



**NET-ZERO  
INDUSTRIES**  
MISSION

# The Role of Intellectual Property Rights in Knowledge Sharing

## White Paper #3

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# Mission Innovation: Net-Zero Industries

## Whitepaper Series



# The Role of Intellectual Property Rights in Knowledge Sharing

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## About Net-Zero Industries & Mission Innovation

Mission Innovation (MI) is a global initiative of 23 countries and the European Commission (on behalf of the European Union), catalysing a decade of action and investment in research, development, and demonstration (RD&D) to make clean energy affordable, attractive and accessible for all. These efforts accelerate progress towards the Paris Agreement goals and pathways to net zero.

Mission Innovation's Net-Zero Industries Mission was established to unify the actions of key stakeholder groups, to support the heavy emitting sectors in accelerating the **adoption of decarbonisation technologies**.

Energy intensive industries are responsible for around 25% of global greenhouse gas emissions. RD&D over the next decade will be critical to develop and validate innovative industrial processes and technologies that enable radical emission cuts beyond 2030 at lowest costs<sup>1</sup>.

The current investment from industry is falling behind the rate of change required to meet global emission targets for 2030, let alone 2050. The time required to demonstrate and gain industry acceptance of new decarbonisation technologies is significant and requires immediate action if we are to make a positive change in the industry understanding, confidence and **investability** of decarbonisation technologies in time for 2030.

## Introduction

In our previous white papers, we have explored the need for establishing trust to enable this investment by industry, and the challenges and opportunities to help transfer knowledge and experience from the global North into the World's emerging economies. In this paper, we will be investigating the role of Intellectual Property Rights (IPR) and commercial confidentialities in the execution of knowledge transfer in industry, identifying the barriers and enablers in generating the trust generation required.

This paper is a summary of the international Knowledge Exchange Workshop facilitated by the Net-Zero Industries Mission in May 2024<sup>2</sup>.

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<sup>1</sup> [Action Plan](#), Net-Zero Industries Mission, 2023

<sup>2</sup> <https://net-zero-industries-mission.net/event/australia-coordinated-efforts-supporting-international-knowledge-sharing/>

## Abstract

Achieving global industrial decarbonisation requires not just the development of breakthrough technologies, but their rapid adoption by hundreds of companies and across thousands of industrial locations around the world. This can only happen through widespread sharing of technological knowledge, and given the costs and risk of developing this knowledge, sharing on commercial terms.

In our capitalism-based economy, where competitive advantage drives innovation and investment, the strategic use of intellectual property (IP) rights is as essential as it is functional. At its core, IP rights protect innovation while facilitating the transfer of knowledge, creating the trust and commercial structure needed to scale decarbonisation technologies across industries. Without IP protections, the commercialisation and global rollout of these technologies would falter, jeopardising progress toward net-zero emissions.

A major question then, is how we can maximise and leverage these IP rights, and what insights, processes and skills are needed to help facilitate this protected transfer of knowledge?

## 1. Introduction: Scaling Decarbonisation Technologies

The world's most essential industrial sectors - steel, cement, chemicals, metals and others - are responsible for approximately 25% of global carbon emissions. Decarbonising these hard-to-abate sectors is critical to meeting the global net-zero ambitions, but the challenge goes beyond inventing new technologies. To truly tackle emissions at the scale required, hundreds of companies must adopt each of the decarbonisation innovations, taking both operational and investment risks to embed them into their operations. For this to happen, the technologies must be shared broadly across industries and borders—while ensuring that the innovators behind these breakthroughs (and the industry operators themselves) can still benefit commercially.

In a capitalist economy, knowledge sharing cannot occur freely without a framework that protects the commercial interests of technology developers. This is where IP rights come in. They create the legal structures and provide knowledge capture and packaging methodologies that allow decarbonisation technologies to be shared and commercialised, while maintaining the competitive advantage that enables investment and innovation. We propose that IP rights are not obstacles. They are instead a vehicle that allows the disclosure and sharing of decarbonisation technologies to scale their global deployment.

## 2. The Critical Role of IP Rights in Technology Adoption

We must acknowledge that the development and eventual commercialisation of a technology is not a short or instantaneous process. The very existence of the TRL (Technology Readiness Level) scale describes a journey of time, effort, costs and risk to bring a technological concept from ideation to a fully commercial solution.

For decarbonisation technologies to scale at demonstration levels, operational companies need the confidence that they can invest in and implement new innovations without exposing themselves to unnecessary risks. Simultaneously, the developers of these technologies need to secure their competitive advantage and receive a return on investment for the journey they have undertaken to advance a technology solution to the demonstration stage. IP rights, whether through patents, trade secrets, or licensing agreements, provide a structured approach to both defining and sharing technological knowledge while protecting the interests of all parties involved.

### *2.1. The Role of Trade Secrets: Protecting Core Knowledge*

All innovations worth protecting start as a trade secret. As its value and applications become understood, an IP protection strategy helps determine the best protections available to allow that knowledge to be commercially shared and still enable and protect the commercial compensations.

In some cases, companies may opt to protect their innovations using trade secrets rather than patents as their entire protection strategy, especially in cases where the technology is difficult to reverse engineer and any public disclosure may enable imitations that could provide workarounds of other registered IP rights. Trade secrets allow firms to keep critical knowledge private through purely contractual restrictions, while benefiting from the operational advantage the innovation provides.

However, trade secrets come with risks. In today's fast-moving global workforce, where employees frequently change jobs, relying on trade secrets can be precarious. Courts often uphold the right of workers to use the knowledge they have gained at one company in future roles, even when that allows the trade secrets to be shared with competitors, and a contractual breach disclosure is not easily undone.

In the context of global decarbonisation, where the urgency for widespread adoption is high, an overreliance on trade secrets may hinder collaboration through a fear of such uncontrolled dissemination. We instead propose that a strategic combination of patents and trade secrets, tailored to the specific technology, can ensure that knowledge can be shared responsibly and commercially without putting companies at risk.

### *2.2. Why Patents Matter: Protection and Controlled Disclosure*

Patents are fundamental to industrial decarbonisation because they allow for the controlled disclosure of innovations. Filing a patent ensures that developers can reveal critical details of their technology to potential adopters, investors, and collaborators without losing the commercial advantage. Patents provide a legal monopoly within a government-controlled jurisdiction over the innovation for a set period, allowing developers to profit from their work while making the technology details publicly available for commercialisation.

The patent system also allows for strategic control over what information is disclosed. The process of applying for a patent is a structured definition of the invention, its innovations and differences from what is in the public domain, and how and what it achieves to provide benefits in its application. This process is an essential step for any technology or package of intangible knowledge if you wish to define it well enough to protect it, and is invaluable as a stage in planning for the dissemination of that knowledge in any commercialisation of a technology solution. This methodology does not come naturally to most technology developers, but to support them, there is an entire professional and expert field dedicated to helping them through this well-understood process.

Even if a patent is not granted, the developer builds a comprehensive plan for what information it has in a technology and what can and should be disclosed to the public or to those wishing to invest and deploy the technology itself. The developer can also identify and retain control over key elements of the technology that are never to be disclosed. This creates a safety net, allowing innovators to plan how they share enough to facilitate adoption without giving away the farm. Going that final step of securing the patent, provides the additional monopoly rights to help strengthen both the protection and investability of the technology.



### 3. Commercialising Decarbonisation Technologies: Balancing Stakeholder Interests

Decarbonisation cannot happen without collaboration among diverse stakeholders, namely technology developers, industrial operators, regulators, engineers, researchers, and investors. Each of these parties has different interests, and IP rights provide critical tools that allow these interests to be balanced while ensuring that technologies can be both scaled and deployed.

#### *3.1. The Technology Developer: Securing Commercial Rewards*

Technology developers need to protect their innovations to secure a commercial return. Without IP protections, developers might be hesitant to share their breakthrough technologies with others, for fear of losing control or having their innovations copied, and those investing in or backing those technology developments may not have sufficient confidence they are able to secure a return on the investment during the years taken for that development journey. Patents allow developers to share relevant aspects of their innovation, facilitating adoption across industries while maintaining the commercial edge that justifies their investment. This is essential to scaling decarbonisation technologies in a competitive marketplace.

#### *3.2. The Industrial Operator: Accessing Proven Technologies*

Industrial operators, the companies that need to invest in and adopt these technologies to reduce emissions, are primarily interested in gaining access to proven innovations on favourable terms and a net commercial benefit. They rely on the security that IP rights provide to ensure that the technologies they invest in are protected and that they can use them without legal or operational risks, in parallel to trusting how the commercial advantages they seek are obtained from a level playing field with their competitors. For operators, licensing agreements based on solid IP foundations provide a way to access cutting-edge technologies while minimising their exposure to competitive threats.

#### *3.3. The Researcher: Sharing Knowledge While Gaining Credit*

In many cases, researchers and academic institutions are key players in developing the early-stage decarbonisation technologies. They need to publish their findings to secure funding and recognition. However, this can conflict with the need to protect intellectual property. While premature public disclosures would nullify a patent priority claim, filing a patent before publication allows researchers to secure their discoveries while still contributing to the global body of knowledge. This balance of protection and disclosure is critical for the commercialisation of research-driven innovations.

#### *3.4. The Investor: Protection of an Investment*

IP rights also play a critical role in creating market opportunities for decarbonisation technologies. By securing patents or other forms of IP protection, companies can attract investment and build commercial partnerships that are essential for scaling new technologies. Investors are more likely to fund R&D projects if they know that the resulting technologies will be protected by IP rights, which provide a legal framework for commercialising the innovation. Monopoly rights, when achieved, are also seen as a major risk management for funding a technology commercialisation opportunity.

### 4. IP as a Catalyst for Global Technology Transfer

One of the common criticisms of intellectual property rights is that they create barriers to collaboration and innovation. Critics argue that IP protection, particularly patents, can stifle competition and prevent others from building on existing technologies.

While it is true that IP can be used to block competition, when managed effectively, it can also act as a tool for enabling collaboration. By providing a framework for controlled disclosure, IP rights allow companies to share their innovations with confidence, knowing that they will be protected. This, in turn, encourages more companies to invest in the development of decarbonisation technologies.

#### 4.1. *Overcoming Anti-Trust Concerns*

One of the challenges of scaling decarbonisation technologies is the fear of anti-trust violations. However, well-structured IP agreements and patent pools can allow companies to collaborate without violating competition laws. In the U.S., the "rule of reason" allows for collaboration as long as it does not eliminate competition. In Europe, stricter laws apply, but IP rights can still be structured to allow for sharing and commercialisation while maintaining compliance with anti-trust regulations.

#### 4.2. *Facilitating North-South Technology Transfer*

Decarbonisation must happen not only in the industrialized Global North but also in the developing Global South. IP rights provide a mechanism to structure different terms for different markets. For example, global health models often define separate terms for high-income countries and low and middle-income countries. This flexibility allows technology developers to retain commercial advantages in developed markets while providing more accessible terms in developing economies, seen as essential for global decarbonisation.

### 5. Conclusion: IP Rights Are Essential for Global Decarbonisation

To achieve decarbonisation on a global scale, technologies must not only be developed, but they must also be transferred and adopted by hundreds of companies across industries and geographies. IP rights are the tools that make this transfer possible, providing the legal structure that underpins trust and commercial transactions.

To decarbonize industries like steel, cement, chemicals and metals, technologies need to be rapidly scaled and adopted by hundreds of companies worldwide. Within a capitalist ecosystem, this sharing of knowledge cannot happen without the protections and structures that IP rights provide. IP rights enable the commercial sharing of innovations, protect the competitive advantages of developers, and create the legal framework that facilitates trust between collaborators. Without robust IP strategies, the global adoption of decarbonisation technologies would be significantly hindered, threatening the world's progress toward net-zero emissions.

Far from being a barrier, IP rights are the foundation for scaling decarbonisation technologies across the globe. By strategically managing IP, we can ensure that the knowledge needed to transform industries is shared responsibly, commercially, and at the speed necessary to combat climate change.

### About the Authors

#### **Paul Harrison**

Paul Harrison is a Chemical Engineer and recently retired Patent Attorney with over 35 years' experience in the identification and capture of Intellectual Property - particularly technology in the mining and chemistry fields. Paul was Senior Patent Partner/Owner and Head of the Chem/Bio Group of a large Australian Patent Law firm up until 2021. Paul held many positions in global IP Groups including Co-Chair Patent Committee of the Asian Patent Attorneys Assn. (APAA) and attended the World Intellectual Property Organisation (WIPO) in Geneva for 10 years where he represented APAA in relation to the development and enforcement of multi-jurisdictional IP law. Paul was lead IP Attorney in AU and NZ for several global technology firms and from 2014 through to his retirement received multiple awards as an "IP Star" from Managing IP magazine as well as "highly recommended" status from Intellectual Assent magazine.

#### **Rob McInnes**

Rob specialises in IP transactions and advises clients on the management and commercialisation of IP rights. His work mainly involves planning, negotiating and structuring licence agreements and R&D contracts, and conducting diligence on new technology ventures. In addition to his career as a lawyer, Rob has a degree in chemistry and has been an in-house Manager of IP and Technology Transfer with a multinational company. From 2010 to 2020 Rob was ranked as Australia's most highly recommended patent and technology licensing lawyer. He is one of the few Australian lawyers to have met the requirements for the US-based Certified Licensing Professional qualification.

#### **Dr Alan Monaghan**

Dr Alan Monaghan is Senior Vice President of the global Technology & Expert Solutions team for Worley's Resources sector, delivering technology and innovative solutions that combine operational improvement and sustainability for industry, including leadership of external technology provider and research relationships. He is currently seconded part-time as the Global Mission Coordinator with Mission Innovation, to establish the Net Zero Industries Mission on behalf of the Australian Government Department of Climate Change, Energy, Environment and Water (DCCEEW).



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## Disclaimer

This White Paper is a contribution to the general discourse and does not necessarily reflect the views of the Mission Innovation Net Zero Industries Mission, its Member Countries its management or its staff.