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Ref: sm2024115

17 July, 2024

Director
Production Tax Incentives Unit
Corporate and International Tax Division
The Treasury
Langton Crescent
PARKES ACT 2600

Email: HydrogenProductionTaxIncentive@treasury.gov.au

Dear Director,

Re: AMWU Submission to The Treasury's Hydrogen Production Tax Incentive Consultation.

The Australian Manufacturing Workers' Union (the AMWU) welcomes the opportunity to provide a submission to The Treasury's consultation on a proposed Hydrogen Production Tax Incentive.

The AMWU has organised and represented workers in the Australian manufacturing sector for more than 170 years. Today, the AMWU represents over 60,000 members in every Australian city and region. The AMWU welcomes the Federal Government's plan to develop a Hydrogen Minerals Production Tax Incentive (henceforth HPTI) and the government's important role in using it to attract and enable investment in the hydrogen production capabilities that add value to manufacturing industries and grow the position of Australia's sovereign industrial capabilities in global value chains.

The AMWU's coverage extends throughout many areas of the skills that will be needed for a sustainable Australian hydrogen industry. These skills are significantly diverse and relate not just to the jobs that are to be created by the production of hydrogen. Rather, skills needed for a sustainable and ongoing viable Australian hydrogen industry relate to the core skills that will remain consistent across all stages and types of hydrogen projects. These include plumbing, electrical, process and engineering work and occupations. A range of skills in instrumentation and pipeline construction will be essential. Encompassing construction phase jobs and flowing into ongoing occupations in hydrogen are skills relating to project management, design and workplace safety, plus a range of finance, analysis, management, Environmental, Social and Governance (ESG) specialists, regulatory and compliance roles. All roles require a strong foundation in the knowledge of safety requirements in energy industries, which will require a further pool of trainers, assessors and teachers to be developed.

Over many years, the AMWU has observed that, regardless of enunciated government policy, the default position of many policymakers remains a lazy version of comparative advantage that would make even some Ricardians blush. This appears to be a small-minded and vested interest claim that a nation such as Australia, with world-significant energy and mineral resources, should confine itself to private commodity extraction for overseas export, and that almost any effort at onshore value-adding is in its very essence inefficient.

On the contrary, it is clear to the AMWU and across broader industry that the HPTI has the potential to unlock the major derisking and investment opportunities in sovereign Australia renewable energy and clean technology supply chains, overcoming the risks associated with an industrial economy sitting atop a foundation of low economic complexity. Harvard University's 'Atlas of Economic Complexity' measures the diversification and development of the industrial base in domestic economies. Economic Complexity is a synonym for the knowledge intensity of an economy. It is centred on the embodied knowledge represented by the composition of its output and production (and does not, as recently and incorrectly claimed by a former head of the Productivity Commission, pertain to the use of imported high technology by extractive resource industries to export unprocessed raw materials).[1]

In the most recent edition of the Atlas, Australia ranked 9th in the world for GDP per capita but only ranked 93rd for economic complexity, despite many of our closest allies and largest trading partners (i.e., the United States, countries in Western Europe, Japan and the Republic of Korea) ranking within the top 10 for economic complexity. Moreover, Australia has been falling in those economic complexity rankings: since the turn of the century, its ranking has dropped by 31 positions. Unless this trend is reversed, the Australian economy will remain the (second) least industrialised in the OECD, be less able to provide for its citizens, and its resource dependence will leave it vulnerable to external economic shocks, much like that which occurred during the peak of the COVID-19 pandemic, and as is evident today with increased superpower competition.

The key message from the analysis provided by the Atlas is that 'what a country makes is what a country knows'[2]; and the takeaway is that Australia knows very little relative to the nations with which we often like to compare ourselves. To harness an evident, but very disparate, knowledge base in the kinds of product exports that make a country complex (and which is therefore capable of capturing highly valuable positions in global value chains), value-adding opportunities in manufacturing must be grasped to ensure our economy benefits from higher returns on our exports over the long term. This places high importance on the use of hydrogen as an energy source that can power growth in Australia's competitive advantages in renewables and cleantech manufacturing sectors.

The proposed HPTI can play a major role in encouraging the domestic production of green hydrogen for the purposes of powering manufacturing with clean, renewable sources of energy, and the manufacture of clean hydrogen technologies themselves. These sectors present enormous opportunities to aid Australia's advanced industrial transformation and build entire domestic industries and sectors around major export opportunities.

In a recent report, the Centre for Future Work stated that:

> Manufacturing businesses can profit from innovative renewable and low-carbon manufacturing techniques, as well as by producing manufactured inputs for new clean energy developments … communities can be revitalised through a clean-technology-led reindustrialisation. Governments can also benefit from the economic flow-on effects of

[1] Kehoe, J. 2023. 'Mining is smart, not 'stupid', outgoing productivity boss says', *Australian Financial Review*, 4 September. https://www.afr.com/policy/economy/mining-is-smart-not-stupid-outgoing-productivity-boss-says-20230904-p5e1vb

[2] See https://atlas.cid.harvard.edu/

innovation, productivity, secure employment, and enhanced incomes and tax revenues that renewed manufacturing industries can support.[3]

As such, the AMWU recognises that Australia's hydrogen industry opportunity relates to the development of a hydrogen production sector linked closely to domestic manufacturing – one which can produce the energy requirements to meet manufacturing supply chain demand by contributing to the decarbonisation of manufacturing processes. The AMWU also believes that the HPTI should support the development of new clean industries targeted in part to clean export opportunities including green hydrogen and ammonia. However, it is critical to acknowledge that the HPTI has an important role to play to contribute to decarbonising onshore, domestic value-adding industries in a range of renewables and transitioning sectors, some of which are detailed further later in this submission.

Indeed, the scale of demand for Australia's resources from a decarbonising world creates scale for our own efficient and competitive value-added manufacturing and production upstream and downstream of hydrogen production. That is the point of *Future Made in Australia*. Further, the industry economics and structure of decarbonisation will often mean that both the interests of Australia and those of a decarbonising world will best be served by manufacturing energy intensive products as close to the green energy source in Australia as possible.[4] Industry policy should actively promote lead customer partnerships with SMEs, government and institutions of education and training deliberately geared to the development of coherent and efficient onshore value-adding supply chains (which should not be misrepresented as a call for autarchy). This will have the ultimate effect of higher benefits flowing to workers and their communities in the form of higher-skilled, higher-paying jobs, greater standards of living and ultimately, a more cohesively integrated society.

Developing domestic hydrogen industries both upstream and downstream of green hydrogen production could include upstream capability development. Such upstream opportunities include processing capabilities that add complexity at the point of production in ways that stimulate demand in Australian manufacturing sectors, and additional research and development, design, engineering, plant and equipment investments that create demand from the sovereign capabilities Australia possesses in each of these sectors. Such investment in advanced manufacturing technologies to aid the development of green hydrogen production in Australia would provide major benefits to both large scale-based industries and flexible smaller players, removing previous barriers to scale, and expanding the opportunities for globally competitive onshore value chains based on Australia's vast resources and comparative advantage.

Without considering the full supply chain to which Australia's hydrogen industry can provide cheap, renewable sources of energy and also demand for domestic sovereign capabilities in knowledge broadly, Australia's hydrogen industry will not contribute to the decarbonisation of industrial processes at home, and be more likely to provide cheap, renewable energy to industrial decarbonisation projects and strategies implemented overseas. This is a risk mostly in terms of Australia's future industrial competitiveness, whereby we are presently at an opportune moment in time to see the emergence of a new energy industry as a potential competitive strength in energy supply to decarbonise advanced manufacturing production. This would not only raise our economic complexity, but it would also redirect resources to research and innovation that further grows knowledge-driven value-adding opportunities in the Australian economy. However, the window on these opportunities is closing, so overcoming the barriers that remain to capturing benefits means developing and implementing a strategy that moves in lockstep with the development of an advanced manufacturing industry policy. We turn next to the important role of the HPTI to help capture these industrial opportunities.

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[3] Joyce, C. & Stanford, J. (2023). *Manufacturing the Energy Revolution: Australia's Position in the Global Race for Sustainable Manufacturing*, Canberra: Centre for Future Work at The Australia Institute.

[4] Garnaut, R. (2019). *Superpower: Australia's low-carbon opportunity*: La Trobe University Press. Note that Garnaut's impeccable free trade credentials have not hindered his advocacy of Australia's taking on at least some elements of a green industrail policy.

HPTI eligibility and conditionality

Increasing Australia's economic complexity and in turn, moving our industrial base higher up value chains, means that the HPTI must prioritise initiatives that assist the onshoring of supply chains to capture more economic output and job creation in Australia in sectors of strategic advantage. There is a major coordinating role for government to play in this effort, in partnership with industry working towards common strategic aims in sectors of major opportunity. At the broadest level, this relates to advanced manufacturing industries powered by renewable energy (including hydrogen) and would be aided by mandates, such as the onshoring of key enabling technologies and value-adding industries. A firm's access to the HPTI should be contingent on a firm's efforts to onshore key enabling technologies that grow Australia's capacity and capability in hydrogen production, and to assist the development of scale in value-adding industries that will benefit from downstream supply of hydrogen to power their production or upstream where there is opportunity for Australian value-adding sectors to contribute to increased efficiency, complexity and sophistication of a highly competitive Australian hydrogen sector.

The two-gate system for HPTI eligibility

To ensure and enforce these and other eligibility criteria, the AMWU supports the recommendation of the ACTU regarding a two-gate system for the HPTI mechanism. The first 'gate' would see an adjudication entity run an eligibility determination process. The second stage would determine the size of the tax credit to be awarded.

The first gate eligibility determination process would address factors including:

- Prevailing industry wages and conditions or an enterprise agreement with a registered organisation, preferably included in Fair Work Commission-approved enterprise agreement with all relevant unions.
- Registration of an Indigenous Land Use Agreement (ILUA) with the National Native Title Tribunal.
- Transparency and compliance with tax law.
- No history of breaches of OH&S law and no active Provisional Improvement Notices.
- No history of breaches of the Fair Work Act including wage theft.

Upon fulfilling these conditions, an applicant firm would proceed to the second gate featuring additional criteria, with the satisfaction of each individual criterion incrementally increasing the size of the HPTI credit awarded to the applicant. These criteria would determine the quantum of the incentive and would contain, amongst other criteria, the following:

- Existence of a collective agreement with a union and/or agreement to arbitration.
- Agreement including 5 days of paid training per year for workplace delegates.
- Union inductions for all new starting employees.
- Provision of 80%+ secure jobs.
- Compliance with the Australian skills guarantee-level targets for apprentices, including women apprentices.
- Registration of an Indigenous Land Use Agreement (ILUA) with the National Native Title Tribunal.
- Investment in a Net Zero Economic Agency (NZEA) designated transition region/participation in an NZEA pooled redeployment "community of interest".
- Meeting local content requirements in the construction phase of at least 90%.
- Being a signatory to a community benefit agreement.

Domestic manufacturing industry sectors in high demand of hydrogen as an energy source

The following section details a range of high-value manufacturing industry sectors that Australia has opportunity to develop onshore through downstream investments, and which are economically complex. These will make a major contribution to Australia's economic development if the HPTI is applied in an effective way that reflects the *Future Made In Australia* ambitions to deliver greater sovereign capability in value-adding sectors.

In 2023 the AMWU commissioned the *Towards a Renewable Energy Superpower*[5] report, which sought to identify industry opportunities for Australia to embrace in the clean energy revolution. The report suggested that building Australia's renewable energy industry credentials is in large part a matter of adding value to already-existing high-value industries, including green metals manufacturing, solar photovoltaics and heavy vehicles. The key is to move manufacturing capabilities within these industries further along value chains to claim a more significant position in both domestic and global supply of renewable industry technologies.

Enlivening this strategy under the *Future Made in Australia* umbrella industrial strategy, and with additional access to National Reconstruction Fund loans, the HPTI can become another important lever for connecting Australia's hydrogen production industry to downstream opportunities in key value-adding sectors. The biggest opportunity sectors, as detailed in the *Superpower* report, are detailed below.

Green metals manufacturing

The closest nearby capability that can be developed in Australian minerals and metals industries is in green metals production. Australia has national opportunities in the application of renewable energy technologies to existing capital equipment (i.e., electric arc furnaces) to process green iron ore and aluminium and supply green iron and steel to downstream projects in domestic supply chains.

Diversified battery supply chain

The development of green mining industries in Australia, especially in the mining of lithium, rare earths, copper, nickel and silica could link to national opportunities in the material processing of battery cells and packs for domestic and export markets. This would also facilitate demand for the expansion of recycled materials in a circular supply chain that takes end-of-life battery materials and feeds them back into critical mineral refinement stages. In turn, this opens opportunities for both the prevention of outsourced material recycling to other nations – as Australia currently lacks an elaborate industry for such recycling, as well as the importation of scrap metals from other nations to be fed into renewable processes onshore. Targeting the growth of an onshore recycling industry can also provide scale for development of domestic battery manufacturing industries, both in Australia and the US[6]. Together, the onshoring of these capabilities and inputs could generate new revenue streams for a sophisticated green metals circular economy value chain.

In these industries, Australia's rich reserves of green metals would become a key input to highly complex refinement, processing, production and recycling – each of which represents a highly valuable industry sector, with major implications for global competitiveness given Australia would possess a near-complete value chain unmatched in the world. This is a far more desirable prospect to the default policy position of favouring ongoing commodity exports. Green metals manufacturing value chain expansion holds the foundations to the Australian economy breaking its dig-and-ship approach to patterns of industrialisation that attract levels of revenue that will exhibit diminishing returns compared to the competitive value-adding opportunities presented by complex manufacturing processes.

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[5] SGS Economics & Institute for Sustainable Futures at UTS, 2023. *Towards a Renewable Energy Superpower: Industry Opportunities for Australia to Embrace the Clean Energy Transition*. Sydney.

[6] Worrall, L, Gamble, H, Spoehr, J, 2022. *The Circular Economy – International Lessons and Directions for Australian Reindustrialisation.* Adelaide: Australian Industrial Transformation Institute, Flinders University of South Australia; The White House. (2021). *Building resilient supply chains, revitalizing American manufacturing, and fostering broad-based growth*.

Solar supply chain expansion

The Institute for Sustainable Futures at UTS has estimated that Australia could create up to 60,000 jobs in manufacturing by capturing solar supply chain opportunities.[7] There are major green metals opportunities in the mining of silica, quartz and aluminium in Australia, which could be linked to emerging national opportunities in material processing (i.e., polysilica refinement), and downstream to the manufacture of ingots, solar cells, solar modules and solar panel framing. There are also lucrative opportunities in bolstering supply of high-quality, Australian-made solar panels to Australian businesses for operation and usage on commercial and residential buildings. As discussed above regarding battery supply chains, this industry would also link to end-of-life and recycling capabilities presented by circular economy opportunities, of which Australia can become a key global player if it commits to strategic investments in these areas. Australia has one of the world's largest penetrations of domestic roof top solar. Many units are now coming to the end of their lives and under the current policy settings will simply go to landfill. The significant scale of Australia's household solar represents an industrial opportunity to develop a strong domestic recycling and reuse capability, together with regaining upstream manufacturing capabilities.[8]

High voltage cable manufacturing

The integration of renewable energy generation facilities into Australia's energy grid will depend on them being connected to homes and businesses via high voltage cables. Global supply shortages are estimated to see projects like undersea cabling require a lead time of eight years, creating a two-fold opportunity for Australia to establish a domestic high voltage cable manufacturing sector. Such a sector would provide certainty in the long-term to domestic renewable projects and their timely integration into the national grid, for example: the proposed Sun Cable project which will require approximately 12,000km of cabling. Furthermore, developing a domestic industry would be globally competitive given the constraints to supply for overseas projects.

Wind tower manufacturing and offshore wind port infrastructure

Over the coming decades, market demand for wind towers in Australia is estimated to be worth $20-80 billion. If Australia embraced this opportunity, it would mean increased demand for green steel. In turn would expand the steel manufacturing supply chain. This opportunity would be enabled most of all by offtake agreements and local content rules that create certainty for investment in new manufacturing facilities.

Electric heavy vehicle manufacturing

Australia's metal industries supply segments of domestic heavy vehicle (bus and truck) manufacture for activities including public transport, road freight and mining haulage. As these industries transition to electric and low-emissions vehicles to help reduce overall transport emissions, the production of green metals (i.e., steel, aluminium) that go into these vehicles can contribute to reducing overall carbon emissions in Australian manufacturing. The Australian green metals sector's involvement in the manufacture of electric vehicle battery cells and components can expand demand for our existing metal industries.

These are significant opportunities irrespective of the further major opportunity for Australia's critical minerals. Critical minerals including lithium, nickel, and cobalt are essential for electric vehicles and Australia could play a larger role in the supply chain beyond extraction and export if downstream processing and manufacturing was encouraged. Key supply chain links from green iron ore and rare earths mining can be reinforced so that greater volumes of these minerals are supplied to the manufacture of batteries, chassis and other vehicle components.

A HPTI could assist in guaranteeing the supply of renewable energy like hydrogen to Australia's strategic sectors like those detailed above, serving as a useful policy mechanism to aid targets of net zero emissions by 2050 and 43% greenhouse gas emissions reduction by 2030. Along with

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[7] SGS Economics & Institute for Sustainable Futures at UTS, 2023. *Towards a Renewable Energy Superpower: Industry Opportunities for Australia to Embrace the Clean Energy Transition*. Sydney.

[8] Worrall et al op cit.

setting hydrogen production targets, coordination with other policy mechanisms, such as tax credits for Australian IP could be attached to commitments from local hydrogen firms to invest further in Australian supply chains, favour domestic customers and seek export opportunities only when adequate scale has been achieved in domestic industry and supply chains to make the entire sector export competitive. Such efforts would thus also be aided by government equity in key firms and supply chain networks.

Ensuring that the HPTI does not provide a scattershot approach, and instead takes a sector-driven approach to hydrogen industry development, would direct both strategic investment in the hydrogen supply chain, and present opportunities to create onshore consumers of hydrogen in advanced manufacturing industries. Several states have already committed to strategic investments in hydrogen production, for example, South Australia and its commitment to a hydrogen plant in Whyalla, and Queensland which has developed a hydrogen strategy and accompanying hydrogen industry workforce development strategy.

In these instances, hydrogen industry initiatives are developed in cognisance of their advanced manufacturing industry implications – a hydrogen industry being pivotal to maximising the growth of manufacturing innovation precincts and supply chain developments. In fact, this represents a virtuous circle of activity, whereby ensuring hydrogen production projects are successful means developing advanced manufacturing precincts nearby to hydrogen production facilities. Advanced manufacturing precincts can generate valuable energy supply chain links and thus guaranteed customers by attracting business and investors to local industries, which secures existing jobs and creates new ones. Hydrogen supply to manufacturing industries will provide cheap energy to industrial consumers, which in turn can permit employers to focus their resources on developing a skilled workforce and commercialising new technologies and solutions more rapidly. This will also be aided by attracting start-up hydrogen industry firms to co-locate with already established industry players.

Therefore, advanced manufacturing precinct development is intrinsic to a sectoral strategy for domestic hydrogen production. Hydrogen production can add value to local manufacturing through cheap energy, and dedicated advanced manufacturing precincts can provide infrastructure and knowledge for innovation so that they become hubs for the development of innovative zero emissions and circular economy technologies and solutions that Australia can export, rather than just simply exporting hydrogen without its potential for value-adding to downstream manufacturing.

Common user infrastructure to scale industries benefiting from the HPTI

A major barrier to supporting a local hydrogen industry and its role in enabling local manufacturing development is the scale required of renewable energy initiatives to be feasible for industrial purposes. It is therefore necessary to avoid duplication in investment in projects that compete, rather than being coordinated to enable the development of industrial scale and breadth of supply chains.

Reaching scale and capacity is an issue the AMWU has been addressing for many years by proposing the expansion of Common User Facility (CUF) infrastructure to manufacturing sectors beyond defence shipbuilding. The CUF model is one where government owns the land and infrastructure, providing open access to multiple private users. Government ownership presents opportunity for bidding by private sector firms, and successful bids can be based on the strategic aims of the precinct. Some of the key features and benefits of CUFs include:

- Firms leasing space and infrastructure gain access to cutting edge common use infrastructure, which can include the latest in industry 4.0, digital, additive manufacturing and machine learning technologies.
- Supporting SMEs to achieve scale through alliances and joint ventures that bid for major projects.
- Providing firms with access to research and development opportunities to help them innovate.
- Containing skills centres, run in conjunction with TAFEs and universities, which provide access to state-of-the-art education and training facilities for the training of apprentices and the upskilling of workers.

- Co-locating enterprises and related services maximises local content and local jobs and creates an economy of scale effect that helps all companies to be internationally competitive.

All these benefits are provided while maintaining public ownership over infrastructure. All proceeds generated from leasing the infrastructure is reinvested in the facilities which means significant returns on initial public investment.

Paired with the financial support offered by the HPTI, CUF initiatives could help to drive the development of downstream value chain opportunities that increase demand for high purity feedstock in Australia and closer connections to advanced manufacturing in renewables industries.

Community benefit principles

As with all major structural shifts in the economy, some workers and regions will be impacted more than others. With the international shift away from fossil fuels, Australia's coal mining and energy production regions are going to experience significant economic reorganisation. These changes cannot be left to the whims of the market. Instead, ambitious and targeted industry policies are needed to ensure that well-paid, secure jobs are available that utilise and build on workers' existing skill sets and ensure the prosperous futures of their communities.

The Government's approach to creating opportunities in transitioning regions should identify the possible industrial opportunities that emerge from hydrogen production industry development, to leverage social and economic outcomes that provide regionally specific benefits. This means that legacy fossil fuel regions should be prioritised for harnessing local industrial and labour strengths that capture hydrogen industry and technology opportunities to drive renewable industry transitions.

The HPTI's support for initiatives that develop hydrogen production should therefore be targeted to traditional energy regions that are at the frontlines of the transition away from fossil fuel industries. These regions include, but are not limited to, the Hunter Valley, Latrobe Valley, Gladstone/Bowen Basin, Collie, Lithgow, Whyalla, and Illawarra. Ostensibly, corporations seeking access to the HPTI will operate in these regions and this means upholding transition principles is of critical importance. Such principles include, but are not limited to:

1. Ensuring safe and secure jobs that are well paid and have good conditions.
2. Developing more skilled and inclusive workforces, including by investing in training and skills development and broadening opportunities for workforce participation.
3. Engaging collaboratively with and achieving positive outcomes for local communities, including First Nations communities
4. Strengthening domestic industrial capabilities including through stronger local supply chains.
5. Demonstrating transparency and compliance in relation to tax obligations, including benefits received under this Act.
6. Providing support for a fair, just and orderly the energy transition, particularly for those workers and communities directly affected.

The Federal Government must therefore ensure that administration of the HPTI remains cognisant of a region's specific community and industry needs and coordinate its support of critical minerals firms with the NZEA. This will entail establishing regional transition plans that ensure that an equal share of the benefits to be derived from the HPTI flows to transitioning regions and maximises opportunities for transitioning workers in renewables industry development. The plans and commitments agreed to for regional transition, incorporating at a minimum the principles listed above, should be set as the floor, not the ceiling, for what a plan must meet or exceed. Transition plans must also be reviewed periodically prior to a firm's receipt of HPTI payments or credits.

Regions in proximity to rich critical minerals deposits would develop value-adding policies that push mining industries up value chains towards advanced manufacturing. The global market trade of value-added products will be crucial to the growth and development of Australia's high-value industries, meaning planning logistics, transport networks and access to key port and rail infrastructure will be an essential part of linking regions with processing and export hubs. Rounding

out this whole-of-nation regional strategic approach to maximising the impact of the HPTI would see metropolitan regions build upon the technological spillovers from these advanced transformations, feeding back into other regions, research & development, advances from education institutions, and the identification of export trade opportunities within our public and private services sectors.

The AMWU believes there can be no reasonable excuse for a firm to simply access the HPTI without considering how they will contribute to Australia's sovereign capabilities in the processing of green hydrogen as source of energy to decarbonise Australia's sovereign manufacturing industries, acknowledging the impact of these sectors on the complexity of the wider economy; nor can there be any excuse for a firm to not adhere to high standards for community benefits flowing from their receipt of taxpayer-funded investment incentives and tax credits.

The AMWU welcomes further discussion and collaboration on this important issue, and we thank you for the opportunity to make a submission. If you require any further information, please contact Mark Dean (mark.dean@amwu.org.au or 0402 669 242) in the first instance.

Yours sincerely,

STEVE MURPHY
NATIONAL SECRETARY