

# Executive summary

This report was developed by the NSW Innovation and Productivity Council (IPC) to examine the environmental goods and services (EGS) sector in NSW, Australia and internationally. This report presents an economic profile of the EGS sector, examines the state's competitive advantage including its research and industry strengths, and explores ways NSW can capitalise on market opportunities.

## The EGS sector and its economic value

The EGS sector is a multidisciplinary set of corporations, local businesses and research organisations delivering waste, wastewater, water, energy management, renewable energy, adapted goods, biodiversity and landscape, and air and climate services.

There is a growing recognition that new technologies and other innovations can provide a tangible means to achieve sustainability and improved wellbeing. This is seeing a shift away from treating environmental impacts as expensive externalities and a move towards a more sophisticated integration of economic and environmental value. The EGS sector provides technologies, goods and services to reduce the environmental impacts and increase the resource productivity of a broad range of industries critical to the NSW economy.

Recent global growth trends in the sector far exceed those of the wider economy. In the European Union (EU), the EGS sector's output-to-GDP ratio rose nearly two percentage points between 2000 and 2014, and created over one million new full-time equivalent (FTE) jobs. The size of the global market in environmental goods is expected to reach US\$3 trillion by 2020.

In NSW, domestic EGS sales grew by 7.1% in 2017-18 to reach \$43.9 billion<sup>2</sup>, while the current value of NSW EGS exports is estimated at \$3 billion. The top four export markets for the NSW EGS sector are Japan, South Korea, China and India.

The EGS sector employs a growing proportion of the global workforce. In NSW, the number of jobs in the EGS sector is estimated at 152,000, larger than the total number of jobs in agriculture and mining combined.<sup>3</sup> Coupled with an average 6% employment growth rate,<sup>4</sup> employment in the EGS sector is growing at a faster rate than the NSW average annual employment growth of 1.6%.<sup>5</sup> A quarter of the sector's new jobs are projected to be located in regional NSW.

## NSW has a competitive advantage in EGS

In NSW, EGS is an innovation-rich sector with recognised research and industry strengths, and a competitive advantage over neighbouring states.

NSW is home to 43% of Australia's EGS businesses and 44% of its 'innovative' EGS businesses—double Victoria's share. Major sub-industries in NSW include recovery and recycling, water and wastewater treatment, building technologies, cleaner manufacturing, processes and materials, and renewables. In addition to environmental and economic benefits, research shows that a strong and mature EGS sector has spillover productivity gains that compound along supply chains and across industry sectors.

NSW owes much of this advantage to its strong higher education and research sector. Our universities lead the world in 10 EGS-related fields, and 17% of university patents since 2014 were for EGS innovations.

The EGS sector has a strong presence in regional NSW, with more than 2,000 businesses located in regional areas.

NSW also has a number of internationally recognised best practice policies in EGS. These include the NSW-run National Australian Built Environmental Rating Scheme (NABERS) and the white certificate Energy Savings Scheme (ESS).

## International experience

A comprehensive review of international environmental policies and NSW initiatives identified common elements that provide a framework to address local barriers and successfully drive innovation. These include:

- understanding what works and disseminate and replicate lessons through the market
- knowing the market and engage with the actors that can bring about the desired change
- creating the space for market-led actions through a clear mandate, funding support and long-term signals
- brokering adoption of innovation at scale, with local relevance to provide the strongest support for market delivery.

This research identified three factors that are specific to NSW and are vital to optimise its research and industry strengths, and capitalise on market opportunities:

### 1 Networks and collaboration

Strong relationships between universities, industry and end users

### 2 Importance of markets

Investment confidence and market demand

### 3 Scaling for export

International demand for EGS products and services

## Network and collaboration

The NSW EGS sector is highly diverse and includes researchers, startups, businesses and end users working across a broad range of subsectors. Research of the NSW sector found that a lack of formal networks to link innovators, businesses and end users was hampering collaboration and innovation efforts. International and local examples, such as US-based Clean Energy Smart Manufacturing research network, and the NSW Energy and Resources Knowledge Hub, identified successful networks/hubs as a mechanism to overcome these information barriers and make connections that broker institutional and professional connections and build a strong sector ecosystem.

## Importance of markets

A major challenge facing innovators in the NSW EGS sector is proving to a sceptical market that their products have the right environmental credentials, and providing the right market signals. International research identified a number of successful approaches, including sustainable procurement practices that can drive demand and improve credibility, and financial rewards to provide strong market signals through innovation challenges and competitive grants.

## Scaling for export

EGS innovators can face difficulties getting to the scale needed to exploit export opportunities, particularly for new-to-world or new-to-market innovations. Clear market signals and the importance and value of EGS to the economy are important factors, while growing the local market demand for EGS products can also help providers scale up for export.

These international best practice approaches and experiences in growing EGS sectors provide insights on how the EGS sector can be best supported and boost its performance in the NSW context. By leveraging its significant research and industry strengths, and its physical advantages of a clean natural environment, NSW can create a strategic regional advantage in EGS. This will provide strong potential for innovation-led growth that will help transition NSW to an innovation economy.