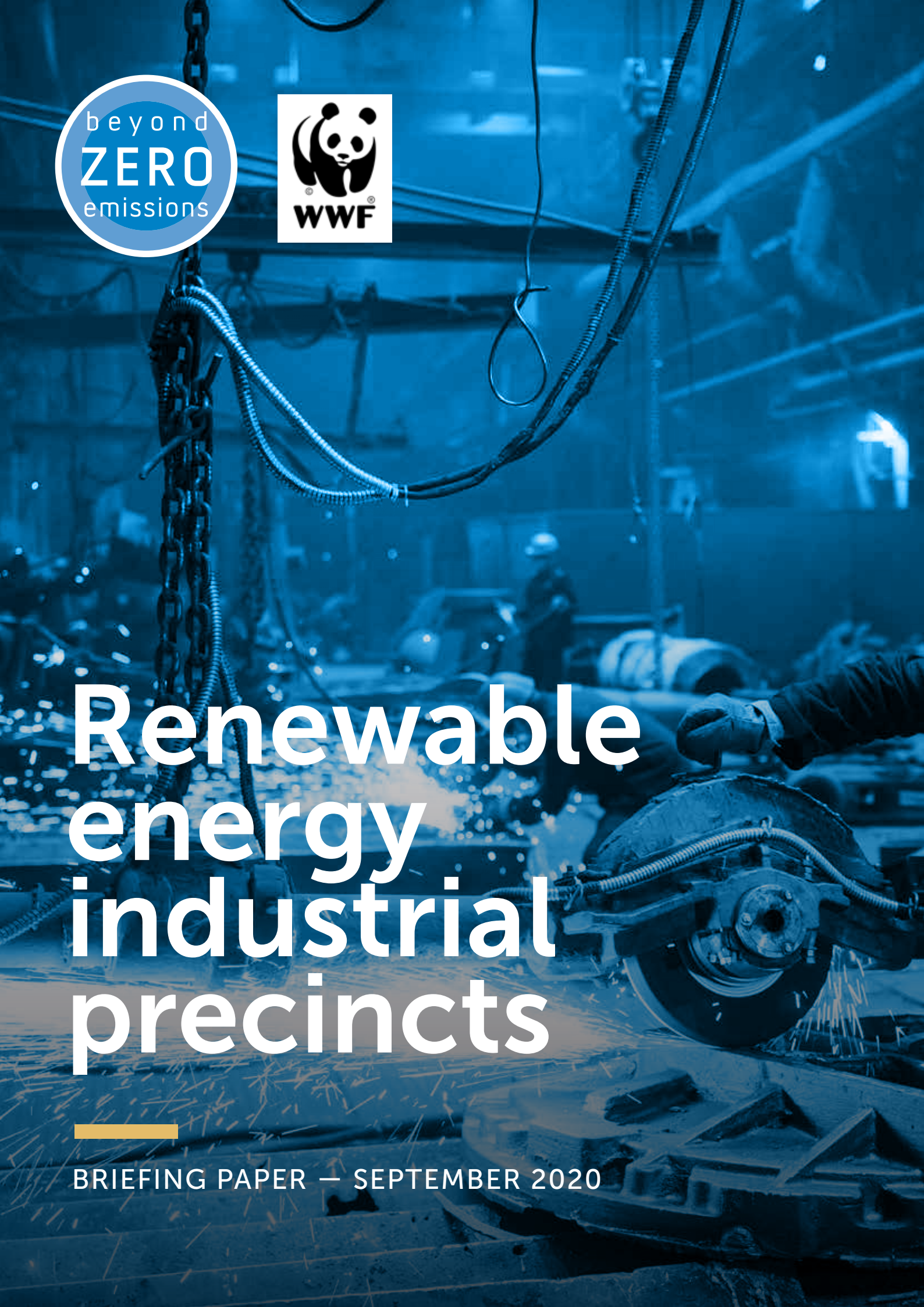


beyond ZERO emissions

WWF

Renewable energy industrial precincts

BRIEFING PAPER — SEPTEMBER 2020

Re-energising Australian Industry

Renewable energy industrial precincts can accelerate the growth of manufacturing in Australia. Beyond Zero Emissions & WWF-Australia, along with partners Energy Estate and IronBark have prepared this briefing paper to explain how renewable energy industrial precincts can promote economic growth and development of Australian industry.

Why do we need to Re-energise Australian Industry?

Australia has suffered an unprecedented economic shock in 2020. The economy is in recession for the first time in almost three decades and the 7% fall in GDP in the June quarter was by far the largest since the Great Depression.

We need to ignite our economic recovery and power up the Australian economy. Re-energising our industry can revive our economy, modernise our industry, reskill our workforce and deliver a bright and vibrant future in existing jobs, as well as emerging industries that offer new opportunities to future generations.

Generating more affordable and reliable energy makes Australia more competitive and renewable energy will be the driver of Australia's future, ensuring that we have both a stronger economy and a healthier environment.

How renewable energy industrial precincts support industry

Australia has always relied on a competitive advantage of affordable and reliable energy but today our intensive manufacturers are at a global disadvantage due to high energy prices. We need to capture the benefits of cheaper renewable power and to capitalise on the opportunity to produce low-carbon products that are increasingly in demand in Australia and internationally. Australia has some of the best and most abundant renewable resources in the world, and this can give Australia's manufacturers a global edge.

Renewable energy industrial precincts support a cluster of manufacturers powered by 100% renewable energy. These precincts are either located within Renewable Energy Zones or connected to renewable energy generation through high voltage transmission lines. They also have access to clean heat and renewable hydrogen production and infrastructure. A renewable energy industrial precinct can be thought of as an expanded Hydrogen Hub as proposed in the National Hydrogen Strategy.

89% of Australians believe Australia should be manufacturing more products domestically following the COVID-19 pandemic.

Top reasons for wanting more local production are: reducing reliance on other countries (38%), creating jobs (26%), supporting Australian business and industry (26%), safeguarding international supply chains (20%) and strengthening Australia's economy (16%).

Roy Morgan survey, September 2020

What renewable energy industrial precincts deliver?

We must continue to invest in new technologies and to promote greater efficiency in the Australian economy if we are to maintain our standard of living. The future of energy is in cheaper and more reliable renewable power that Australia can develop and harness. Renewable energy industrial precincts will...

- Attract businesses and investors, support local industries, secure existing jobs and create new ones.
- Provide access to cheaper infrastructure and energy (electricity and heat) shared across multiple large energy users will lower power bills and costs for all.
- Provide access to a skilled workforce that is trained in the development and operation of efficient, zero emission industrial processes.
- Provide an opportunity to commercialise new technologies and solutions onshore, by attracting start-ups to co-locate with established industry players.
- Increase the likelihood that energy intensive manufacturers will remain in Australia.
- Become hubs for the development of innovative zero emissions and circular economy technologies and solutions that Australia can sell to the world.

What type of industries will be attracted to these precincts?

- The precincts will be designed for energy-intensive businesses such aluminium smelting, steel and other metals processing; hydrogen production; chemicals production (e.g. ammonia; caustic soda); recycling and data centres.
- They will secure the presence of existing manufacturers (such as smelters) and attract new ones.
- They could also provide a home for companies making clean technologies such as wind turbines; batteries; electric vehicle chargers; electric buses and mining equipment.

What will attract businesses and investors to these precincts?

- Renewable energy at a guaranteed low price (<$50/MWh)
- Reliable power supply ensured through a combination of storage and flexible demand programs
- Critical infrastructure, including:
  - Transmission connections to the closest Renewable Energy Zone
  - Hydrogen production and pipelines and a shared industrial heating network
  - Water, waste and recycling
  - Connections to port, rail and road logistics.
- Skilled labour and training programs tailored to the needs of the precinct.
- Streamlined planning and approval processes
- Financial incentives such as interest-free loans.

What needs to happen to set up these precincts?

- Construction of renewable energy zone and connection to precinct.
- Plan for achieving a reliable, balanced electricity system. This will include some combination of energy storage, flexible demand, shared industrial heat and hydrogen production.
- Set up finance models and contract arrangement suitable for both sellers and buyers of energy.
- Progressive implementation over several years – see proposed 5-year phasing in Appendix A.

Where could these precincts be located?

Renewable energy industrial precincts will be located in regional Australia in existing industrial areas with supporting infrastructure such as transport connections (port, rail and road), brownfield land and technically-skilled workforce. A potential precinct in the Hunter Valley is described in Appendix B and other potential locations are:

Bell Bay, TAS	Hunter Valley, NSW
Collie, WA	Port Kembla, NSW
Gladstone, QLD	Portland, VIC
Kwinana, WA	Townsville, QLD
Latrobe Valley, VIC	Whyalla, SA

What government support is needed?

- Announce the concept of Renewable Energy Industrial Precincts and commission a roadmap to establish several precincts around Australia.
- Financial incentives for manufacturers (on the condition of using only renewable energy), e.g. R&D support, funded pilot projects, and cheap access to infrastructure.
- Underwrite the renewable development needed to supply the precincts by guaranteeing developers a minimum price for their electricity output (in return for a cap on cost of electricity).
- Government-led development ensuring strategic land use and infrastructure planning and co-ordination of precinct development in line with local social, economic and environmental needs
- Streamlined planning and approval processes.
- Tailored investment in any required new infrastructure or infrastructure upgrades.

APPENDIX A

Phasing the development of Renewable Energy Industrial Precincts

The following provides an indicative list of activities that would likely need to occur over the next five years to establish a number of renewable energy industrial precincts.

Year 1

- Support an existing industrial customer to move to renewable energy (anchor customer)
- Help fund (matching funding and investment) a renewable hydrogen pilot project in the precinct
- Undertake an infrastructure scoping study – identify what additional infrastructure will be required
- Stakeholder mapping and engagement – understanding the existing businesses and their needs, investment opportunities, the community needs and concerns, existing training and innovation capability
- Renewable Energy Zone development – ensure a nearby REZ is under development and has sufficient capacity to power the renewable energy industrial precincts
- Identify financial, planning and regulatory incentive options and models.

Years 2-3

- Create new jobs by starting the construction of new infrastructure, such as a heating network, transmission upgrades and battery storage
- Undertake an Expression of Interest process to identify businesses and start-ups that would like to set up operations in the precinct and investors who would like to invest
- Establish an innovation incubator attracting R&D, commercialisation and start-ups to the precinct
- Provide funding for new training programs targeting clean energy and low emissions manufacturing
- Scale the number of existing industrial customers in the precinct starting to use renewable energy
- Scale the production and use of renewable hydrogen
- Pilot financing models and implement any necessary regulatory reforms e.g. planning approvals

Years 4-5 and beyond

- New businesses and industry players start setting up in the CEIP
- Infrastructure build, hydrogen scale-up, incubator and training programs continue
- Scale-up any successful incentives programs in the short-term.

APPENDIX B

Potential Renewable Energy Industrial Precinct in the Hunter Valley

The Hunter Valley has a proud industrial heritage and is one potential location for a Renewable Energy Industrial Precinct. The Hunter Valley's advantages include a skilled workforce, a deep-water port, existing transmission infrastructure and land available for industrial growth.

Manufacturers operating in the Hunter today include Tomago Aluminium, Orica, Molycop, and Infrabuild. However, to remain competitive these businesses need access to cheaper energy. Both Tomago Aluminium and Orica have indicated they may close if their energy costs do not fall.

Figure 1 presents an overview of one possible configuration of a Renewable Energy Industrial Precinct in the Hunter Valley. It is vision of a low-cost energy hub that makes existing heavy industry internationally competitive and supports the growth of new industry. The system is based around Tomago Aluminium, which consumes 12% of NSW's electricity. Its key features are:

Renewable Energy

- Renewable Energy Zone with 2 to 3 GW solar and wind, supplying electricity at a competitive price (<$50 MWh).
- Guaranteed (firm) supply to Tomago Aluminium smelter of 800-900 MW.

Smelter as a battery

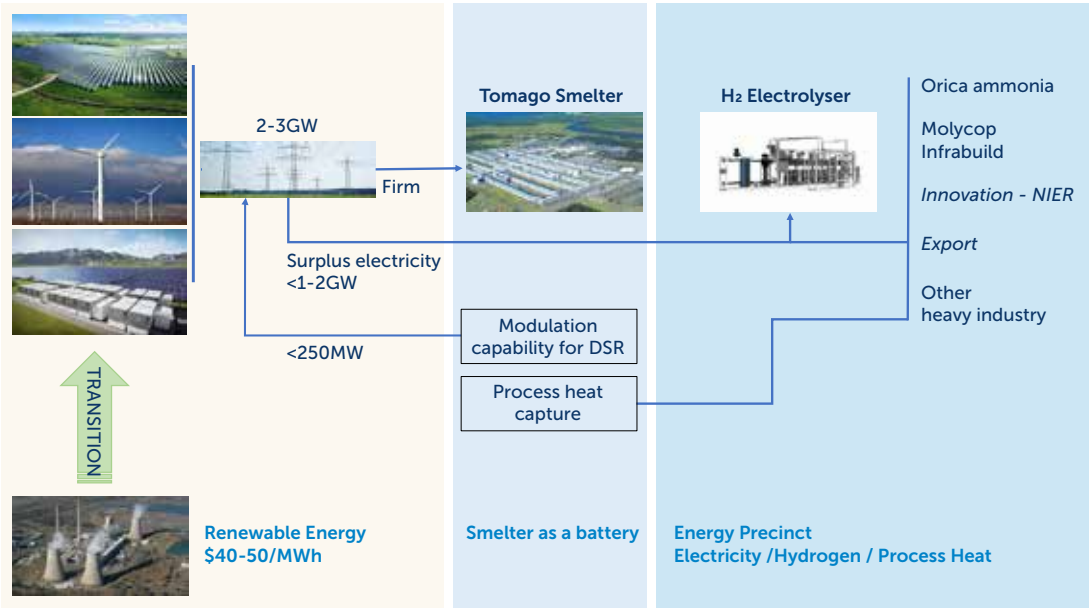
- Modifications to Tomago Aluminium smelter, enabling it to operate more flexibly and provide valuable grid services similar to a battery. These services would create an important new source of revenue for Tomago.

Renewable hydrogen

- Excess electricity used by Orica to power an electrolyser to make hydrogen (for ammonia).
- Other local manufacturers (such as Molycop and Infrabuild) use additional excess electricity and waste heat from Tomago.

The technical and economic details of this system would need to be assessed in a feasibility study. But in principle, this plan could be largely funded by the private sector, with modest government support.

Figure 1: Potential configuration of a Renewable Energy Industrial Precinct in the Hunter Valley.



Beyond Zero Emissions is an internationally-recognised energy-solutions think tank, showing through independent research how Australia can thrive as a zero-emissions economy.

Beyond Zero Emissions' *The Million Jobs Plan* highlights the role that zero carbon initiatives can play in Australia's economic recovery. *The Million Jobs Plan* proposes nation-building, transformative projects that can revive our economy, modernise our industry, reskill our workforce and deliver a bright future.

Our plan will create jobs around Australia including the places where traditional heavy industry has gone, droughts and fires have ravaged the agricultural sector, unemployment is high and long-term employment opportunities have diminished.

With over five million supporters and a global network active in more than 100 countries, WWF is one of the worlds largest and most experienced conservation organisations. WWF-Australia has for the past three years been identified as most trusted environment NGO.

For decades WWF has run programs to accelerate the uptake of clean energy solutions.

WWF's Renewable Recovery campaign is working to create jobs and future-proof our economy. A renewable recovery would bring manufacturing back to our shores, grow existing industries, unlock new industries and help Australia emerge from this crisis as a renewable energy superpower in a post-COVID world.

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