transitions Initiative has wrapped up

The first phase of the initiative explored the current state and future possibilities for transitioning five industry supply chains to net zero – steel, aluminium, liquified natural gas, other metals and chemicals. These supply chains collectively contribute more than a quarter of Australia’s annual greenhouse gas emissions and generate exports worth around $160 billion.
Phase 1 – reports

PHASE 1: Highlights Report

Setting up industry for net zero, presents key themes and findings from the first phase of the initiative – providing a collective overview from partners of the enablers and blockers for the net zero transition in hard-to-abate sectors.

PHASE 1: Technical Report

The technical report provides robust analysis of the transition to net zero in the five supply chains. Research covered current energy use and emissions, promising emissions reduction technologies and deployment at scale, existing potential for renewable energy, and validating findings with industry partners.
The time to start is now

The Australian Industry ETI’s early analysis concludes that by 2050 existing and emerging solutions can address almost all emissions in Australian industry supply chains including steel, aluminium, liquified natural gas, other metals and chemicals.

It has found Australia can continue to be a globally competitive export economy based on energy and commodities if, as a nation, it capitalises on the increasing global demand for emerging low-carbon technologies and energy exports, such as green hydrogen and steel, and rapidly deploys existing technology solutions.
The economic urgency for climate action has increased since the inception of the program, with a swathe of recent net zero policy commitments from major trading partners.

This is already leading to an increase in global demand for low-carbon technologies and energy commodities. By acting now, Australian industry can turn the net zero transition into an opportunity: more exports, more jobs, and a sustainable sector.
It’s possible – but will be challenging

The Australian Industry ETI’s analysis has identified opportunities to address industrial emissions through energy and material efficiency, zero emissions energy and feedstock supply, electrification and other fuel switching, non-energy emissions abatement, and capture or offset of residual emissions.

Many of these solutions are mature and already available for commercial deployment.

Across all five supply chains, the net zero emissions transition can be conceptualised into these four pillars of industrial decarbonisation.
It’s not an easy road

The transitions required for Australia to remain globally competitive are complex by nature, requiring significant investment, leadership and transformation of the energy system.

These steps should not be underestimated and whilst commitment from industry to the long-term transition has been a step forward, there will be significant short-term challenges to navigate in the decarbonisation of existing operations and associated infrastructure.

While shifts to reach net zero by 2050 are underway, infrastructure investment has continued, adding to the challenge of decarbonising existing operations.

In the year 2020 alone, over 35 billion of CAPEX was invested by the mining sector in Australia (ABS 2021).
Effective integration of industrial and energy systems can unlock cheap, renewable electricity

The initiative’s research shows that certain Australian industries could access variable electricity costs of $20-30/MWh by 2050, and potentially far sooner, by matching production to available renewable supply and avoiding costs of energy storage.*

*Further detail on cost assumptions for data is provided in the Technical Report.

<table>
<thead>
<tr>
<th>State</th>
<th>Industrial region</th>
<th>Nearest Renewable Energy Zone</th>
<th>Variable renewable energy cost: lowest cost / combined wind and solar cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2020 ($/MWh)</td>
</tr>
<tr>
<td>WA</td>
<td>Pilbara</td>
<td>WA North</td>
<td>$47 /$55</td>
</tr>
<tr>
<td>WA</td>
<td>Kwinana</td>
<td>WA South</td>
<td>$51 /$56</td>
</tr>
<tr>
<td>SA</td>
<td>Whyalla</td>
<td>Northern SA</td>
<td>$50 /$59</td>
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<tr>
<td>VIC</td>
<td>Portland</td>
<td>SW Victoria</td>
<td>$59 /$65</td>
</tr>
<tr>
<td>NSW</td>
<td>Port Kembla</td>
<td>Tumut</td>
<td>$63 /$64</td>
</tr>
<tr>
<td>NSW</td>
<td>Hunter Valley</td>
<td>New England</td>
<td>$57 /$63</td>
</tr>
<tr>
<td>QLD</td>
<td>Gladstone</td>
<td>Fitzroy/Wide Bay</td>
<td>$49 /$58</td>
</tr>
</tbody>
</table>

Estimated variable renewable energy costs for Renewable Energy Zones in proximity to industrial regions, 2020 and 2050 (Technical Report pg. 75)
Decarbonisation of the energy system can enable a competitive green hydrogen industry

Favourable regions could flexibly produce green hydrogen for below $1.50/kg by 2050, positioning Australian industry to be competitive in a globally decarbonised economy and support lower overall system costs for all electricity consumers.

The future outlook for hydrogen production costs is highly uncertain and dependent on numerous assumptions which are provided in the Technical Report.

Projected costs of hydrogen production routes, 2020–2050 (Technical Report pg. 68)
Industry can shape a decarbonised energy system

Industry has an important role in decarbonising the energy system. Early uptake and effective integration of renewable electricity, electrification and green hydrogen can help Australia achieve competitive costs for reliable decarbonised energy.

The transformation of the energy system to deliver low cost, decarbonised, reliable energy is central to decarbonising industry and supporting long term competitiveness of the sector.

There are clear synergies and positive feedback loops involving green hydrogen production, renewables and hydrogen use.

Decarbonisation of the energy system can empower Australian industry.
Clustered industrial precincts are a key opportunity

The formation of clustered industrial precincts is a key opportunity for Australian industry and governments in regions where hard-to-abate sectors are concentrated.

The co-development of decarbonised energy systems alongside a concentration of demand, investment, ports, industry knowledge, and skills can empower industrial regions and enable key industries to thrive.
Phase 2
Promising Pathways
Promising Pathways are ahead

As we enter phase 2: *Promising Pathways*, the initiative will identify and articulate the potential timing and scale of technology deployment and investment. It will also continue to develop projects and decarbonisation actions working towards achieving net zero emissions industry supply chains.

It is already clear that a substantial increase in the scale, connectivity, and number of projects will be necessary, along with coordination between them, for Australia’s business sector to be positioned as a competitive global leader in the energy transition.
Pathways will articulate the transition needed to achieve net zero emissions

Modelling of decarbonisation pathways through scenarios will let us understand options and uncertainties. Which in turn help understand impacts on the energy system.
Projects will identify, design and initiate targeted decarbonisation actions which accelerate transition to net zero supply chains and regions

**Early action projects**
These may include feasibility studies, smaller pilots, industry coordination efforts

**System transition actions**
Identify and develop joint initiatives to address system level barriers and leverage points

**Larger demonstration projects**
Identify and develop place-based, multi-stakeholder projects

- **Pilbara**
  e.g. green steel, shared infrastructure, CCUS

- **Gladstone**
  e.g. H2, green firming

- **Kwinana**
  e.g. industrial precinct

- **Hunter Valley**
  e.g. regional transition

- **Port Kembla**
  e.g. industrial precinct

Initial list of regions in focus for projects work
ETI Phase 2 and 3 work plan

Phase 1: CURRENT STATE AND FUTURE POSSIBILITIES

Phase 2: PROMISING PATHWAYS

Phase 3: ENABLING TRANSITIONS

2020
Q3
Q4

2021
Q1

ENGAGEMENT: Public announcement, workshops, Steering Group meetings
RESEARCH AND ANALYSIS: Technology review, identify drivers of change & possible futures
IMPLEMENTATION: Partner interviews, identify early action projects, system mapping

Q4

ENGAGEMENT: Workshops, Steering Group meetings, regional engagement
RESEARCH AND ANALYSIS: Pathways modelling & analysis
IMPLEMENTATION: Demonstration project identification & design, develop system transition insights & actions

Q3
Q1

2022
Q1

ENGAGEMENT: Workshops, Steering Group meetings, end of program communications
RESEARCH AND ANALYSIS: Synthesis of enabling actions
IMPLEMENTATION: Demonstration project development, support system transition insights & actions

Q2
Q3
The initiative is co-convened by ClimateWorks Australia and Climate-KIC, with delivery and research support from CSIRO, the Rocky Mountain Institute and the Energy Transitions Commission.

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