

Unlocking green metals opportunities for a Future Made in Australia

Submission of The Australian Workers' Union

July 2024

The Australian Workers' Union (AWU) is one of Australia's largest and most diverse unions. We represent over 76,000 workers across the length and breadth of the country. This includes thousands of workers in Australia's metal industries, its suppliers and offtakers. Notably, the AWU is the union for Australia's steel and aluminium supply chains. We represent around 6,000 workers in the steel industry, over 5,000 in aluminium smelting and alumina processing, and thousands more in iron ore and bauxite mining.

This membership affords us a deep interest in the future of Australian steel, aluminium and alumina. These are long-term anchor employers in many regional and suburban communities – employing tens of thousands of workers directly and multiples more indirectly.¹ But most of these sites currently rely on emissions-intensive production processes, making them vulnerable as the energy transition gathers pace. This requires careful support to ensure workers' livelihoods and Australia's sovereign capabilities are retained as the sector shifts towards new production methods.

But we also recognise that the transition can represent an historic opportunity. With the right policy settings and support, Australia can use decarbonisation to both protect and expand steel, aluminium and alumina production and related industries. Indeed, the potential dividends of a successful transition in this space are singularly large. The Commonwealth's estimate of a green metals sector worth \$120 billion by 2040 is close to the current value of Australia's entire manufacturing sector.² Anything approaching that scale would translate to hundreds of thousands of new jobs across the sector, its supply chains and host communities.

Green metals production will also align Australia with long-term market preferences. While embryonic at present, demand for green metals will ultimately be hastened by public policy. Over 97% of Australia's exports now go to countries that have implemented net zero targets.³ Several major partners have already adopted, or are likely to adopt, a carbon border adjustment mechanism (CBAM) to price embodied emissions in imports such as steel and alumina.⁴ Simply put, *"if we fall too far behind, other countries will begin to penalise us."*⁵

Further, green metals can help Australia meet its emissions abatement goals. One estimate provides that steel, aluminium and alumina production is responsible for around 9% of national emissions⁶ - promising a major green dividend for their successful transition. Despite welcome action to reduce emissions since the Albanese Government came to power, Australia is still not on target to meet its medium-term emissions reduction target.⁷ Green metals can help put the country on track. And while Australia should not be held responsible for emissions realised offshore, it is true that onshoring of metal production could reduce global emissions. Most notably, offshore manufacturing using Australian iron ore is highly emissions-intensive – responsible for over three times the emissions of Australia's total economy.⁸

The strategic benefits of a larger, more diverse metals industry offer further cause for action. Despite its existing capabilities, Australia still relies on imports for a range of important steel and aluminium products. For instance, the country imports about 1.5 million metric tonnes of iron and steel each year, including products essential to the construction sector.⁹ This supply chain is highly concentrated, with around half of such products sourced from China.¹⁰

Green metals can thus be a driving force of reindustrialisation, emissions reduction and economic security. But faced with significant uncertainties and competition from abroad, this is not a future that the market will deliver alone. Certainly not efficiently from either an economic or an environmental standpoint. Potentially not at all. Rather, it demands bold support from government.

The AWU strongly supports the *Future Made in Australia* (FMIA) program as providing the framework to deliver industrial policy of this nature and scale. We welcome the Commonwealth's decision to consult on devising an FMIA green metals stream. The government should use the consultation to deliver a policy and financial support package that drives rapid development of a large green metals sector. This package should assist industry at multiple steps along the path to commercial maturity. It should also ensure this development benefits the communities that will host it – most importantly, by providing high quality jobs to local workers.

This will entail a years-long commitment and an outlay at least as large as that provided to any other industry under FMIA. But delivered effectively, it can go down as one of the best investments Australia ever makes. The sort of nation-building ambition, in fact, that our current metals industries were built on. The AWU is eager to assist with making this vision a reality - starting with our response to the issues and questions raised in the consultation paper, below.

Summary of recommendations

- 1:** The Commonwealth should deliver a broad package of supports to support green metals production to progress from nascency to commercial maturity as soon as practicable.
- 2:** The green metals package should require every site receiving support to deliver positive workforce outcomes.
- 3:** The Commonwealth should promptly deliver a strategy providing a vision for development and workforce outcomes in the green metals sector, and supports to realise that vision.
- 4:** The Commonwealth should fund or invest in demonstration projects for green metals production - aiming to have several such projects in operation by 2030.
- 5:** The Commonwealth should prioritise demonstration projects that drive emissions abatement at existing sites or are located in high-potential regions.
- 6:** Where possible, green metals demonstration projects should include the Commonwealth and at least one international partner as offtakers.
- 7:** The Commonwealth should provide tax credits for capital investment in assets facilitating commercial production of green metals. The value of these credits should be uncapped.
- 8:** The Commonwealth should provide contracts for difference for commercial production of green metals. The value of these contracts should be uncapped.
- 9:** The Commonwealth should provide varying support through its contracts for difference according to the subsidised product's emissions intensity.
- 10:** The Commonwealth should commit to sourcing a quantity of green steel and aluminium to supply its own procurement. The quantity should be determined in consultation with industry as it scales up production.
- 11:** The green metals package should provide at least as much financial support as that afforded to any other sector under the *Future Made in Australia* scheme.
- 12:** The Commonwealth must prescribe clear, enforceable regulation that requires all projects receiving support under *Future Made in Australia* to deliver safe, secure, well-paid jobs and worker upskilling.
- 13:** The Commonwealth should deliver a coordinated, ambitious plan to deliver the workforce required to build a green metals sector and other 'green energy superpower' industries.
- 14:** The Commonwealth should promptly implement a carbon border adjustment mechanism. The mechanism should cover steel and aluminium at the outset, with scope for expansion as required.
- 15:** All programs in the green metals support package should be available to producers of steel, iron, alumina and aluminium.
- 16:** The Commonwealth should support the development of industries downstream to green metals production, with a long-term view to establishing industrial precincts around green metal production sites.
- 17:** The Commonwealth should ensure delivery of long-duration firming systems where green metals production sites connect to public electricity networks.

'Australia's potential production volumes of green metals'

Australia possesses significant comparative advantages to produce green metals at world-leading scale and prices. Leveraged effectively, these allow it to meet the needs of both domestic industries and trade partners in a low emissions future.

This position derives from our country's natural abundance as well as the capabilities of our workforce and industries. While many of these advantages are now a familiar feature of discussion around Australian industry policy, they merit brief consideration here.

As regards resources, Australia possess by far the largest reserves and production of iron ore in the world.¹¹ While this activity is focused on hematite ores, the country also enjoys very large reserves of magnetite ores.¹² Likewise, Australia is the world largest producer of bauxite, with the commodity's second-largest economic reserves.¹³ Our resources advantage extends from minerals to energy. World leading solar and wind resources are found across much of the Australian landmass. With very low population density¹⁴ and amenable terrain, our geography lends itself to the deployment of large-scale generation and transmission infrastructure. As the consultation paper recognises, Australia will produce renewable energy cheaper than most of our major trade partners and other major economies in the medium and long-term.¹⁵ The country's gas resources also offer an important firming resource for grid-scale renewables.

As regards worker and industry capability, Australia is home to mature steel and aluminium supply chains and tens of thousands of highly capable workers: a critical advantage over jurisdictions with little or no existing capability. Australia also has a positive record in early-stage innovation in low emissions technologies, being among the global top ten producers of 'green patents'.¹⁶

In addition to these general advantages, location-specific factors can aid green metals production. In select regions, Australia has the potential to co-locate production with existing mining hubs for precursor resources and their enabling infrastructure - such as ports, transmission and rail lines. Such regions are also amenable to green energy production, and in some cases to geological storage of hydrogen. The Pilbara and Eyre Peninsula, in particular, possess most or all such traits for green iron and steel production, marking them out as world class locations for these activities.¹⁷

'To what extent has government support influenced thinking in Australia in respect to projects targeting decarbonisation?'

The Commonwealth need only look to its own past efforts to observe that its support can and does influence thinking in relation to decarbonisation. In 2022 and 2023, the Albanese Government moved quickly to drive increased and optimally dispersed deployment of firmed renewable energy in support of its emissions reduction and energy security goals. And the market has responded in kind.

Most notable in this respect is the Capacity Investment Scheme (CIS). The first CIS auction attracted bids from developers proposing to add 24 gigawatts of new capacity. This is quadruple the amount sought, and equivalent to nearly half the capacity of the entire National Electricity Market (NEM).¹⁸

The full Capacity Investment Scheme is likely to facilitate \$65 billion in private investment¹⁹ in return for what is likely to be fraction of that figure in public support. It has also positioned Australia strongly to meeting its ambitious plans for decarbonisation and security in the power sector.

‘What are the key barriers to investing in new green metals facilities or decarbonising existing facilities?’

Our resources, workers, capability and co-location are potential building blocks of a very large green metals industry. But private capital will flow to where the totality of conditions, including in relation to public policy, are most advantageous.²⁰ This poses a major barrier at the outset; Industry policy deployed abroad is eroding Australia’s head start.

The energy transition has sparked global competition for capital in green manufacturing and renewables, with estimated government supports for these purposes estimated to measure in the trillions of dollars.²¹ Among Australia’s biggest trading partners, the United States, European Union, Japan and Republic of Korea have all provided strong support for green metals industries. By contrast, while existing FMIA programs address important prerequisites for green metals - particularly those advancing hydrogen production - they offer nothing by way of direct support.

Also of note is that, as green metals production requires very large fixed capital investments, facilities are highly unlikely to shift location once established. Countries that seize the advantage early will reap the benefits of incumbency in the long-term.²²

In addition to industry policy competition, green metals producers face barriers to investment at every stage of development prior to maturity.²³ These are attributable to a range of technical and commercial uncertainties at different phases of development. At the earliest stages, some production methods face fundamental technical barriers that still need to be overcome. Particularly significant in the Australian context is the efficient use of hematite ores in ironmaking via direct reduction ironmaking (DRI).²⁴

Where technology has advanced further, Australia’s challenge is often in demonstrating efficacy or commerciality in local conditions. This applies, for instance, to iron and steelmaking using magnetite ores and the DRI and Electric Arc Furnace (EAF) method,²⁵ and to the use of electric boilers in alumina refining.²⁶ Elsewhere, a site may struggle to determine its optimum production pathway – for instance, whether to use natural gas for DRI or progress directly to hydrogen.

Even where a process is technically feasible and locally proven, economic barriers associated with nascency will remain. Most notable are upfront capital costs and the production premium. The latter – the so-called ‘green premium’ – reflects a range of factors. Not least are capital costs themselves, as well as unpriced or under-priced emissions embodied in metals produced via traditional methods.²⁷

Thus, Australia's latent potential in green metals promises much but guarantees nothing. A range of barriers to private investment remain, and green metals production is currently suffering from under-investment.

This reflects a need for government intervention at multiple stages on the path to technical and commercial maturity. A package of supports is required to overcome these barriers and turn abstract possibility into active production.

**'The types and design of supply and demand side supports that should be considered';
'What length and timing of support is required?'**

The merits of taking a bold approach to developing green metals industries are many and clear. The capacity of green metals production to deliver positive employment, economic development and export outcomes is very likely greater than any FMIA sector. The potential environmental and strategic benefits, too, are very substantial.

Equally plain is the need to move quickly. The Commonwealth should deliver a broad package of complementary policies to foster the rapid development of a large green metals sector. The package should support the sector at every stage before commercial maturity and seek to maximise co-investment from the private sector. This would resemble the approach used successfully to drive adoption and innovation for a range of low emissions technologies in other jurisdictions.²⁸ Moreover, to maximise taxpayer value and ensure social licence, the package should require every site receiving support to deliver positive workforce outcomes.

Recommendation 1: The Commonwealth should deliver a broad package of supports to support green metals production to progress from nascency to commercial maturity as soon as practicable.

Recommendation 2: The green metals package should require every site receiving support to deliver positive workforce outcomes.

Deliver a national strategy

The first step in delivering the green metals package should be to devise a national strategy for the sector as soon as possible. This should lay out a broad vision for development and workforce outcomes, and for government supports to realise these goals. Such a strategy would assist to coordinate policymaking and engage and give confidence to workers, industry and investors. Its role would thus mirror that of the *National Hydrogen Strategy* and *Future Gas Strategy*.

The strategy should include timelines for progression of green metals production from nascency through to maturity, and production targets for different metals at various intervals to 2050. Given the various technology paths that different facilities may ultimately adopt, it should maintain neutrality as to preferred development paths. However, as regards iron and steel, it might recognise that the DRI and EAF production route using magnetite ore offers the greatest technology and economic maturity at the present time.²⁹

To ensure representative input, the strategy should be developed in close consultation with the Commonwealth's *Decarbonisation and Green Metals Advisory Panel*.

Recommendation 3: The Commonwealth should promptly deliver a strategy providing a vision for development and workforce outcomes in the green metals sector, and supports to realise that vision.

Support demonstration projects

The AWU welcomes the *Future Made in Australia Innovation Fund* as an important step to supporting the development of green metal production technologies. However, the fund appears best suited to funding very early-stage R&D and related small-scale efforts. The \$170 million per year it will provide will be divided between projects in green metals, liquid fuels, hydrogen, battery manufacturing and other unspecified industries.³⁰ It is thus poorly placed to deliver the capital required for higher-cost projects demonstrating green metal production on a pre-commercial or early commercial basis.

Such projects are an essential step in the assessment and learning process before full commercial production. From a workers' perspective, they are also important to demonstrating the safety of new production methods. For example, the use, storage and transport of both direct reduced iron and hydrogen in metalmaking will be unfamiliar to most workers and pose notable safety risks. Demonstration projects will assist to develop the new safety protocols required.

To complement the *Future Made in Australia Innovation Fund*, the Commonwealth should provide dedicated funding to green metals production demonstration projects. Given that even a large green metals industry is likely to involve a relatively small number of producers, these projects should be devised and funded under bespoke arrangements with industry. As safety and worker buy-in are critical considerations, unions should also be involved in these deliberations – including via the *Decarbonisation and Green Metals Advisory Panel*. To support development in line with ambitious commercial, environmental and strategic goals, Australia should have several such projects in place by 2030.³¹

While the funding model for these projects should be subject to deliberations with industry, the Commonwealth should not rule out taking an equity stake where appropriate. This approach is not unprecedented in Australia's metals industries, and can assist with maximising community benefits for what are high-cost endeavours.³²

Recommendation 4: The Commonwealth should fund or invest in demonstration projects for green metals production - aiming to have several such projects in operation by 2030.

These demonstration projects should have a dual focus. The first should be initiatives that offer a potential pathway to green metals production for existing steel, aluminium and alumina manufacturing sites. This will allow government to leverage the expertise and resources of the

existing sector and its workforce. It will also help ensure that sites responsible for hundreds of thousands of direct and indirect jobs are able to navigate the energy transition. This remains a major concern, not least among the sectors' workforce. We acknowledge that Liberty-GFG's Whyalla site already appears set to shift to green steel production via the DRI and EAF method in the near future. The Boyne Island, Queensland Alumina and Tomago aluminium smelters have also sought to reduce scope 2 emissions through large renewable power purchase agreements.³³ But widespread uncertainty around the path to green metals for most current producers remains.

The second focus area should be new projects situated in regions which, due to both general and region-specific advantage, have especially high potential for green metal production. In this respect, iron and steel production in the Pilbara and Eyre Peninsula stands out as an historic opportunity. The Pilbara alone has the potential to drive decarbonisation of a major proportion of the global iron industry – and secure much more of its gargantuan value and employment for Australia in the process.³⁴

Where projects provide steel or aluminium products, the Commonwealth should seek to come on board as a purchaser (see also '*Provide demand certainty*', below). In addition, projects would ideally be deployed in conjunction with a large international offtaker – for example, a steelmaker from North Asia purchasing direct reduced iron. With adequate support, high-potential regions like the Pilbara and Eyre can ultimately produce much greater quantities of metals than domestic demand can ever utilise. But this scale of ambition requires export relationships to be developed from the outset.

Recommendation 5: The Commonwealth should prioritise demonstration projects that drive emissions abatement at existing sites or are located in high-potential regions.

Recommendation 6: Where possible, green metals demonstration projects should include the Commonwealth and at least one international partner as offtakers.

Help bridge the green premium

Even as Australia's green metals industries progress towards maturity, they will still face low or uncertain demand due to the green premium relative to conventionally produced metals. While we can expect that innovation and policy intervention will eventually see this premium eliminated,³⁵ the issue will persist out to the long-term. Effectively tackling this dilemma calls for government action on the both the supply and demand sides.

Investment tax credits

As regards supply, the consultation paper acknowledges the reality that green metals production demands large up front capital investment to either retrofit existing facilities or construct new ones.³⁶ These are the financial decisions the industry will ultimately be built on, but they present a substantial financial barrier. For example, Sweden's *H2 Green Steel* has now raised over AUD\$10 billion to finance its plans to build the world's first large-scale green steel plant.³⁷

The Commonwealth should incentivise such activity by providing tax credits for investments in key assets that facilitate large-scale production. The Commonwealth should devise a list of assets eligible to attract credits.

In our submission, existing government programs evince an acknowledgement of the need to subsidise capital investment in green metals. In the past 12 months, the Commonwealth has provided over \$600 million in grant funding to steel, aluminium and alumina producers to support the acquisition of high-cost assets supporting lower emissions production.³⁸ A shift to investment tax credits would provide greater breadth and certainty than the existing ad hoc approach, helping facilitate investment at the desired pace and scale.

To ensure it drives as much investment as possible, the incentive should be uncapped. This is consistent with the approach taken with the planned *Critical Minerals Production Tax Incentive* and *Hydrogen Production Tax Incentive*.³⁹

Given most potential operators are at least several years away from investing in large-scale production, the incentive would need to be available into the 2030s.

Recommendation 7: The Commonwealth should provide tax credits for capital investment in assets facilitating commercial production of green metals. The value of these credits should be uncapped.

Contracts for difference

While subsidised investment will help reduce the green premium, it will not eliminate it. A government-operated contracts for difference (CFD) scheme where green metals are sold to the private sector is the ideal means of addressing or mitigating this issue in a calibrated manner.

As with the CIS, the green metals CFD should be a 'cap and collar' scheme. The Commonwealth would guarantee revenue below a certain figure – effectively requiring it to contribute to making up a shortfall attributable to the green premium. Equally, producers would be required to pay back the government if revenue were to exceed an agreed figure.

The flexibility provided by CFDs is ideal for green metals, where uncertain technology pathways and price trajectories make it difficult to confidently estimate the green premium ahead of time. It also helps safeguard public value and thus support for the green metals package – its design guarding against the provision of subsidies that exceed what the market requires.

The concentrated nature of green metals production may prevent the use of 'reverse auctions' to ensure maximise competition for CFDs, as with the CIS. Contracts would likely need to be arranged by direct engagement and negotiation with each producer. Despite this limitation, we submit that a CFD is nonetheless the optimal means of subsidising production of green metals.

For the same reasons as investment tax incentives, there should be no cap on the amount the Commonwealth will provide through its CFDs. As the green premium is likely to persist into the 2030s, it will need to remain in place for at least a decade.

Recommendation 8: The Commonwealth should provide contracts for difference for commercial production of green metals. The value of these contracts should be uncapped.

There is merit in varying the support provided through CFDs according to a product's emissions intensity (and any similar supports, such as production tax incentives). Such criteria should not prescribe a particular production method. However, increased subsidies should be available to facilities producing a metal at lower emissions intensity measures.

The Commonwealth could prescribe maximum emissions intensity rates for steel, iron, aluminium and alumina, under which a facility would become eligible for support. It could further prescribe lower rates under which increased support became available. This system should be designed to accommodate facilities that adopt interim decarbonisation processes en route to very low emissions production – for instance, the use of gas in place of metallurgical coal.

This approach would accommodate facilities' differing circumstances and transition pathways, while still incentivising adoption of lower emissions technologies and processes.

Recommendation 9: The Commonwealth should provide varying support through its contracts for difference according to the subsidised product's emissions intensity.

Provide demand certainty

The Commonwealth can also play an important role on the demand side. Government is plainly unmatched among domestic actors as a consumer of metals. The Commonwealth's land transport investment pipeline, for instance, is valued at nearly \$100 billion in the coming decade.⁴⁰ One recent study estimated this would require \$26 billion of steel alone.⁴¹ Moreover, the Defence Integrated Investment Program will allocate a further \$330 billion to 2034. While generally targeting products with a wide range of inputs, much of this will be sourced from local manufacturers⁴² and will include a large quantity of steel and aluminium.

The Commonwealth should utilise the weight of its procurement spend to advance the metals sector. Government should commit to sourcing a set quantity of Australian green steel and aluminium for its purchasing. This could immediately create an important and durable market for local production.

The AWU acknowledges something of a dilemma here. Any purchasing commitment would be contingent upon the capacity of domestic producers to deliver, yet industry may look for certainty around demand before investing. The evidence suggests demand supports are best deployed to drive adoption of clean technologies that have achieved a level of maturity but limited market penetration.⁴³ The commitment should thus be devised in close consultation with industry, with the intent that it comes into effect after early commercial production begins. It could then be ratcheted up as output increases.

Recommendation 10: The Commonwealth should commit to sourcing a quantity of green steel and aluminium to supply its own procurement. The quantity should be determined in consultation with industry as it scales up production.

‘What is the scale of investment needed to convert existing facilities or establish new ones?’

The scale of public investment required to deliver the package outlined above is difficult to calculate with precision. This uncertainty partly reflects Australia’s potential in green metals production; The maximum or optimum level of output that the nation might seek to achieve is not entirely clear. Moreover, some supports we advocate would be open-ended and thus subject only to projected rather than maximum costs. The point at which an industry reaches commercial maturity is also to some extent a function of government support itself. Greater state support drives additional investment, delivering faster development and ultimately an expedited path to commercial maturity.

One study promoting a very ambitious development vision suggests that upwards of \$60 billion would be required to construct an industry worth hundreds of billions per year by mid-century.⁴⁴ Conversely, a piece on early-stage support for green steel only proposes a package likely valued in the low billions.⁴⁵ The quantum of support required to realise the Commonwealth’s own high ambition projection of a \$122 billion industry by 2040 is unclear.

While we appreciate that any support package will be subject to fiscal realities, the AWU’s preferred package, comprehensive as it is, trends toward greater ambition. We believe a support package at least as large as any other provided under FMIA is warranted. This would require at least \$11.5 billion - the projected value of the green hydrogen support package delivered to date.⁴⁶

This scale of ambition reflects the sector’s uniquely large economic, environmental and strategic potential – including relative to other industries supported via FMIA. Its fiscal impact would also be mitigated somewhat by virtue of being delivered across more than a decade.

Recommendation 11: The green metals package should provide at least as much financial support as that afforded to any other sector under the *Future Made in Australia* scheme.

‘How can the government support industry to enable communities and workers to share in the benefits of transitioning to green metals?’

While large-scale support is essential to realise the benefits of a green metals sector, it is also critical that the package maximises returns to the workers whose labour will deliver it, and to the communities that will host and help pay for it. This is a matter of both taxpayer value and of social licence. Ongoing attempts by political interest groups to challenge offshore wind developments by stoking local opposition highlights the risk that community backlash poses to major clean energy

developments. Moreover, many workers in the metals sector remain sceptical as to whether a shift to low emissions production will drive positive outcomes for them - particularly relative to well-paying jobs in sites facing an uncertain future.

Put simply, the best path to ensuring community buy-in is through community returns, in the form of strong local employment and development outcomes. People should be given confidence that an FMIA project in their area will always mean quality jobs and opportunity for them.

This principle should be reflected across the portfolio of programs delivered under FMIA, with green metals no exception. The AWU applauds the government's high-level objective to 'promote safe, secure, well-paid jobs and more skilled and inclusive workforces' through the scheme. However, the provisions of the *Future Made in Australia Bill 2024* intended to support such outcomes⁴⁷ appear unclear and very difficult to effectively enforce. The Commonwealth risks repeating past incidences of well-intentioned but inadequate programs in this space, such as the *Australian Industry Participation Plans* scheme.

Rather than lenient guidance, firm regulation is necessary to realise the government's goals in relation to jobs and workforce development. Such rules should be developed and implemented as a matter of priority.

The AWU sees particular merit in a 'two gate' system similar to the tendering models implemented by the ACT and Victoria governments in recent years.⁴⁸ Ideally, this would take the form of the planned *Secure Australian Jobs Code* and apply broadly across the Commonwealth's procurement and industry policy activity – including all FMIA programs and all investments made through its Specialist Investment Vehicles.

The system would require all firms to demonstrate a commitment to positive worker outcomes as a threshold requirement to be considered for support under a particular program, including under the green metals package. Businesses would be required to obtain and retain a certificate verifying their commitment to such outcomes. This would be issued by an independent authority following an assessment of the firm. The certificate would verify the business' commitment to quality workforce outcomes, including:

- The existence of an enterprise agreement with the relevant union, or a willingness to enter into such an agreement;
- The firm's history of compliance with industrial law, workplace health and safety standards and other legal obligations to its workforce;
- A commitment to engaging staff on a permanent basis wherever possible;
- Efforts to engage trainees and apprentices; and
- Where subcontractors are engaged, the use of firms that also hold such a certificate.

After demonstrating it held a certificate, businesses could be assessed for support against the particular criteria of the relevant program or investment vehicle.

The development of 'Best Practice Industry Conditions' for green metals production offer another potential means to achieve similar ends. These would prescribe minimum wage and conditions for workers at any projects that receive government support.

Recommendation 12: The Commonwealth must prescribe clear, enforceable regulation that requires all projects receiving support under *Future Made in Australia* to deliver safe, secure, well-paid jobs and worker upskilling.

Separately, we emphasise the enormous workforce challenges intrinsic in any successful transition to green manufacturing and energy 'superpower' status. One estimate for the labour required to build a large green metals sector alone suggests over 400,000 workers will be required by 2040.⁴⁹ Jobs and Skills Australia identifies that even a less ambitious transition will require 40% more workers across the building and engineering trades – with occupations including structural steel workers, construction managers and electricians in particularly high demand. For instance, Australia will require an additional 42,500 electricians by 2030, and almost 100,000 by 2050. To reach such targets, the Commonwealth must deliver a coordinated and ambitious plan to invest in the workforce of the future.

Recommendation 13: The Commonwealth should deliver a coordinated, ambitious plan to deliver the workforce required to build a green metals sector and other 'green energy superpower' industries.

Ancillary measures

In addition to the above measures to grow the sector and support jobs directly, a range of ancillary and supporting activities are required to maximise the value of the green metals sector.

Level playing field

Even with broad government support, Australia will need to ensure a level playing field for its green metals sector. While both it and the global market evolves, the sector will be vulnerable to lower cost imports from jurisdictions without meaningful carbon pricing. In engaging with the Carbon Leakage Review, the AWU has advocated the prompt implementation of a CBAM for steel and aluminium. We also recommend the government monitor imports of other emissions intensive, trade exposed materials, including iron and alumina, for potential expansion of the CBAM.⁵⁰ Widespread investment to decarbonise metals production rapidly would only make this case stronger.

Recommendation 14: The Commonwealth should promptly implement a carbon border adjustment mechanism. The mechanism should cover steel and aluminium at the outset, with scope for expansion as required.

Higher value-add activity

The AWU applauds FMIA's intent to facilitate increased value-adding to Australia's resources.⁵¹ Important as the resources industry is to the economic and employment landscape, our economy skews heavily towards 'dig and ship' activity. Harvard's much-referenced *Economic Complexity Index* ranks Australia 93rd of 133 countries assessed – well behind all other major economies.⁵² Iron ore alone makes up nearly 30% of all exports.⁵³ This dependence leaves Australia vulnerable to external shocks to the resources sector, and prevents it from maximising its resources' jobs, revenue and export dividend.⁵⁴

In our view, green metals constitute an unmatched opportunity to help address this concern. But while our potential in intermediate green metals (especially iron) is substantial, the Commonwealth should not settle for moving Australia one step up the value chain. All direct supports advocated in this submission should be available for steel and aluminium in addition to iron and alumina.

But beyond metals production directly, the Commonwealth should take steps to develop downstream industries. This might include devising further strategies to support promising industries consistent with FMIA's emissions abatement and security goals, such as high voltage cable manufacturing. Such strategies could be accompanied by local content mandates to ensure input from local metals suppliers. The government should ultimately seek to foster diverse industrial precincts around green metals production sites. For one, this will require infrastructure accommodating an expanded industrial presence in these areas.

Recommendation 15: All programs in the green metals support package should be available to producers of steel, iron, alumina and aluminium.

Recommendation 16: The Commonwealth should support the development of industries downstream to green metals production, with a long-term view to establishing industrial precincts around green metal production sites.

Firmed renewable energy

Making green metals requires green energy, and the volume of renewables needed to supply the sector will be vast. AEMO's Integrated System Plan suggests the NEM will need to almost double its capacity by 2050 to accommodate a 'green energy exports' development path.⁵⁵ Other studies suggest capacity up to twenty times greater than the NEM would be required by a large green metals industry.⁵⁶

Much electricity for metal production likely to be delivered by dedicated, off-grid infrastructure. But other sites, such as those in the Eyre Peninsula, may well access public networks.⁵⁷ While this will have wide implications for network planning as a whole, the AWU emphasises the importance of firming technology to meet the large and consistent needs of such facilities – particularly smelters.⁵⁸ While batteries are ideal for optimising networks over short periods, they are not suited to long-duration firming.⁵⁹ Other technologies, including gas peaking and pumped hydroelectricity

plants, are required. Government must ensure they are available where required, including by direct investment if necessary.

Recommendation 17: The Commonwealth should ensure delivery of long-duration firming systems where green metals production sites connect to public electricity networks.

More information

The Australian Workers' Union is committed to supporting the development of a green metals sector befitting of Australia's potential and maximising its benefits to workers and the community.

We would welcome the opportunity to contribute further to the consultation or respond to any queries regarding this submission.

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- ⁸ <https://www.dcceew.gov.au/sites/default/files/documents/nggi-quarterly-update-dec-2023.pdf>, p. 10; <https://www.csiro.au/en/news/all/articles/2022/may/net-zero-steel>
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