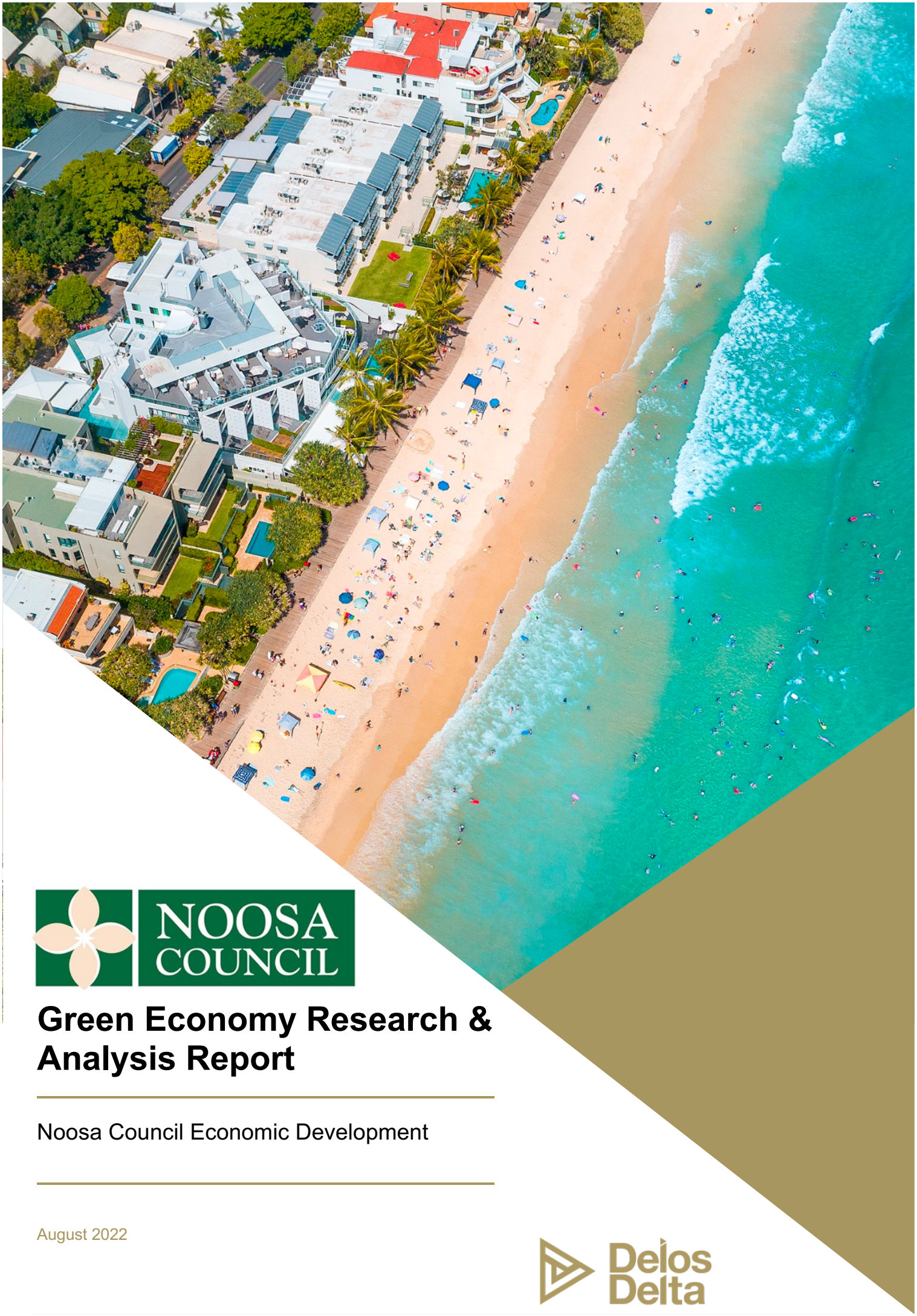

NOOSA COUNCIL

Green Economy Research & Analysis Report

Noosa Council Economic Development

August 2022

Delos Delta

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Acknowledgement of Country

Delos Delta would like to acknowledge the Ngunnawal and Ngambri, Boon Wurrung and Wurundjeri Peoples who are the traditional custodians of the land on which we work. We would like to express our respect for their Elders past and present.

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Preamble

Noosa Council commissioned this Research Report, as prepared by Delos Delta, to inform their green economy planning and policy, especially as it relates to local industry development and economic production.

This Research Report also aims to support and provide direction to further discussion among key local stakeholders. In this regard, Noosa Council welcomes further input, perspectives, and ideas on this topic, giving consideration to the following discussion questions:

1. What existing green economy activities are you observing in Noosa and region?
2. What are Noosa's green economy strengths and competitive advantages?
3. What are the key green economy opportunities for Noosa, in both the short and longer terms?
4. What is required – in terms of strategy, collaboration, investment, programs, communication, etc. – to expand and diversify Noosa's green economy?

All contributions and enquiries can be directed to Jordan Vance – Economic Development Advisor at Noosa Council – jordan.vance@noosa.qld.gov.au.

Executive Summary

The transition to a greener economy is a global phenomenon. Countries and regions around the world are following this trend by developing green economy strategies and policies that promote economic development while ensuring environmental sustainability. The reasons behind the shift towards a global green economy are not limited to decreasing carbon emissions and the cost of climate change but also include improving liveability and quality of life for local communities. A well-planned green economy can also open opportunities for job creation and tangible economic growth.

This Research Report aims to inform Council on the highest-value ideas, activities or programs related to the green economy in the Noosa Region. Through a combination of desktop research, economic analysis and benchmarking against other Local Government Areas, this Research Report will build the case for future feasibility studies and activation reports for potential high value green activities in the region. The Research and the Feasibility Reports will inform the final Green Economy Industry Development Plan to be completed by Noosa Council.

To measure the green economy within Noosa it is necessary to measure a range of relevant components. In this Research Report, the green economy is used to refer to economic activities that primarily aim to protect the environment, or directly relate to the sustainability of natural resources. Since activities related to the green economy are not yet directly measured and published by recognised data publishers, this report adopts “green jobs” as a proxy to measure the green economic activities.

The findings of this research verify that Noosa is following the global trend towards greener economies. However, this growth has occurred at a slower pace and with less intensity. Over the past five years (2016-21), green job postings in Noosa grew at an average rate of 6.8% annually, compared to 8% globally, 19.5% in Australia and 17.4% in Queensland. In 2021, 1% of all global job postings required extensive knowledge of green skills which can be defined as green jobs, while 1.29% of job postings required green skills in Noosa, 1.76% in Queensland and 1.8% in Australia.

When benchmarking Noosa against comparable Local Government Areas, namely Cairns, Byron Bay and Warrnambool, Noosa comes in third place in terms of green intensity and annual growth rate of green job postings. In terms of green intensity, in 2021, while 1.3% of job postings in Noosa required green skills, Warrnambool had 3.9%, Byron had 1.7% and Cairns had 1.1% green intensity. In terms of growth, Noosa’s green job postings grew at an average annual growth rate of 6.8% between 2016 and 2021, while Warrnambool grew at 32.8%, Cairns grew at 10.7% and Byron grew at 6%.

Noosa is well positioned to be an Australian and global champion of the green economy. Noosa’s strengths not only include its natural resources and unique location and environment, but also extend to its a strategic ambition to position Noosa as a role model in the green economy. The current assessment of Noosa’s green

economy and the benchmark study against comparable LGAs emphasise the need to augment the current strategic view with some key initiatives. This could catapult Noosa's green economy to surpass Australian green intensity average and help to solidify competitive advantages in the region. **Based on the analysis of Noosa's strengths, weaknesses, opportunities, and threats, and their alignment with global growth prospects, the following 4 green economy sectors are recommended for further investigation and action.**

- **Green Professional Services**
- **Ecotourism**
- **Green Research / Innovation (Living Lab)**
- **Green/Climate Tech**

Noosa's Green Economy at a Glance

Noosa Shire was estimated to have a green economy valued of approximately $38.09 million in 2021. The annual growth rate of the green economy over the past year was 52% despite a Gross Regional Product drop of 0.9% across the same period. In 2021, Noosa was estimated to contain a total of 302 green jobs, representing an annual increase of 49.6% from 2020, despite a drop of 2.45% in total jobs across the same period. These figures present a promising green economy growth trend in terms of green jobs as well as total green economy value. Further Analysis of Noosa's green jobs demonstrate the following findings:

Top in-demand green skills: (required by employers in Noosa, 2021)

- Environmental Science (17.3%)
- Environmental Management (16.3%)
- Agribusiness (11.2%)
- Nuclear Medicine (9.2%)
- Biodiversity (9.2%)

Top industries: (that required green jobs in Noosa, 2021)

- Public Administration and Safety (45.3% of green job postings)
- Health Care and Social Assistance (12.5%)
- Financial and Insurance Services (10.9%)
- Electricity, Gas, Water and Waste Services (9.4%)
- Mining (4.7%)

Top industries: (that have the highest green intensity in Noosa, 2021)

- Electricity, Gas, Water and Waste Services (18.8% of job postings require green skills)
- Public Administration and Safety (5.7%)
- Financial and Insurance Services (2.8%)
- Construction (2.0%)
- Professional, Scientific and Technical Services (0.9%)

Top industries: (that had the highest average annual growth rate of green jobs in Noosa, 2016-21)

- Financial and Insurance Services (120%)
- Electricity, Gas, Water and Waste Services (20%)
- Accommodation and Food Services (20%)
- Construction (20%)
- Public Administration and Safety (16%)

Stakeholder Engagement

The green economy is an emerging topic both in Noosa and worldwide. Ongoing discussions between relevant stakeholders and the general community are imperative to ensure common understanding and unified vision. This Research Report aims to inform green economy formulation; but more importantly, it aims to stimulate green economy discussions between relevant stakeholders, interested parties and within the greater Noosa community. As part of this research, stakeholders have shared valuable insights about current and prospective green economy activities. Discussions should continue to answer questions such as:

- What are Noosa's strengths that can be leveraged to become a green economy champion?
- What can be considered as a green economy activity in Noosa and the region?
- What are Noosa's green economy opportunities in the medium and long terms?

In June 2022, Noosa Council commenced this discussion via engagement sessions with community and key stakeholders, and Noosa Council staff. This engagement was an opportunity to share the initial findings of the research and analysis of Noosa's green economy. Generally, the feedback reinforced the unparalleled environmental strengths that Noosa has and the very promising potential for future growth. In particular, stakeholders have shared the following themes and insights:

- Noosa has an exceptional brand being designated as the Noosa Biosphere Reserve by UNESCO
- In addition to natural attributes, Noosa has a very good community support for green economy aspirations
- Noosa is well equipped with its Firetech Living Lab and innovative environment
- Noosa has high liveability standard and is very attractive for green activities relocation
- Current green economy activities include:
  - Solar/ renewable energy
  - Sustainable agriculture and farming
  - Circular and recycling economy
  - Ecotourism
- Potential green economy opportunities include:
  - Regenerative/ecotourism
  - Sustainable design/ environmental awards
  - Household/ community/ EV swap and go batteries
  - Carbon credit farming
  - Solar and renewable energy design (solar panel recycling)
- Noosa Council has a very important role in setting the right enabling policy framework that address funding and technology barriers

- Noosa Council is encouraged to form partnerships with other governments, private companies, and community groups to advance this green economy agenda
- This is an ongoing discussion that should involve all parties

A summary of key insights from the internal discussion on Firetech Connect and Council's Peregian Digital Hub include:

- A desire for more ambitious economic development objectives within Council
- The potential to develop data as an asset for Council
- The need for additional private sector funding to pursue Noosa's economic development agenda
- Noosa's inherent green economy advantages, including its green view of planning, the biosphere, and access to reserves for project trialling
- The ability to replicate the living lab concept for other initiatives, such as flood water management

A summary of key insights from Noosa Council staff include:

- The strength of the biosphere brand
- A supportive Council and a focus on green economy activity
- The pre-existence of ecotourism activities in Noosa
- Opportunities for regenerative tourism
- Opportunities for solar and renewable energy design and recycling
- Opportunities to promote alternative modes of transports

A summary of key insights from key stakeholders, including business interests, include:

- The agility of Noosa's economy, and its ability to attract international investment
- The availability of local business leaders who have proven experience in the green economy
- Opportunities to create better or more well-paid jobs
- Opportunities for Noosa to develop a more circular economy
- Opportunities for Noosa to develop as a technology hub

As noted in the Preamble of this Research Report, all parties are welcome to share their views and ideas. Please send your contributions to Jordan Vance – Economic Development Advisor at Noosa Council – jordan.vance@noosa.qld.gov.au.

1. Introduction

1.1 Project Overview

Noosa Council through its Economic Development Unit has engaged Delos Delta to conduct research and analysis on the green economy in Noosa. The results of this research and analysis will inform the final Green Economy Industry Development Plan to be completed by Noosa Council. The purpose of the intended Green Economy Industry Development Plan is to accelerate the economic impact of the green economy locally and regionally, to build the capacity of the local industry and achieve a structural transformation that provides higher value jobs and additional investment.

Noosa is well known for environmental stewardship, which in turn makes the region a preferred destination to live, work, visit and connect. The scope of this Research and Analysis Report is to identify elements that contribute to a strong and vibrant green economy; and to explore industry trends, government policies and opportunities for industry development and environment sustainability.

The purpose of this Research Report is to:

- Define, benchmark, and value Noosa's current 'green economy' using accepted/established methodology
- Identify areas of competitive advantage, regional expertise, and relative weakness
- Assess green economy trends and match to opportunities that align with the competitive advantage identified for the Noosa Region
- Assess and provide commentary on the risk and challenges of identified opportunities
- Identify and prioritise policies/actions to grow Noosa's green economy in the context of industry development and high value jobs

The green economy, as a subset of the general economy, is subject to supply and demand forces. The supply side of the green economy considers the output of green goods and services, i.e., local industry production and export of the green economy. The demand side of the green economy focuses on the sustainable consumption, use and reuse of goods and services, i.e., the consumer and their behaviours. This Research Report focuses on the supply and production side of this equation. A broader green economy strategy or framework should equally consider the demand and consumption side, including community awareness, user behaviour, and consumption preferences. (Delos Delta notes that this demand side work is being advanced by Council via a range of other policies and programs.) To illuminate this point, Table 1 lists some examples of the supply and demand sides of the green economy.

TABLE 1. SUPPLY AND DEMAND SIDE OF THE GREEN ECONOMY

Supply	Demand
Green products and services: ▶ Solar panels ▶ Waste management ▶ Ecotourism ▶ Green professional services ▶ Green tech	Sustainable/ green consumption and behaviours: ▶ Green mobility preferences (cycling, ride sharing, walking, etc.) ▶ Consumer recycling behaviour ▶ Green shopping preferences (buy smartly and keep environmental considerations in mind)

1.2 What is the Green Economy?

In the "Measuring the Green Economy" information paper, presented by the Australian Bureau of Statistics (ABS) to the London Group Meeting in 2011, it is recognised that the notion of a green economy is relative, not absolute. The ABS recognised that the concept of a green economy is open to interpretation, however actions and behaviours that are considered to move communities toward a greener economy can be more readily described and observed (Cadogan-Cowper & Johnson 2011). These actions and behaviours include:

- Investing in cleaner energy
- Investing in natural resource efficient technologies and products
- Sustainable use of natural resources
- Repair and maintenance of natural ecosystems
- Enabling policy settings, including the regulatory environment, taxation and subsidies (ibid)

As an integral part of the green economy, the ABS defines green jobs as follows:

> *"Green jobs can be considered narrowly as employment in the environmental goods and services sector (the 'output' approach), or more broadly as employment in occupations where the primary purpose is to make production processes more environmentally efficient for all goods and services (the 'process' approach). There is policy interest in both measures, and that the scope of green jobs should ideally encompass both aspects" (Cadogan-Cowper & Johnson 2011, p.8).*

Internationally, there is no one unique definition of green economy. Definitions can differ in scope, scale, purpose, and interest of the adopting organisation. Table 2 compiles a sample of different definitions from international, non-for-profit, investment, and academic organisations.

TABLE 2. GREEN ECONOMY DEFINITIONS

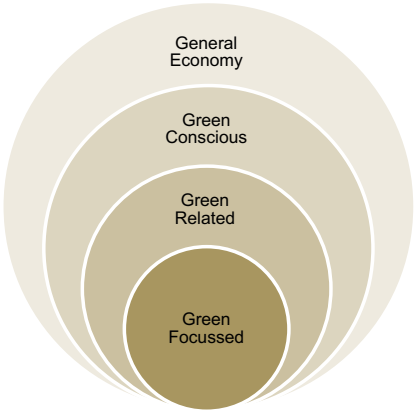
Reference	Definition
UNEP	A green economy is defined as low carbon, resource efficient and socially inclusive. In a green economy, growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services.
OECD	Green growth means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies.
City of Sydney	The collection of activities in the economy that have a primary purpose of protecting or restoring the environment.
P. Söderholm, Söderholm Sustainable Earth (2020)	The green economy is an alternative vision for growth and development; one that can generate economic development and improvements in people's lives in ways consistent with advancing also environmental and social well-being. One significant component of a green economy strategy is to promote the development and adoption of sustainable technologies.
Conservation Ontario	The green economy is the development of new and emerging renewable and energy efficient technologies, and other business strategies and collaborations that can enable us to live more sustainable lifestyles, while growing economically within the capacity of our natural world. Our economy is changing because our world cannot support the current rate that we consume natural resources.
Investopedia	Green economics is a methodology of economics that supports the harmonious interaction between humans and nature and attempts to meet the needs of both simultaneously. Green economists may study the impact of alternative energy sources, sustainable agriculture, wildlife protection, or environmental policies.

The green economy, as a subset of the general economy, can be seen in three levels:

TABLE 3. GREEN ECONOMY SUBSETS

Green Focused	
Description	Example
Economic activities that either have a primary focus on environment sustainability or focus on making production processes more environmentally efficient (to use fewer natural resources for all goods and services).	▶ Businesses that produce goods or provide services that benefit the environment or conserve natural resources ▶ Renewable energy, energy efficient products, waste recycling, green fashion, environmental compliance, green finance, etc. ▶ Businesses that research, develop, or use technologies and practices to lessen the environmental impact of their establishment, or train the establishment's workers or contractors in these technologies and practices ▶ Ecotourism, eco-transport, regenerative agriculture, sustainable forestry, environment 'efficient' mining, etc.
Green Related	
Description	Example
Economic activities that support value chains of Green Focused activities or indirectly related to environment sustainability and nature preservation.	Support activities: ▶ Logistics, sales, marketing, procurement, maintenance and other support services provided to 'green focused' activities ▶ Indirect environment sustainability and nature preservation activities: ▶ Gardening, landscaping, park management, etc.
Green Conscious	
Description	Example
Any economic activity that applies general environment friendly measures and/ or technologies in its work.	Green conscious measures: ▶ Sustainable small business ▶ For example, demonstration of carbon neutrality, efficient/sustainable use of waste, water, and energy.

FIGURE 1. LEVELS OF GREEN ECONOMY



For the purposes of this Research Report, and considering the need to not only to define green economy within Noosa, but also measure and benchmark against other regions, Delos Delta has confined analysis of the green economy to 'green focused' activities. (N.B. This approach is consistent with that of many other green economy research projects.) Accordingly, in this Report, the green economy is defined below.

A green economy consists of economic activities that primarily aim to protect the environment, or directly relate to the sustainability of natural resources.

Note that Noosa Council may wish to adopt a broader definition, in consultation with stakeholders, for the purposes of shaping and communicating their green economy strategies and policies.

1.3 Why is Context Important?

A 'green economy' can hold a variety of meanings to different stakeholders. To successfully understand and choose the highest-value potential projects for Noosa, it is important to understand global and regional trends in the green economy. This ensures that decision-makers are aware of the variety of opportunities on offer and understand how these potential ideas, activities or projects will interact with local communities. For instance, Noosa stands to benefit from the arrival of new 'green collar' industries as a result of green economy diversification.

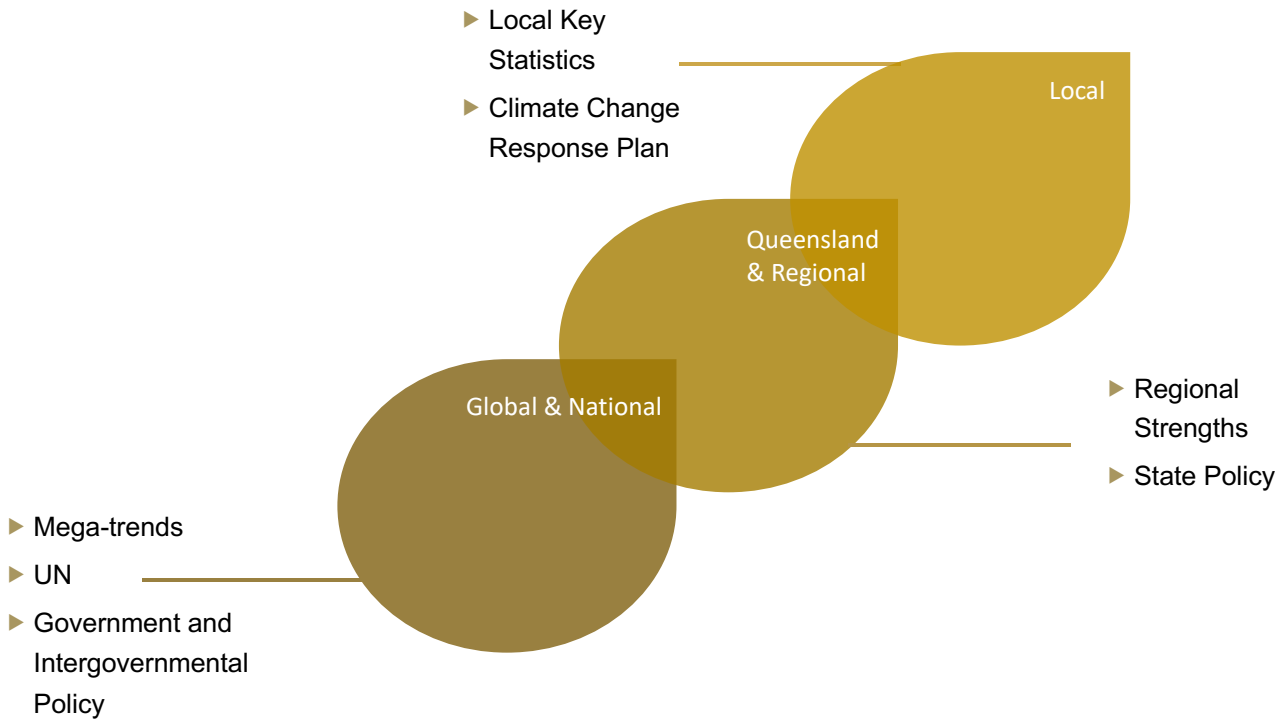
The International Labour Organization (ILO) estimates that a shift to a greener economy could create 24 million new jobs globally by 2030 if the right policies are put in place. According to the ILO's report, the World Employment and Social Outlook (2019), adopting green economic measures will result in an estimated 6 million jobs to be lost in areas of petroleum extraction and refinery, coal mining and production of electricity from coal. Meanwhile, ILO predicts that 72 million full-time jobs will be lost by 2030 due to heat stress, and temperature increases will lead to shorter available work hours, particularly in agriculture.

The transition to greener economy is a very delicate process that requires the right policies to be in place. Well-designed policies could strengthen social protection to those who might be impacted, while high value, financially viable and productive green investment will lead to employment creation and fairer income distribution.

1.4 Methodology

This Report synthesises and analyses trends in the green economy across three levels of activity, from international to local, as noted in figure 2 below.

FIGURE 2. LEVELS OF TREND ANALYSIS



To measure green economy activities, the following assessment method is adopted in this Report:

	Method	Process
1	Measure “green intensity” factor	▶ Collect job postings data in Sunshine Coast ▶ Analyse data per industry and identify “green jobs” ▶ Calculate “green intensity” factor per industry as a ratio of “green jobs” to total jobs per industry
2	Estimate “green jobs” in Noosa	▶ Calculate “green jobs” per industry in Noosa via economic scaling assumptions and using “green intensity” factor ▶ Calculate total “green jobs” in Noosa and identify typology growth rates
3	Estimate green economy value in Noosa	▶ Extrapolate jobs to Gross Value Added via imputed productivity factors
4	Benchmark	▶ Benchmark Noosa against 3 other comparable Local Government Areas

Please note, job postings data for the Sunshine Coast SA4 was used to calculate the green intensity in Noosa. The use of this data relies on a number of scaling assumptions but is nonetheless useful to broadly assess the growth of green jobs in the region.

2. Global Context

The purpose of this section is to examine global trends in the green economy, with any potential macro-level opportunities for Noosa identified and contextualised.

As noted in the introduction, the green economy is an emerging vision for growth and development which has gained momentum around the world in recent years. This vision for a greener economy is one that continues to generate economic prosperity for local regions whilst simultaneously advancing environmental and social well-being. The United Nations identifies green economies through their low carbon reliance, high resource efficiency and social inclusivity.

Becoming a green economy enables regions to reduce their carbon emissions and pollution, enhance their energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services. The green economy provides a macro-economic approach to sustainable economic growth with a central focus on investments, employment, and skills. Analysing trends in the global green economy is important to understand and familiarise Council with potential green opportunities for Noosa.

At a global level, some of the current, emerging, and future trends in the green economy include:

5. **Trade and regulation facilitating the global transition to a green economy** (through the exchange of environmentally beneficial goods and services (UN 2013)
    i. Green Economies similarly boosting trade opportunities through access to new export markets (Ibid)
6. **The existence of green economy opportunities across a wide range of industry sectors** (Ibid)
    i. Ecotourism is the fastest growing subsector of tourism (Ibid)
    ii. Investment in the low-carbon energy industry continues to accelerate with $US775 billion (approx. $1050 billion AUD) of global investment made in the energy transition in 2021 compared to $US264 billion (approx. $369 billion AUD) in 2011 (BNEF, 2022)
7. **Emerging data-driven and technology based green industries disrupting traditionally environmentally unfriendly business models** (ReX, 2019)
    i. Future food products, including synthetic proteins will be cheaper and more sustainable than animal-derived products (Ibid)
    ii. Decentralised farming and food creation methods create an opportunity to develop food production capabilities in urban areas (Ibid)
8. **Global Green Finance has grown exponentially in the past decade and will continue to do so**
    i. Clean Energy Finance Corporation – Investing $10 billion across the economy on behalf of the Australian Government
    ii. Global green finance rises over 100-fold in the past decade -study (Reuters)

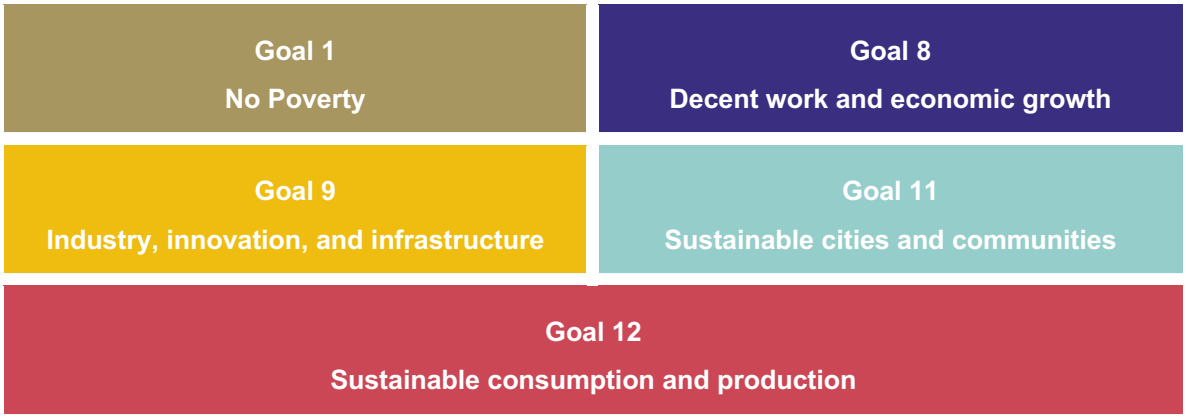
9. **Jobs driven by new climate policies are increasing rapidly** (LinkedIn, 2022)
    i. In the last five years, the number of jobs in the Renewables and Environment sector increased by 237% in the U.S. while it increased by 19% in the Oil and Gas sector
    ii. The top five fastest growing green jobs between 2016 and 2021, in terms of annual growth, are Sustainability Manager (30%), Wind Turbine Technician (24%), Solar Consultant (23%), Ecologist (22%), and Environmental Health and Safety Specialist (20%)
    iii. The top five in-demand green skills required by employers (2021) are Sustainability (27.6%), Remediation (8.8%), Occupational Safety and Health (8.6%), Climate (5.6%), and Renewable Energy (5.4%) *(out of job postings requiring any green skill)*

2.1 The United Nations

On a macro-level, the United Nations (UN) promotes the development of the global green economy. The UN's Environment and Trade branch oversees the agency's work on the green economy and coordinates action between member states.

The UN champions green economies because they indirectly support the advancement of at least five of the seventeen 2030 Sustainable Development Goals adopted by United Nations member states in 2015:

FIGURE 3. UN SUSTAINABLE DEVELOPMENT GOALS



The wide variety of UN Sustainable Development Goals supported by green economics offers a glimpse into the importance of the green economy to developed and developing countries around the world and the complex and sophisticated nature of green economies.

The threat posed by a changing climate has seen the global context surrounding the green economy become increasingly characterised by international agreements and cross-border cooperation. The United Nations Environment and Trade branch launched the Green Economy Initiative (GEI) in 2008, which consisted of global research and country-level assistance encouraging policymakers to support environmental investments within

the context of sustainable development. Over the past decade, 65 countries have embarked on a path towards an Inclusive Green Economy (IGE). An IGE is an opportunity to advance both sustainability and social equity as functions of a stable and prosperous financial system within the contours of a finite and fragile planet. It is a pathway towards achieving the 2030 Agenda for Sustainable Development.

2.2 Organisation for Economic Co-operation and Development

The Organisation for Economic Co-operation and Development (OECD) defines green growth as fostering growth and development while ensuring that the natural assets continue to provide the resources and environmental services on which our well-being relies. OECD reports that a well-managed transition to a greener economy will create opportunities for businesses and workers. The OECD has been a pioneer in measuring the pace of innovation and diffusion through environment-related patents. Patent data have been used to empirically assess how public policies foster innovation and diffusion, including the effect of policy design characteristics on innovation rates, the interplay between environmental policy and multilateral environmental agreements and international markets for innovation.

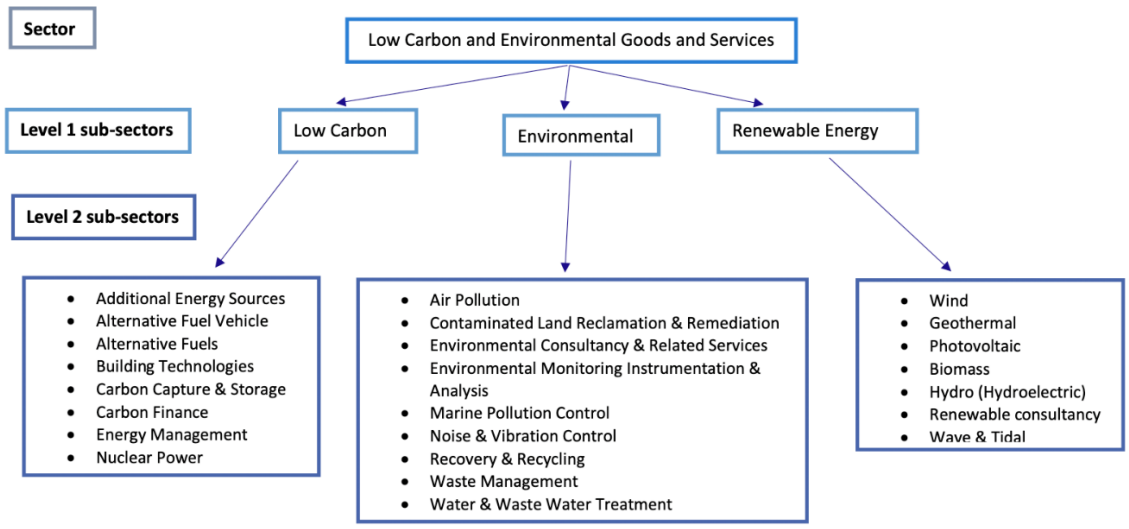
In terms of job creation and job destruction, green economy activity can trigger many new jobs in innovative and sustainable areas while causes job loss in other areas. The OECD's work has looked at the distributional effects of energy taxes as well as the potential distributional consequences related to the phasing out of fossil fuel subsidies.

2.3 The United Kingdom

"The UK's Low Carbon and Environmental Goods and Services (LCEGS) sector was worth £205.7bn ($AUD366bn) to the UK's economy in 2020-21, as indicated by the value of sales in the sector. These sales were generated by over 75,700 businesses that employed over 1.2 million people in the sector in 2020-21." (kMatrix Data Services Ltd, 2021). The annual growth rate in UK's Low Carbon and Environmental Goods and Services sector employment has peaked up to 7.3% between 2018-19 and 2019-20.

The UK's Low Carbon and Environmental Goods and Services sector was made up by three subsectors: Low Carbon 49%, Renewable Energy 35% and Environmental 15%. Figure 4 depicts the three subsectors and the underneath level 2 subsectors.

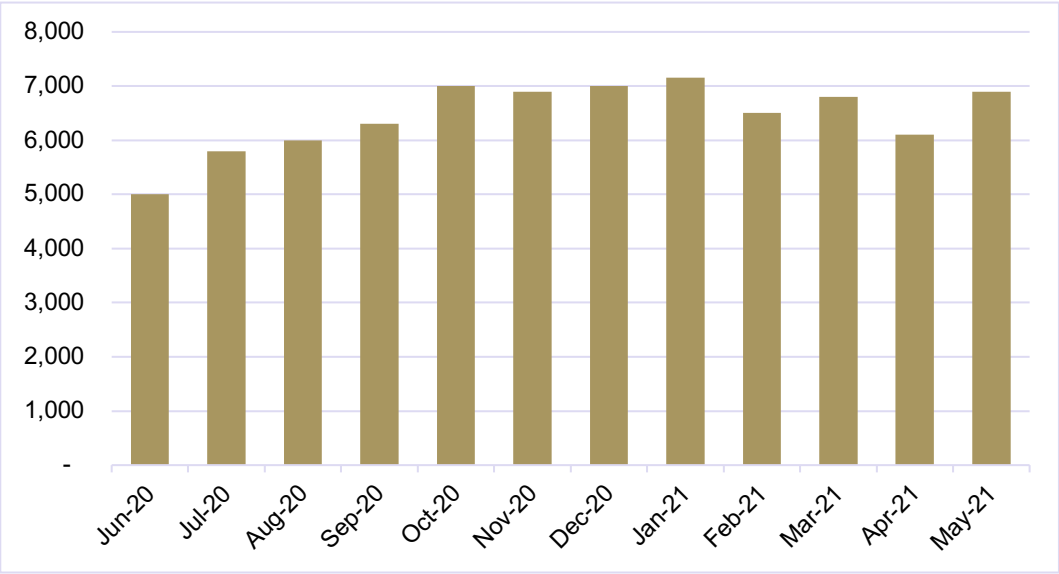
FIGURE 4. UK'S LOW CARBON AND ENVIRONMENTAL GOODS AND SERVICES SECTOR



(Matrix Data Services Ltd, 2021)

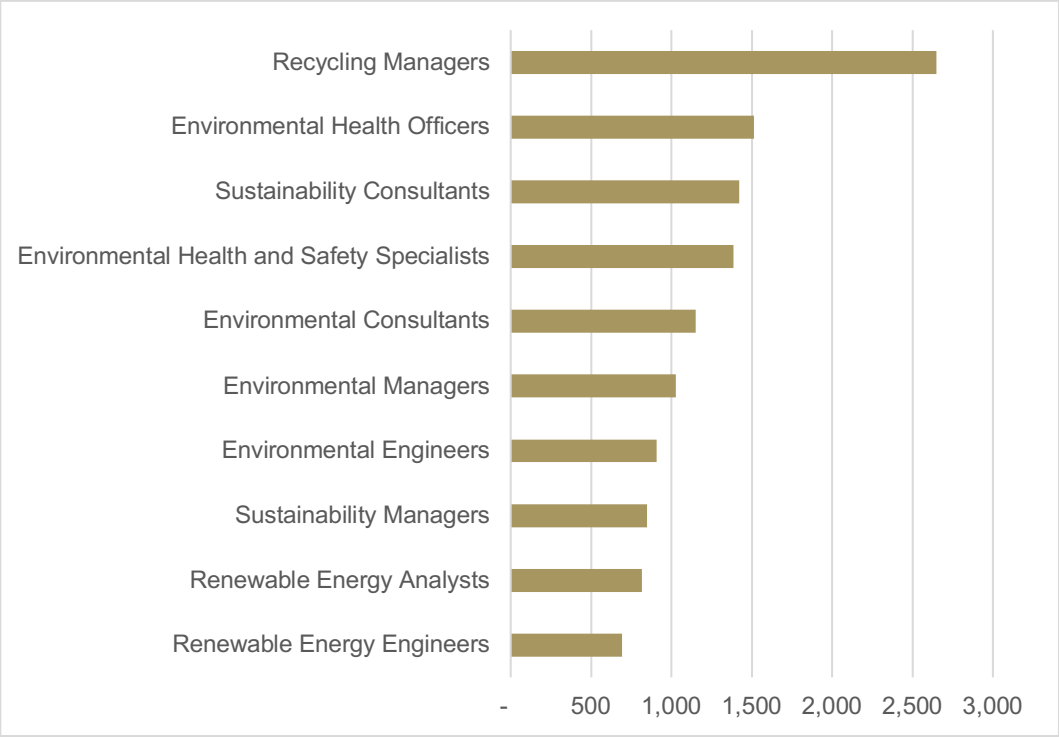
Between May 2020 and June 2021, the UK green jobs increased by 37.3%. The maximum number of unique job postings for green jobs in a month was in January 2021 with 7,200 green job postings. Recycling managers were of highest demand followed by environmental health officers and sustainability consultants. Figures 5 and 6 illustrate the total number of unique job postings for green jobs and the top 10 in-demand green jobs in the UK during the year 2020-21.

FIGURE 5. UNIQUE JOB POSTINGS FOR GREEN JOBS IN THE UK 2020-21



(Lightcast, Labour Insight, 2022)

FIGURE 6. TOP 10 IN-DEMAND GREEN JOBS BY UNIQUE EMPLOYER IN THE UK



(Lightcast, Labour Insight, 2022)

3. National Context

The purpose of this section is to examine the state of the green economy across Australia, particularly in Queensland, and identify the trends and opportunities available to strengthen the green economy in Noosa and the wider region.

3.1 Australia

The drive to create green jobs in Australia emerged from the Global Financial Crisis (GFC) of the late 2000s (Davis 2013). During the GFC, sustainable job creation was a key priority of various global governments, with green jobs seen as an important mechanism to stimulate economic growth (ibid).

In 2008, the Australian Council of Trade Unions (ACTU) (2008) identified six 'green collar' industries with high growth and development potential to advance the green economy in Australia. Analysis by ACTU found that of 30 green industries globally, Australian businesses were well-placed for success in six markets including renewable energy, energy efficiency, sustainable water systems, biomaterials, green buildings, and waste and recycling (ibid.).

The investment in a green economy returns a higher dividend than many traditional industries. In 2020, the Australian WWF released the Australian Renewable Export COVID-19 Recovery Package Report. This report estimated that every dollar of stimulus spent on clean energy projects generates nearly three times as many jobs per dollar than investment in similar fossil fuel projects (WWF 2020).

Skills and training bottlenecks could be a hindrance to the realisation of economic growth of these green industries (McDonald et al 2012). However, green job openings are growing rapidly in Australia. The recent Global Green Skills Report (2022) found that the fastest growing green job title in Australia include sustainability managers which was 24% above that of 2016 levels with ecologists also increasing by 17%.

Another trend in Australia's green economy is the emergence of a burgeoning bioproducts industry, with a $270 million enterprise announced by the Australian government in June 2021 to generate valuable and sustainably produced marine-sourced bioproducts. For example, the University of Queensland's Growing Roads project explores the power of integrating sustainable green algae production systems into transport infrastructure (UQ 2021).

Ecotourism is another growing green economy industry in Australia. Ecotourism Australia (EA), the leading not-for-profit ecotourism group in Australia, analysed its 500 high-standard tour operator members to better understand this growing industry. Their analysis found that in 2019, the ecotourism industry directly employs 14,000 people and contributes a combined annual revenue of $1.6 billion (EA 2019). In the past two years, the industry has seen a 54% increase in jobs.

3.2 Queensland

The Queensland Government has been investing and innovating within the renewable energy industry by developing its human capital and investing in technology. There has been a $145 million commitment to establish three Queensland Renewable Energy Zones in the state (QREZ) (northern, central, and southern).

The Queensland Government is also committed to positioning the state as an Asia-Pacific hub for the Biofutures industry by developing the Queensland Biofutures 10-Year Roadmap and Action Plan. A tranche of this $20 million investment includes $5 million for a Biofutures Commercialisation Program. This will specifically assist businesses, in partnership with a Queensland research organisation, to manage the significant risk in the development and scale-up of technology (QLD Government 2022b).

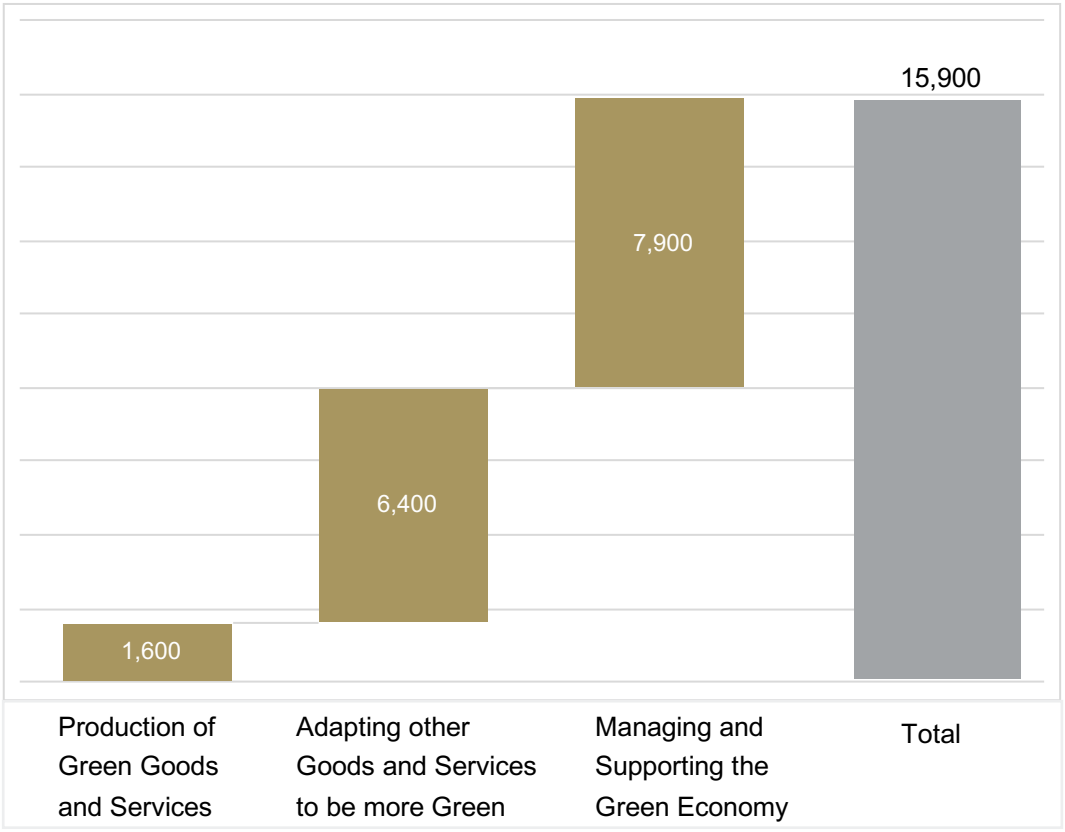
The Queensland Government has also announced a $17 million grant to establish a new renewable energy training facility in Brisbane, focusing on apprentices, as part of the state government's ongoing stimulus measures in response to COVID-19. A separate training initiative is the development of a Hydrogen Training Centre of Excellence at Beenleigh.

A more targeted initiative is the Decarbonising Remote Communities program, where 4 Indigenous communities in Queensland's far north have had renewable energy systems installed to reduce the use of diesel power. Participating Aboriginal and Torres Strait Islander Councils were key project partners in planning and delivering these projects.

3.3 City of Sydney

The City of Sydney ran a study in 2019 on the green economy in their local area. Based on study findings, Sydney had 16,000 green jobs in 2018 representing 2.5% to 3% of employment. Management and supporting roles, such as jobs in environmental law, advocacy and research and development, represented half of the green jobs in Sydney in 2018. The study also estimated that green economy activity added $2.4 billion of gross value to the local economy of the City of Sydney with $400 million economic value in the sustainable finance sector alone.

FIGURE 7. GREEN JOBS IN THE SYDNEY LGA



(T. Brennan, 2019)

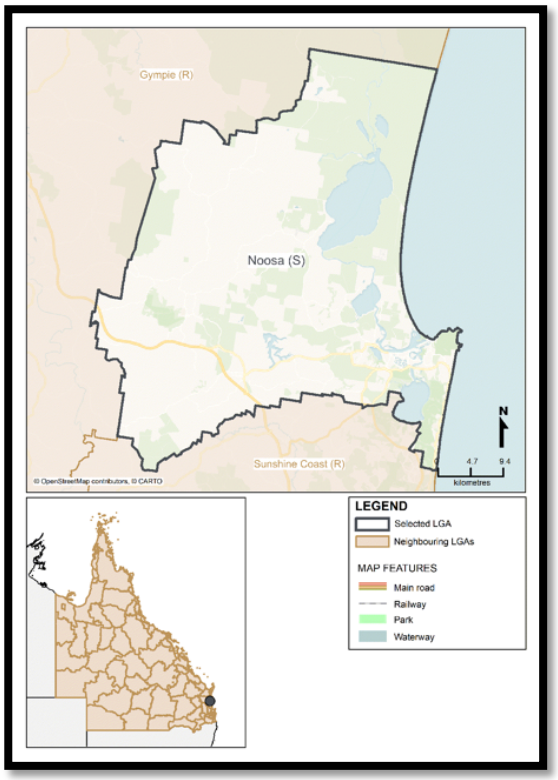
4. Local Context

This section examines the local context in Noosa across geographical, demographical, economic, and environmental aspects. The purpose of this examination is to identify opportunities that can be leveraged and the challenges that should be addressed to enable high value job creation and increased investment in the green economy. This section explores the current policy framework including relevant policies, strategies, and plans, as well as the network of stakeholders that could become part of the green economy ecosystem.

4.1 Key Facts

Noosa Shire is located in Southeast Queensland, approximately 120 kilometres north of Brisbane. The region is home to a variety of beaches, waterways, coastline, national parks, forests, and bushland with a diverse range of urban and rural communities making it highly suitable to a variety of green industries. Urban development is concentrated in the region's coastal communities with key residential areas located around the Noosa River, coastal suburbs, and other small villages. Noosa is well serviced by transport infrastructure including the nearby Sunshine Coast Airport, the Bruce Highway and the Sunshine Coast railway line. (Noosa Council)

FIGURE 8. NOOSA SHIRE MAP



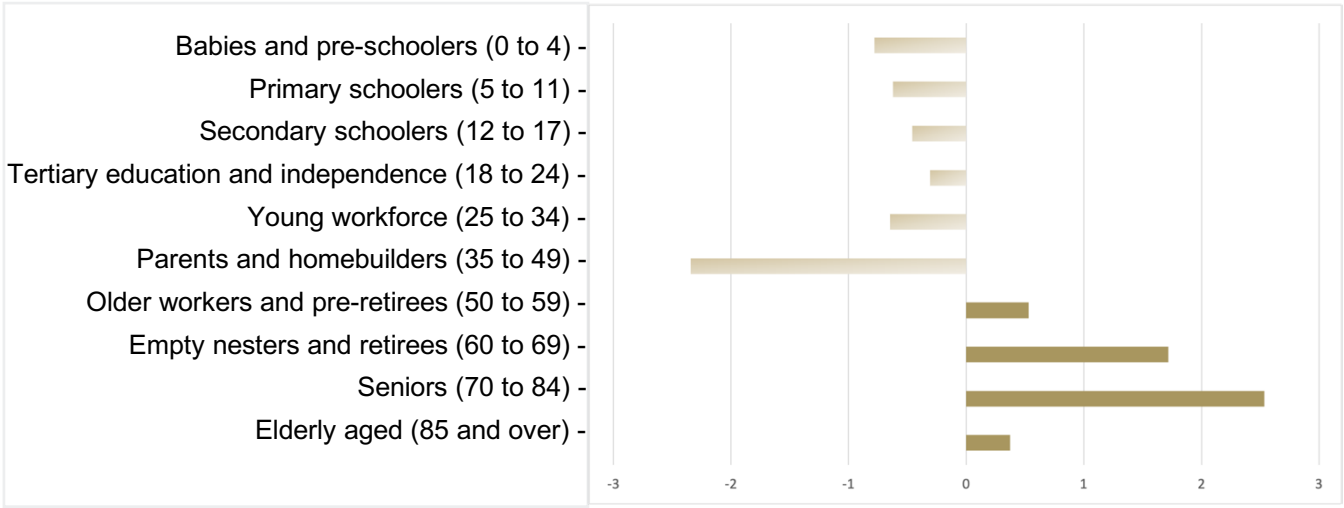
(Noosa Council, 2022)

The Census[1] usual resident population of Noosa Council area in 2016 was 52,149, living in 26,925 dwellings with an average household size of 2.33. The estimated resident population has grown from 51,038 in 2011 to 53,922 in 2016. The 2021 ABS estimated resident population is 56,796.

In 2016, analysis of the service age groups of Noosa showed a lower proportion of children (under 18) and a higher proportion of persons aged 60 or older compared to Regional QLD overall: 19.8% of the population was aged between 0 and 17, and 32.2% were aged 60 years and over, compared with 23.2% and 23.0% respectively in Regional QLD.

The above analysis highlights the population ageing trend in Noosa. This trend is highlighted in Figure 9 below where the population above 50 had a positive change in percentage of people while all younger population had a negative change.

FIGURE 9. CHANGE IN AGE STRUCTURE - SERVICE AGE GROUPS, 2011 TO 2016

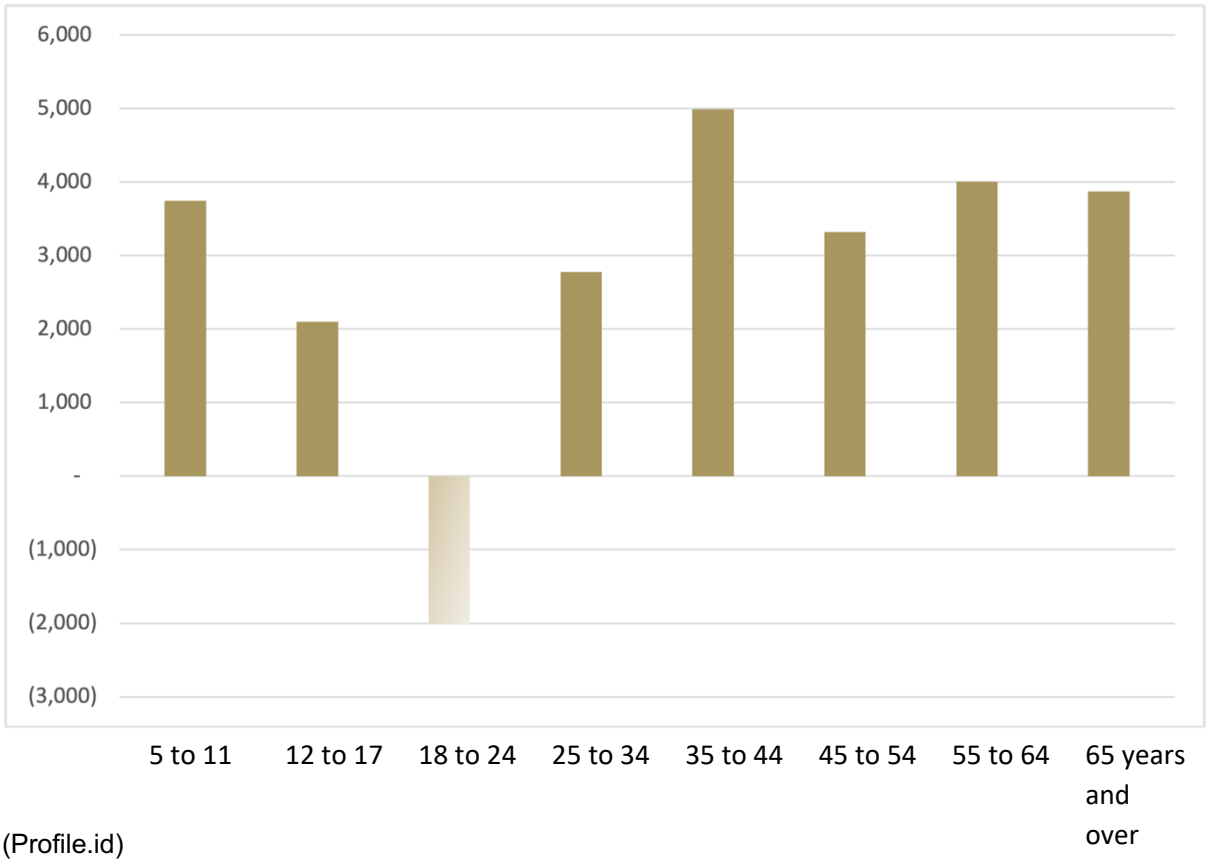


(Profile.id)

In terms of migration, the Sunshine Coast Region attracted 12,497 people from overseas over the period 2011-2016, while during the same period the Region attracted 78,728 from other places within Australia. In 2016, the age group with the highest net migration to Sunshine Coast Region was persons aged 35 to 44 years, followed by persons aged 55 to 64 years. Figure 10 shows that the only age group that has a negative net migration is persons between 18 to 24 years, i.e., there is a challenge to retain the age group entering workforce and/ or university.

[1] This Report was completed before the 2021 Census data was made publicly available.

FIGURE 10. SUNSHINE COAST REGION, MIGRATION BY AGE, 2011 TO 2016



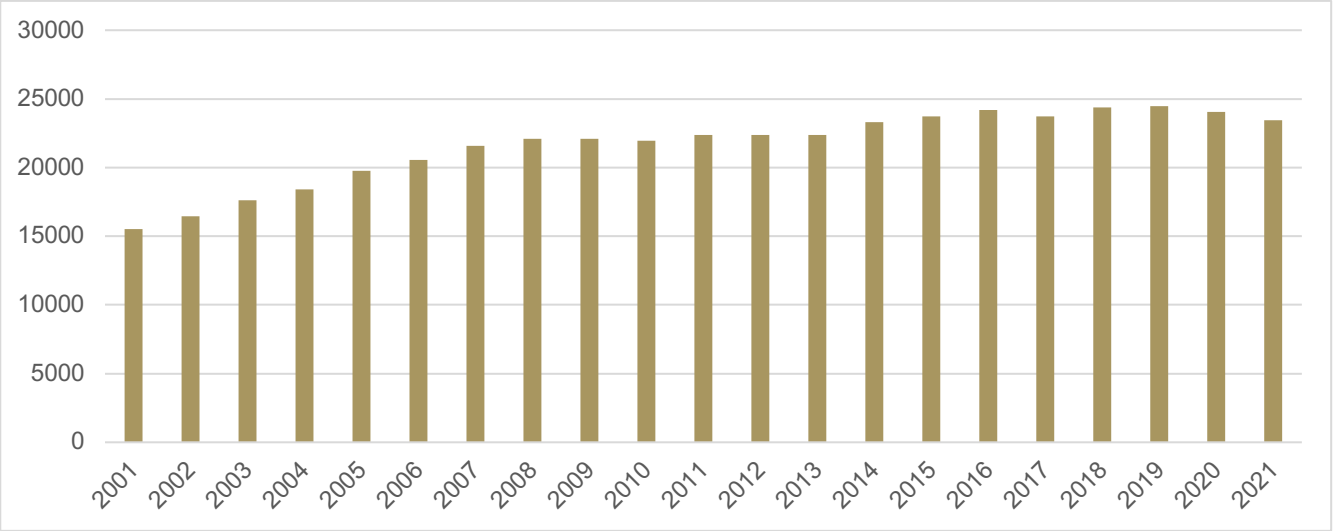
(Profile.id)

In Noosa Council area, 49.7% of people aged over 15 years had completed Year 12 schooling (or equivalent) as of 2016. 22.8% of people in Noosa Council area had a Vocational qualification in 2016, lower than Regional QLD, while 7.4% had no educational qualifications outside of primary and secondary school. In 2016, Noosa Council area had the lowest level of disadvantage in the Sunshine Coast Region, with a SEIFA index score of 1,014.0 which reflects the relatively high level of social prosperity and welfare across the wider region.

Noosa Council's Gross Regional Product is estimated at $2.96 billion, which represents 0.79% of the state's GSP (Gross State Product). In the year ending June 2021, Noosa's Gross Regional Product declined by 0.9% since the previous year. There were 23,446 jobs located in the Noosa region, dropping by 2.5% from previous year and less than the highest number of jobs recorded in 2019 by 1,049 jobs, as depicted in Figure 11. The drop in local jobs and GRP in the last two years is mostly due to the COVID-19 pandemic.

In the 2021 December quarter, the unemployment rate in Noosa Council area was 4.4%, the lowest unemployment rate in 10 years, less than the 5.1%, 5.5% and 5.1% unemployment rates in regional Queensland, Queensland and Australia respectively. On another positive note, the 4.6% average annual growth in household median weekly income from 2011-2016 in Noosa was higher than the 2.6% average in Queensland. However, the median weekly personal and household income levels in Noosa were both considerably lower than the Queensland medians from 2006 to 2016.

FIGURE 11. NOOSA LOCAL JOBS



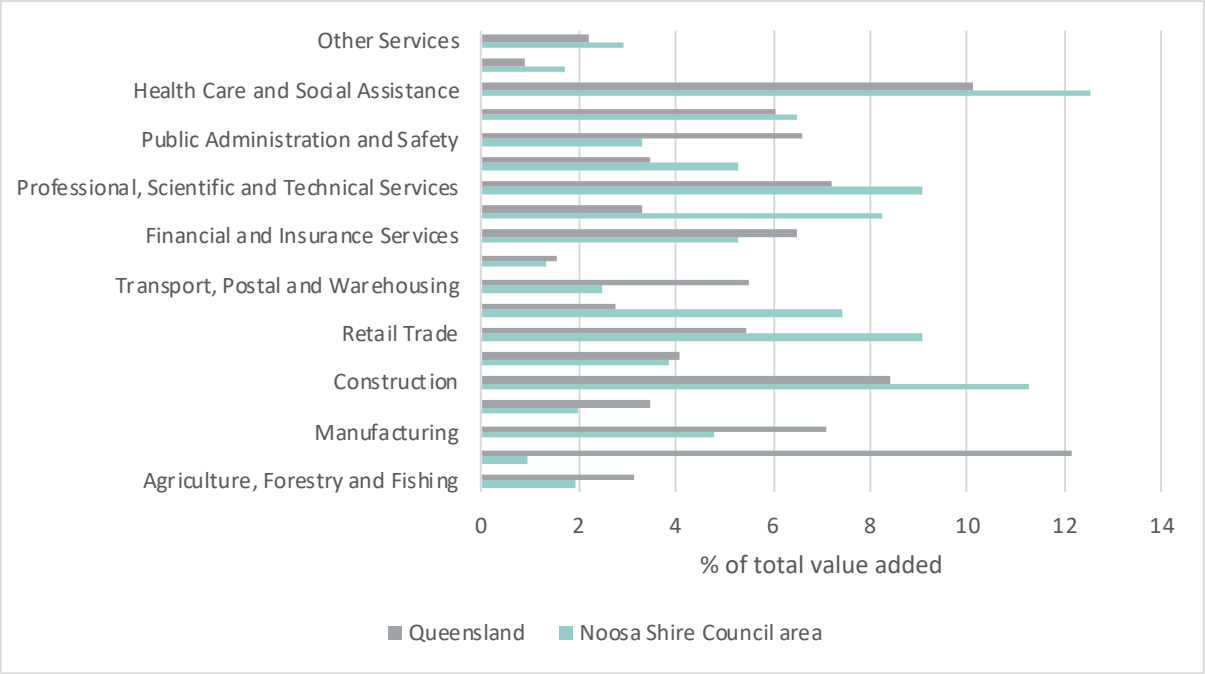
(Profile.id, 2022)

The valued added by industry sectors in Noosa shows the three largest industries in 2020-2021 were:

- Health Care and Social Assistance ($271 million or 12.4%)
- Construction ($244 million or 11.2%)
- Professional, Scientific and Technical Services ($196 million or 9.0%)

In combination, these three industries accounted for $711 million in total or 32.7% of the total value added by industry in the Noosa Council area.

FIGURE 12. VALUE ADDED BY INDUSTRY



(Profile.id)

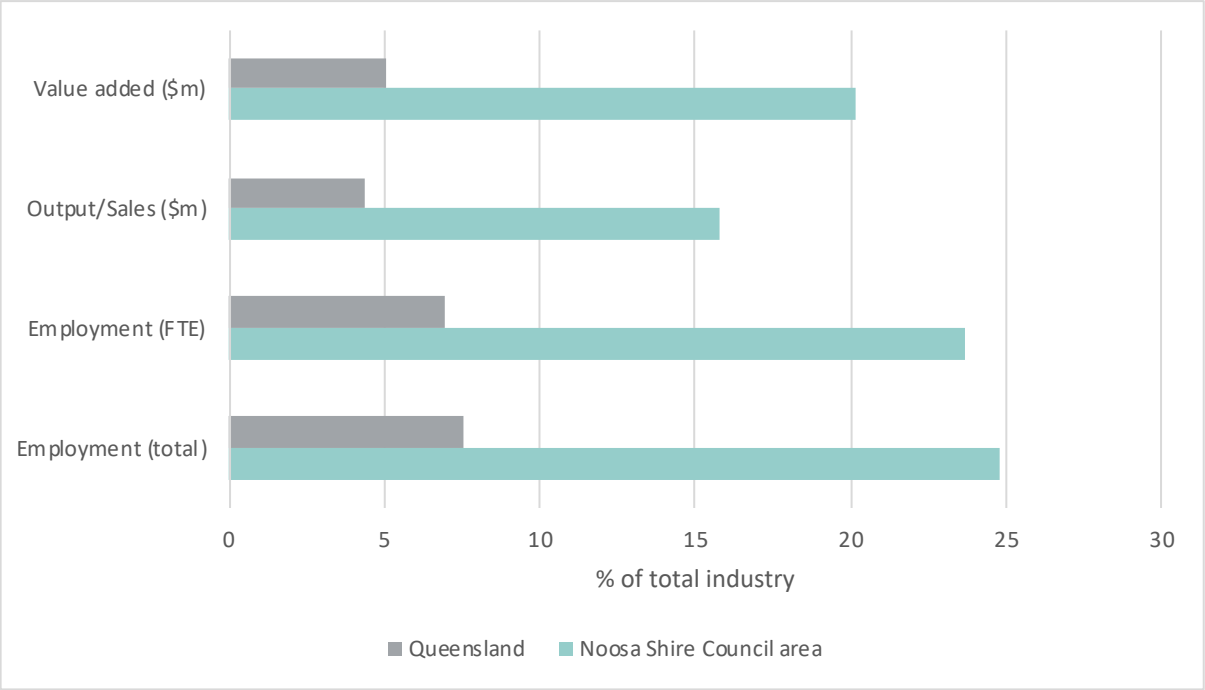
The employment by industry sectors in Noosa shows the three largest industries in 2020-2021 were:

- Health Care and Social Assistance (3,456 people or 14.7%)
- Accommodation and Food Services (3,244 people or 13.8%)
- Retail Trade (2,929 people or 12.5%)

In combination, these three industries accounted for 9,628 people in total or 41.1% of the local workers.

Tourism and Hospitality are key industries and major contributors to Noosa's economy. Figure 13 emphasises the value of the Tourism and Hospitality sector in terms of employment and value added. In 2019-20, the total tourism and hospitality sales in Noosa was $849.5 million, and the total value added was $445.9 million. In terms of employment, the local tourism industry employed an estimated total of 5,962 workers, equating to approximately 24.8% of the workforce (Noosa Local Economic Plan Review, 2021).

FIGURE 13. VALUE OF TOURISM AND HOSPITALITY 2019-20



(Profile.id)

4.2 Relevant Policies and Plans

4.2.1 Noosa Climate Change Response Plan

The Climate Change Response Plan aims to establish Noosa as a leader in responding to climate change by creating and implementing a cross-sectoral, cross-functional approach that is bold, efficient and maximises co-benefits.

The plan is structured under 8 themes. Each theme has a number of strategic priorities to address climate risk actions and leverage emissions reduction opportunities. Table 4 identifies the strategic priorities that are relevant to Noosa's green economy.

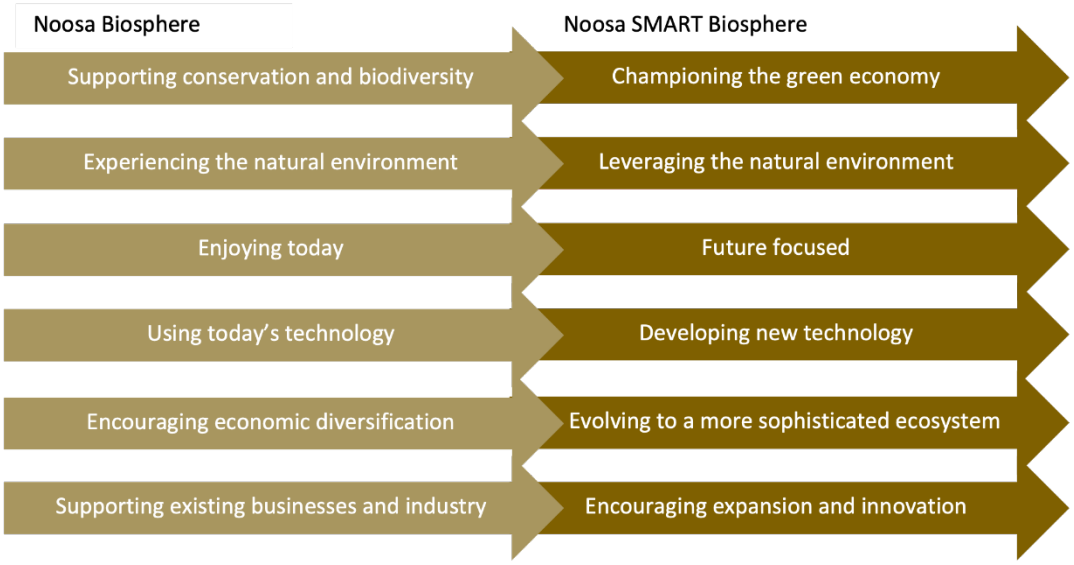
TABLE 4. NOOSA CLIMATE CHANGE RESPONSE PLAN

Theme	Strategic Priority
Strong leadership and governance	▶ Strengthen partnerships with governments and stakeholders to take urgent action to achieve a low carbon economy and resilient community
Energy efficiency and renewable energy	▶ Transition Noosa Council and Noosa Shire to 100% renewable energy and ensure the transition is inclusive of low income and vulnerable residents and businesses, including strata tenants ▶ Pursue energy efficiency and renewable energy measures within Council and for Council owned buildings
Clean low emissions industries	▶ Through targeted initiatives, create an environment that supports business development, innovation and investment shift to clean, green low emission industries and technology ▶ Work with industry, business associations and government agencies to facilitate emissions reduction and environmental sustainability for local businesses
Healthy and resilient natural systems and carbon drawdown	▶ Optimise use and management of water resources through integrated water cycle management including drinking water, recycled water, surface water and groundwater
Sustainable agriculture and food systems	▶ Support agri-businesses and landholders to create a sustainable and regenerative food system that includes consideration and preparation for climate change risks ▶ Support agri-businesses and landholders to reduce their emissions through changes in farming practices and technology implementation, and to take up opportunities for income generation through carbon drawdown activities
Resilient and adaptive communities and built environments	▶ Create a resilient built environment for householders, businesses, vulnerable people, property, and infrastructure
Zero waste and circular economy	▶ Adopt circular economy principles to cut waste and pollution, keep products and materials in use and regenerate natural systems

4.2.2 Economic Development Strategy (EDS) 2021-30

The Economic Development Strategy clarifies the aims, objectives and outcomes sought locally within the context of environmental stewardship. The vision of the EDS is to transition Noosa to a Smart Biosphere. A Smart Biosphere connects the strong environmental societal values of Noosa's community to future focused, technology and data-driven actions to find creative and resourceful solutions to economic and environmental challenges. Noosa has identified the Smart Biosphere as the next step in the evolution of economic development as depicted in Figure 14.

FIGURE 14. NOOSA TRANSITION TO SMART BIOSPHERE



(Noosa Council, 2021)

4.2.3 Noosa Environment Strategy 2019

The Environment Strategy helps Noosa to prioritise investment and deliver an integrated approach to managing Noosa's environment. The Strategy recognises interconnections between people, livelihoods, lifestyle, economy, and the natural environment. The Noosa Biosphere is an obvious intersection between the Economic Development Strategy and the Environment Strategy.

Under Sustainable Living Theme, the Strategy sets a goal of *"By 2030 the Noosa community is living in an increasingly sustainable manner and is carbon neutral."* The Strategy further defines Sustainable living as moving from a "take-make-waste" society to a circular economy that is based on renewable energy sources, eliminates waste and pollution, and keeps products and services in use. An active local circular economy is supposed to be supported through such approaches as innovative waste management models that maximise resource recovery and reuse.

5. Noosa Green Economy Analysis

This section examines the Noosa's green economy by analysing green-focused economic activities within the Noosa Local Government Area. While difficult to define and measure, the green economy is becoming increasingly important to governments around the world due to the range of benefits, jobs and investment opportunities that green activities can bring to a region. In Noosa, much like the rest of the world, interest in the green economy has grown in the previous decade, driven in part by global mega-trends and local efforts to pursue sustainable ways of living and working. As a result, Noosa's green economy was bigger in 2021 than it was in 2020 (53.5% increase in green intensity) representing a larger relative proportion of economic activity.

It should be noted that estimating the value of green economies is made difficult by incomplete data. The Australian Bureau of Statistics (ABS) does not monitor green economy activities in local areas. Contrasting definitions of the green economy also make global comparisons challenging.

In this Report, green job postings are used as a representative sample of green employment in a given year. Green jobs are defined here as those that require certain green skills in their job listings[2]. The applied methodology in this Report relies on the calculation of the "green intensity" factor as a proxy to estimate total green jobs and the green economy value.

Despite these challenges, analysis of Noosa's green economy indicates a number of trends and insights.

5.1 Green Intensity

Green intensity is calculated as a ratio of job postings that require green skills to total job postings in a certain period of time. In 2021, raw data shows that Noosa had 98 green job postings out of 11922 total job postings which represents green intensity ratio of 0.82%. The green intensity ratio in Noosa is lower than the Australian average of 1.80% and the 1.76% average ratio in Queensland. Please note, job postings data for the Sunshine Coast SA4 was used to calculate the green intensity in Noosa.

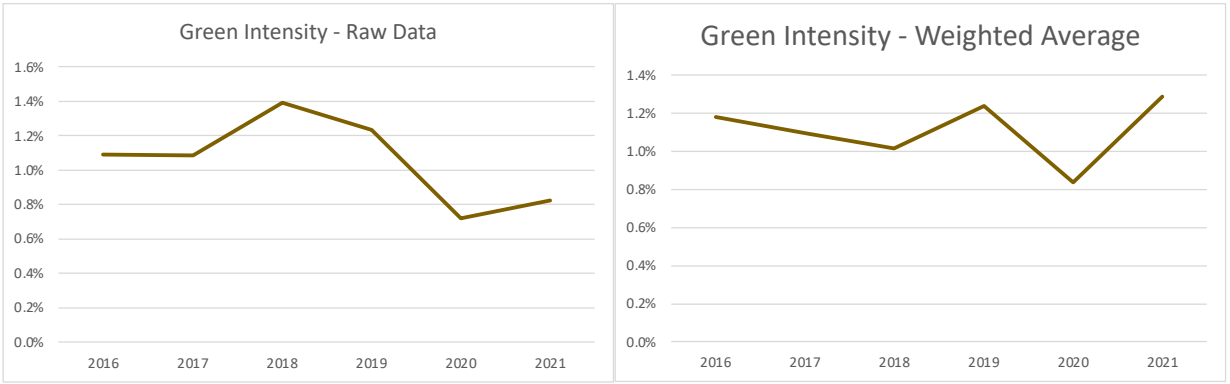
On another note, the timeseries analysis of green intensity 'raw data' between 2016 and 2021 is showing a negative trend of green intensity. The obvious reason for the negative green intensity trend and the relatively low green intensity ratio is the sudden jump in total job postings over this period.

To remedy this large volatility in the denominator value, the intensity ratio has also been calculated as a weighted average of three years. Figure 15 illustrates the difference in green intensity trends before and after

[2] Like any other sample, there is an expected sampling error which is affected by a number of factors including sample size, sampling fraction and the familiarity with job postings over time.

using the weighted average approach. For the rest of this analysis, this Report will use Noosa's green intensity ratio of 1.29% based on weighted average total job postings.

FIGURE 15. GREEN INTENSITY – NOOSA

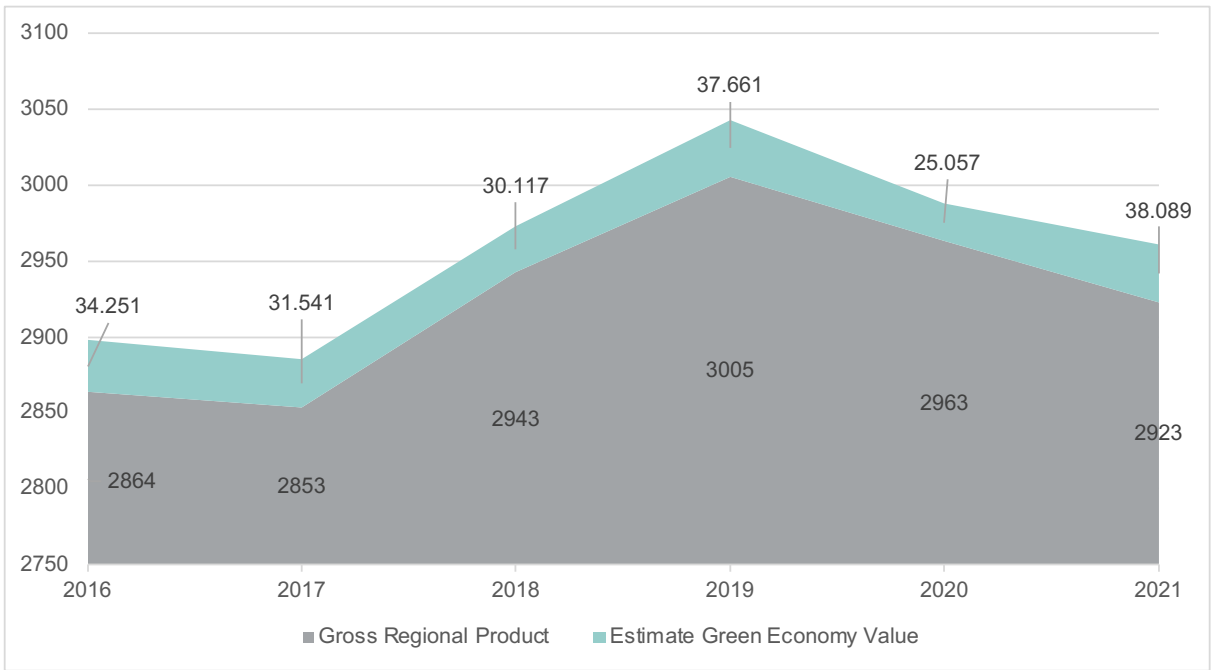


(Delos Delta Analysis, Labour Insight, Profile.id)

5.2 Estimate Value of Green Economy

The Noosa shire was estimated to have a green economy valued at approximately $38.09 million in 2021. The green economy has grown over the past five years with an average annual growth rate of 2.24%, while in the past year alone the green economy had a year-on-year growth rate of 52.01% despite a Gross Regional Product drop of 0.9% across the same period.

FIGURE 16. TOTAL ECONOMY VALUE VS. ESTIMATE GREEN ECONOMY VALUE – NOOSA (MILLION)



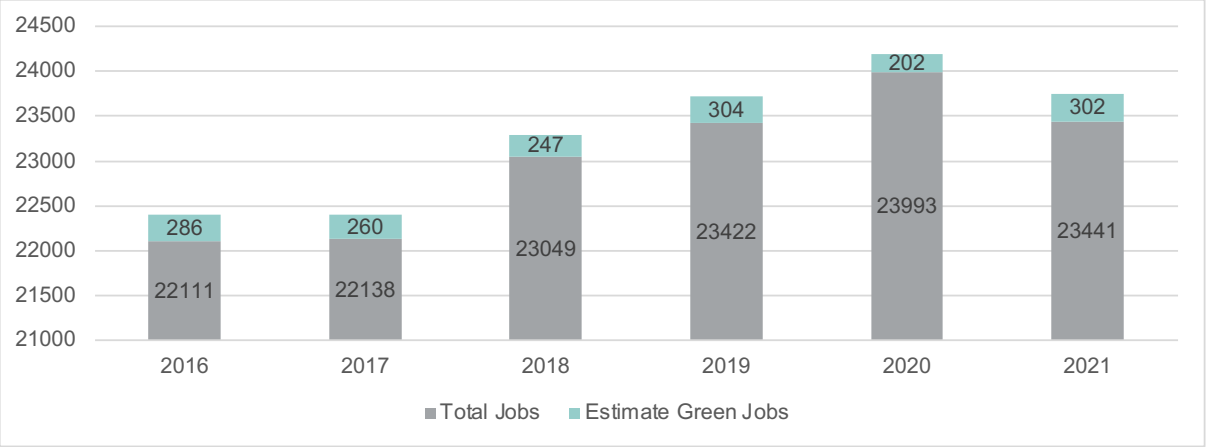
(Delos Delta Analysis, Labour Insight, Profile.id)

5.3 Estimate Number of Green Jobs

The Noosa Shire was estimated to have a total of 302 green jobs in 2021. The average annual growth rate of green jobs over the past five years was 1.09%, while the year-on-year growth rate of the total number of green jobs over the past year alone was 49.63%, despite a drop of 2.45% in total jobs across the same period.

Pre-COVID growth showed an overall increase in green jobs between 2017 and 2019 before a large drop in 2020 green jobs. This drop can be correlated with COVID impact on very important sectors like tourism and hospitality. Despite the drop in total jobs in 2021, there was sharp growth in green jobs which reflects the tendency towards more environment friendly practices in different industries.

FIGURE 17. TOTAL JOBS VS TOTAL ESTIMATE GREEN JOBS – NOOSA



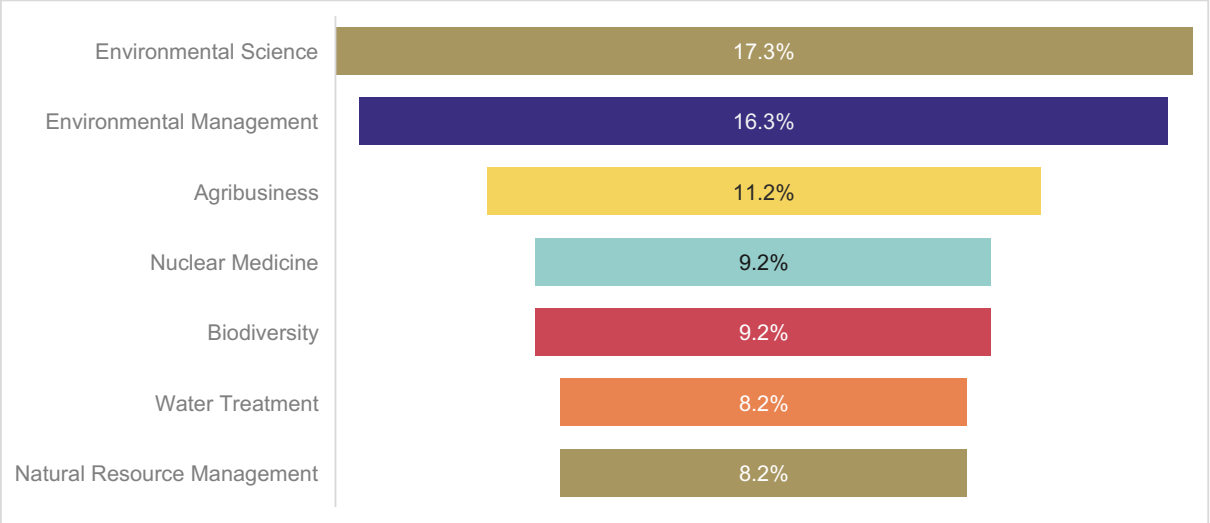
(Delos Delta Analysis, Labour Insight, Profile.id)

5.4 Green Job Analysis by Skills and Industry

To better understand the green economy trends and other features, this section analyses green skills and green job postings in 2021. This analysis shows the highest demand for environmental science and environmental management skills representing together more than one third of in-demand green skills (33.6%). Environmental management, water treatment and natural resource management are three skills that can be contribute to environmental efficiency and better use of natural resources, together represent 32.7%.

Despite the low value added of the agriculture industry in Noosa, less than 2%, there is high demand for agribusiness skills, 11.2% of total in-demand green skills. Biodiversity skills represent 9.2% of green skills which can be expected due to the unique natural life and preserved lands in Noosa.

FIGURE 18. TOP IN-DEMAND GREEN SKILLS – NOOSA (2021)



(Delos Delta Analysis, Labour Insight, Profile.id)

The Public Administration and Safety sector is leading green postings in Noosa with more than 45% of total green job postings in 2021, despite not being one of the top three employment sectors in the region. Health Care and Social Assistance had the second highest with around 13.5% of total green job postings. Likewise, the Electricity, Gas, Water and Waste Services, and Construction industries which had relatively high green job postings and high green intensity.

It is worth noting the appearance of white-collar focused industries in the top green job postings, including Financial and Insurance Services and Professional, Scientific and Technical Services. These industries are in a strong position to become leaders in Noosa's green economy.

One more aspect that shows the trend of green economy growth is annual growth rate of green jobs. Figure 21 shows the high potential for the Financial and Insurance Services industry. This industry demonstrates a huge growth rate with green jobs in 2021 are six times what it was in 2016. Electricity, Gas, Water and Waste Services, and Construction industries are also growing very rapidly with average annual growth rate of 20% each. Figure 21 also shows high growth rate in the Accommodation and Food Services industry which is the main enabling industry of the tourism and hospitality sector.

FIGURE 19. TOP INDUSTRIES BY GREEN JOB POSTINGS – NOOSA (2021)

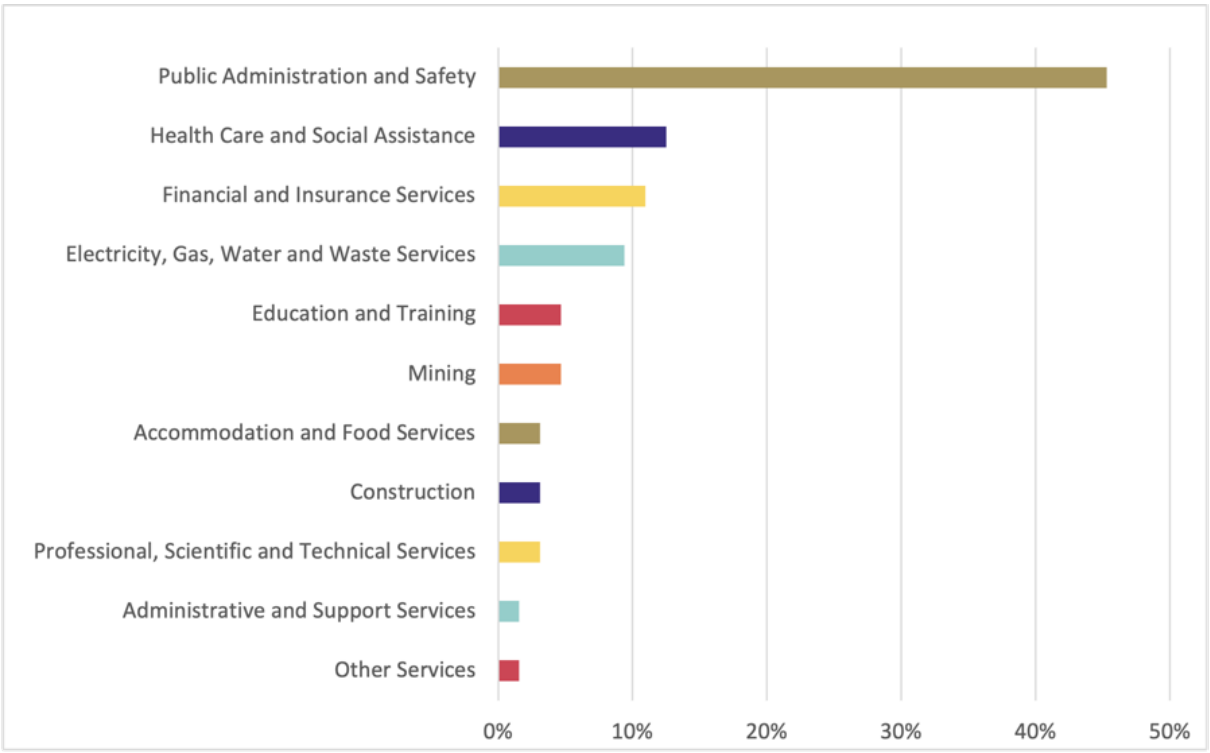
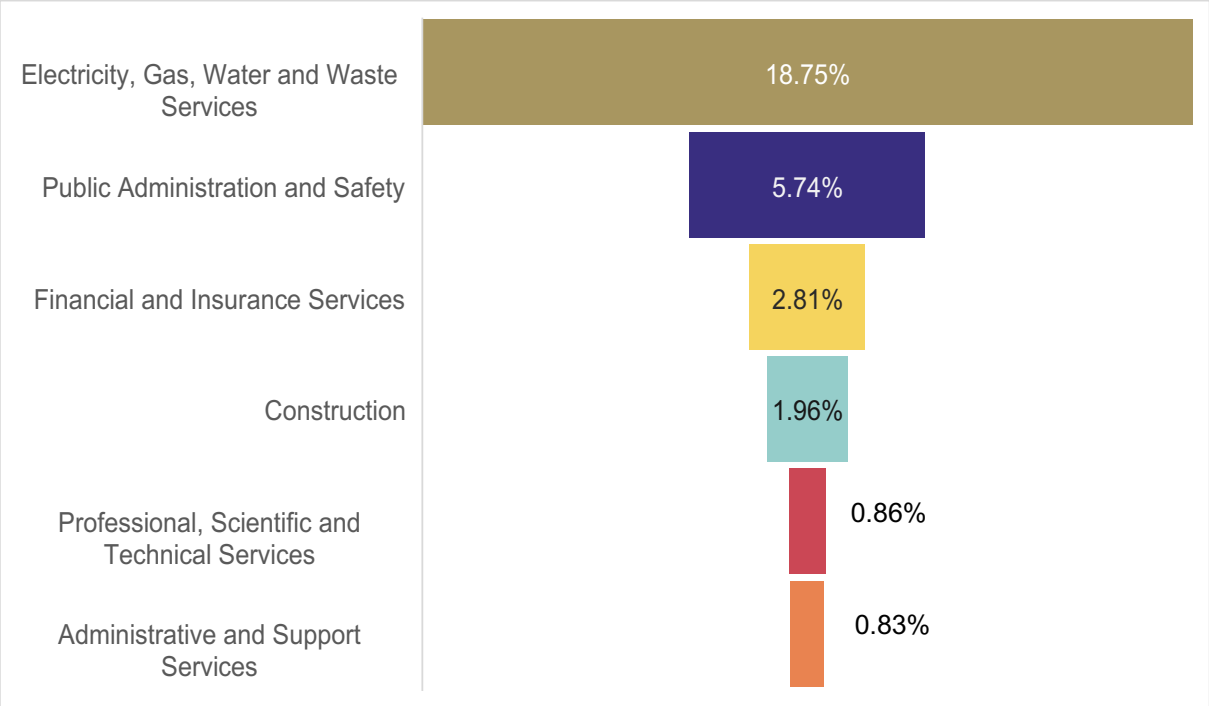
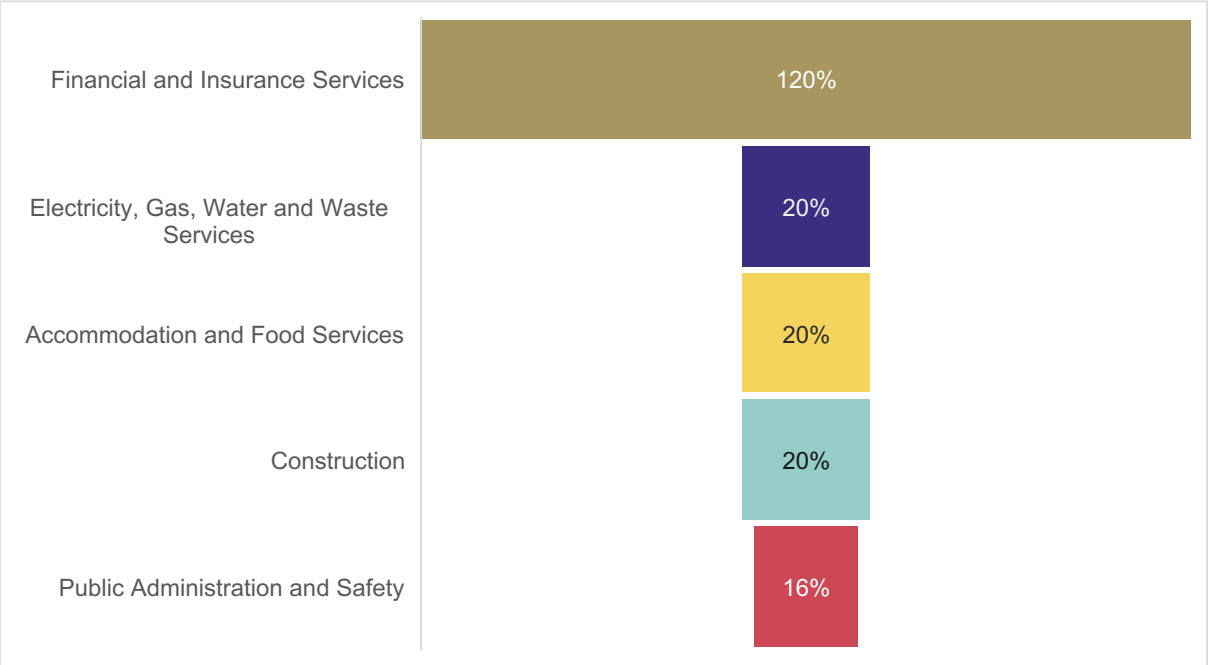


FIGURE 20. TOP INDUSTRIES BY GREEN INTENSITY – NOOSA (2021)



(Delos Delta Analysis, Labour Insight, Profile.id)

FIGURE 21. TOP INDUSTRIES BY AVERAGE ANNUAL GROWTH RATE OF GREEN JOBS – NOOSA (2016-21)



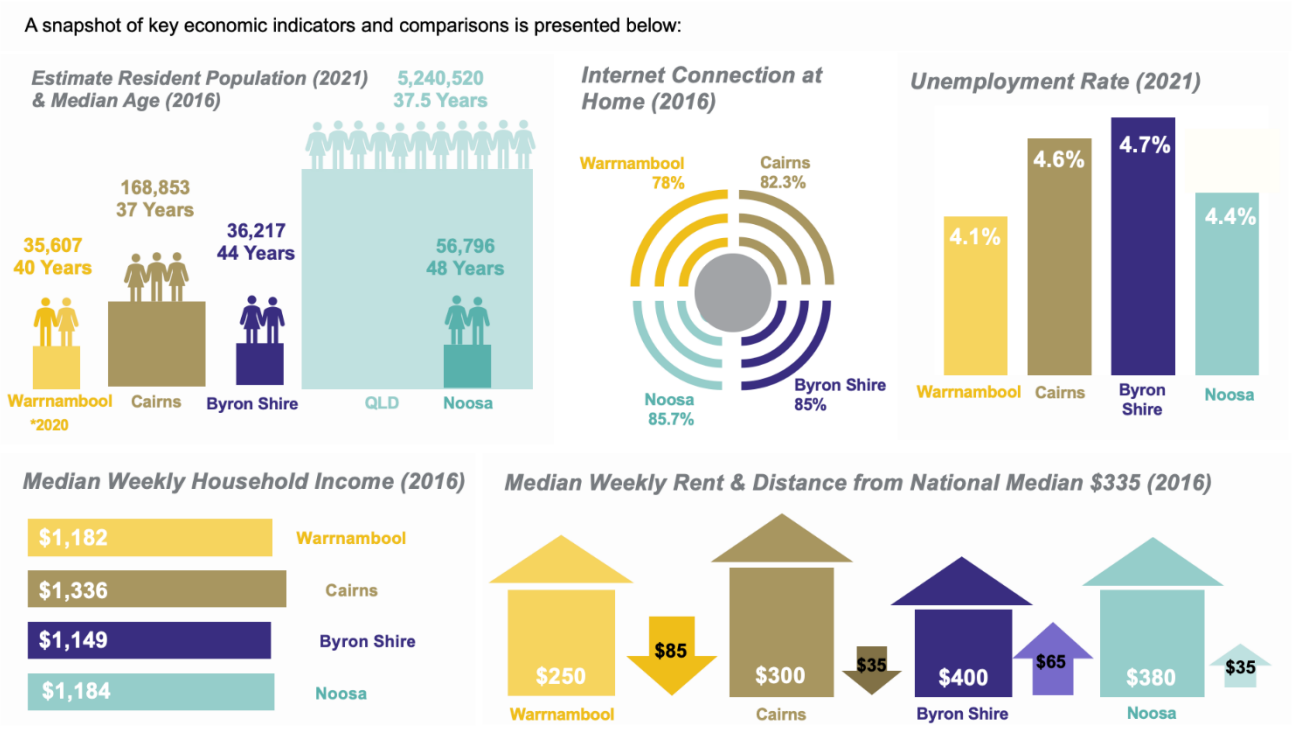
(Delos Delta Analysis, Labour Insight, Profile.id)

5.5 Benchmarking

This section examines a series of economic indicators and statistics across comparable Local Government Areas (LGAs), including Noosa, Cairns, Byron Bay Shire, and Warrnambool. The selected LGAs are comparable in many green economy features. Except Cairns, the estimate resident population of Noosa, Warrnambool and Byron are very comparable. Cairns was selected to be part of this benchmarking exercise because of their leadership position in green economy. To make fair comparisons, this section avoids absolute comparison that might be affected by volume. Instead, this section focuses more on green economy trends.

Overall, Noosa is ahead of other LGAs in internet connectivity and household income. It comes second best in employment. This is again proving the relatively high social prosperity and welfare, and good economic readiness. On the other hand, Noosa's median age is far higher than other LGAs. This is due to the nature of the region as a wealthy attraction point for older individuals and families. This trend comes in line with the previously highlighted observation of youth migration to study and work in other cities.

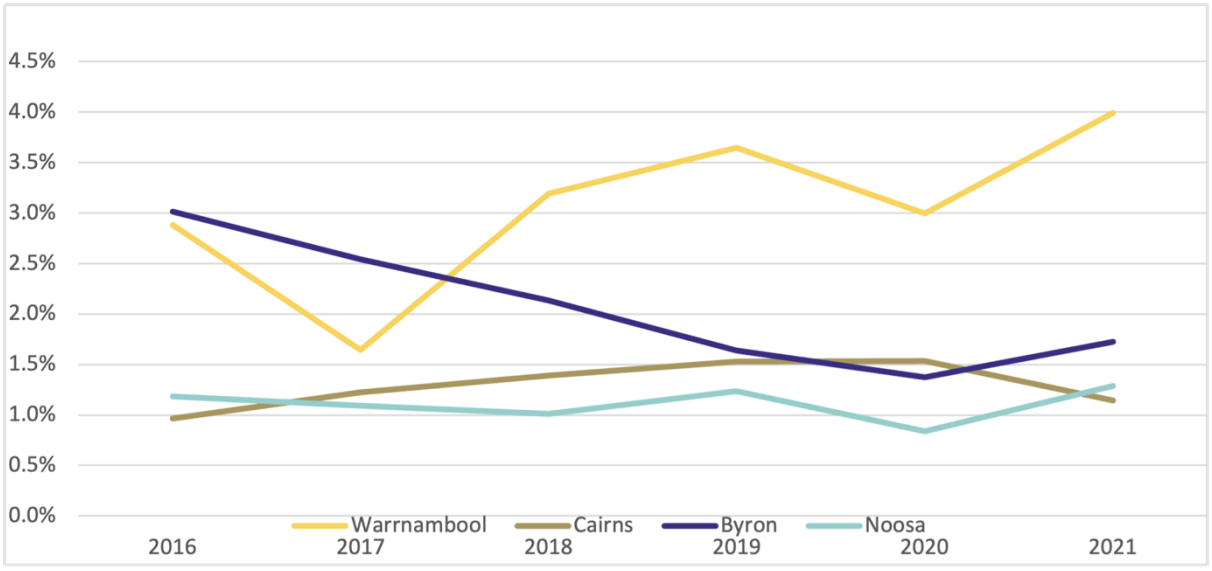
FIGURE 22. KEY ECONOMIC INDICATORS – BENCHMARKING



(Delos Delta Analysis, Profile.id)

The four LGAs do not have a steady green intensity trend over the last five years. The percentage of green jobs to total jobs has been fluctuating in all areas. In general, green intensity has trended upwards over the last five years; excepting Byron Bay which recorded a fall in green intensity over this period. Noosa's green intensity in 2021 comes in third place after Warrnambool and Byron Bay.

FIGURE 23. GREEN INTENSITY - BENCHMARKING



(Delos Delta Analysis, Labour Insight, Profile.id)

The estimated value of green economy varies from one LGA to another. The size of population puts Cairns in front of all other LGAs considering the total value of economy. The same applies to total green jobs. Table 5 summarises the estimated value of green economy and estimated number of green jobs in the last year in the four benchmarked LGAs.

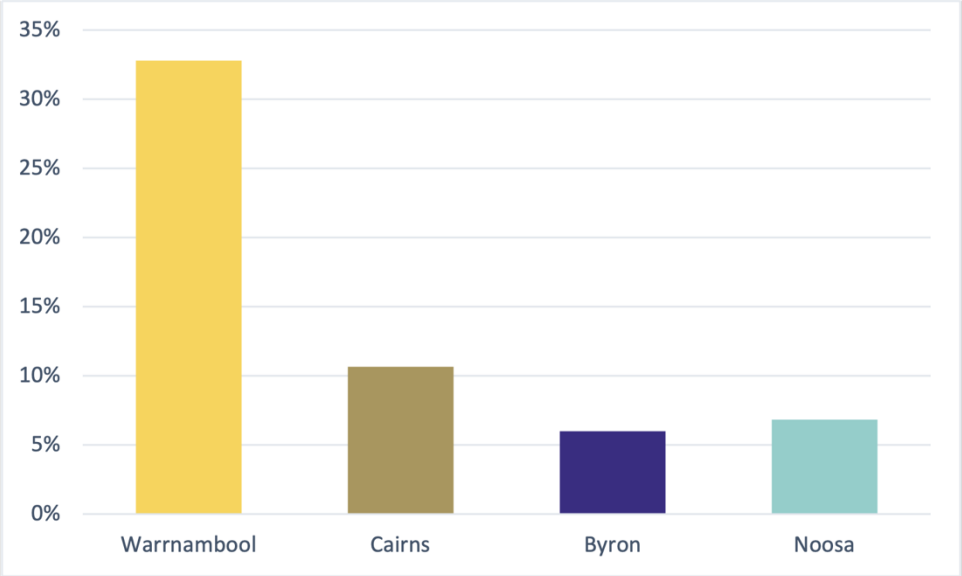
TABLE 5. ESTIMATE VALUE OF GREEN ECONOMY AND ESTIMATE NUMBER OF GREEN JOBS (2021) – BENCHMARKING

	Warrnambool	Cairns	Byron	Noosa
Estimate Value of Green Economy (million)	$75.11	$117.93	$32.47	$38.09
Estimated Value of Green Economy per capita	$2,109.42	$698.42	$896.54	$670.65
Estimate Number of Green Jobs	711	956	271	302
Estimate Green Jobs per capita	2.00%	0.57%	0.42%	0.53%

(Delos Delta Analysis, Labour Insight, Profile.id)

As an indicator of green economy growth, green job postings have increased steadily over the last five years in the four LGAs. Noosa comes in the third place in terms of average annual increase rate of green job postings. Warrnambool has seen very rapid increase in green job postings. This can be understood in the context of the central role of Warrnambool in leading and serving neighbouring regional cities. Many of the professional services of the Great South Coast region are placed in Warrnambool.

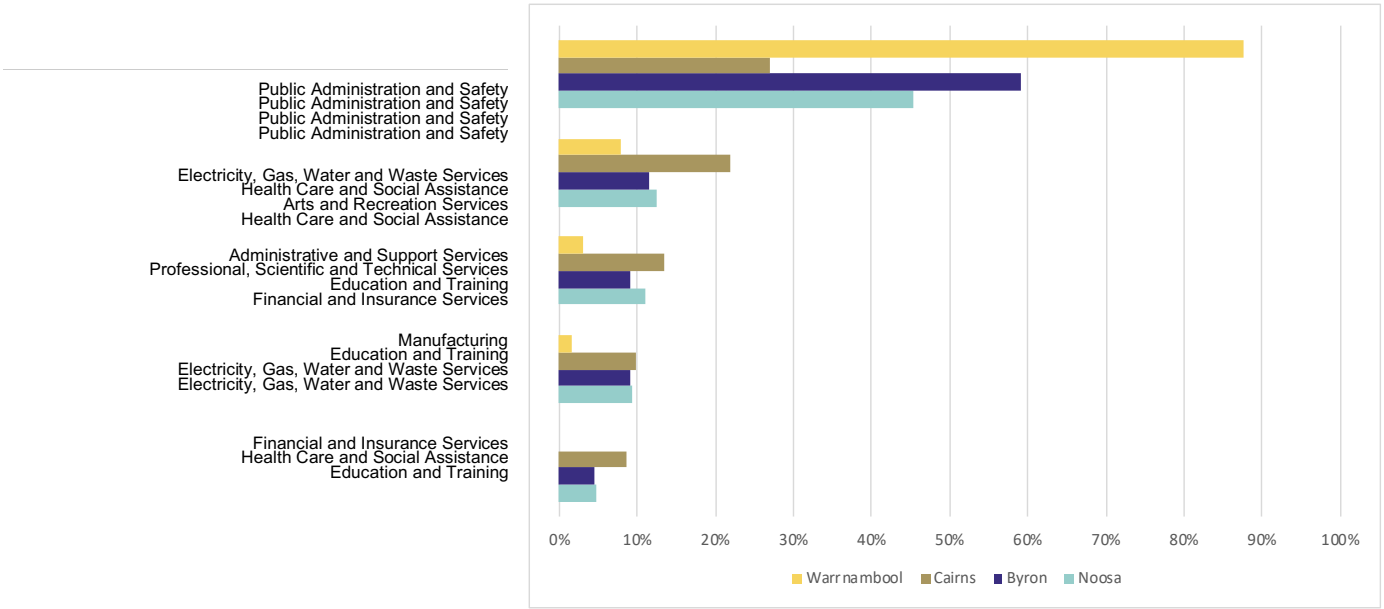
FIGURE 24. AVERAGE ANNUAL INCREASE RATE OF GREEN JOB POSTINGS (2016-21) – BENCHMARKING



(Delos Delta Analysis, Labour Insight, Profile.id)

A deeper analysis of green jobs reaffirms the prominent position of the following industries: Public Administration and Safety, Electricity, Gas, Water and Waste Services and Health Care and Social Assistance. These industries are the top industries by green job postings in the four LGAs. It is also very noticeable that professional services such as Financial and Insurance Services and Professional, Scientific and Technical Services.

FIGURE 25. TOP INDUSTRIES BY GREEN JOB POSTINGS (2021) – BENCHMARKING



(Delos Delta Analysis, Labour Insight, Profile.id)

Green jobs are increasing rapidly in the Professional Services industries in all LGAs. This is global trend that LGAs are following. Noosa is very distinguished by having the Accommodation and Food Services as one of the top industries that is transitioning towards green economy very quickly. This trend demonstrates Noosa's competitive advantage in the tourism and hospitality sectors.

TABLE 6. TOP INDUSTRIES BY AVERAGE ANNUAL GROWTH RATE OF GREEN JOBS (2016-21) – BENCHMARKING

Warrnambool		**Cairns**	
Public Administration and Safety	81.8%	Professional, Scientific and Technical Services	200%
Electricity, Gas, Water and Waste Services	80.0%	Health Care and Social Assistance	150%
Manufacturing	20.0%	Mining	40.0%
Administrative and Support Services	20.0%	Construction	20.0%
Byron		**Noosa**	
Arts and Recreation Services	80.0%	Financial and Insurance Services	120%
Electricity, Gas, Water and Waste Services	60.0%	Electricity, Gas, Water and Waste Services	20.0%
Education and Training	60.0%	Accommodation and Food Services	20.0%
Financial and Insurance Services	20.0%	Construction	20.0%

(Delos Delta Analysis, Labour Insight)

6. Key Insights and Observations

Based on a combination of desktop research, benchmarking, and analysis, this section canvases several key insights related to the potential future development of the green economy in Noosa. Assessing the relative strengths and challenges of the region reveals seven potential opportunities available to Council in developing industry in the green economy. However, for Council to fully unlock the benefits of certain opportunities, it is important to ensure alignment between global growth trends and local strengths and capabilities. The matrix in Section 6.5 demonstrates the degree to which the opportunities identified by this Report align to global trends and local strengths. This alignment is crucial to ensure the successful development of competitive advantages and informs this Report's recommendations for future feasibility and activation studies in Section 7.

6.1 Noosa's Green Economy Key Figures

The Noosa region has a growing green economy. Last year, Noosa's green economy had a sharp rise of 52% year-on-year despite a Gross Regional Product drop of 0.9% in the same period. Similarly, green jobs increased by 49.63% from 2020 to 2021, despite a drop of 2.45% in total jobs in the same period. The value of Noosa's green economy is estimated at approximately $38.09 million, and the estimated number of green jobs number is 302 in 2021.

The above figures present a promising green economy growth trend in terms of green jobs as well as total green economy value. Yet, Noosa's average annual growth rate of green job postings is below international and national averages. It is also below the average annual growth rate of green job postings in Queensland and peer LGAs of Cairns and Warrnambool.

TABLE 7. GREEN JOB POSTINGS (2016-21)

Average Annual Growth Rate of Green Job Postings (2016-21)						
Worldwide	**Australia**	**Queensland**	**Warrnambool**	**Cairns**	**Byron**	**Noosa**
8.0%	19.5%	17.4%	32.8%	10.7%	6.0%	6.8%

The Noosa region lags behind the national and state average of green intensity. Comparing to peer LGAs, Noosa comes before Cairns and after Warrnambool and Byron.

TABLE 8. GREEN INTENSITY 2021

Green Intensity (2021)						
Worldwide	**Australia**	**Queensland**	**Warrnambool**	**Cairns**	**Byron**	**Noosa**
1.0%	1.8%	1.8%	3.9%	1.1%	1.7%	1.3%

6.2 Strengths

Noosa, and the wider Sunshine Coast Region, benefit from a pristine natural environment which attracts a range of temporary and permanent visitors, including tourists, retirees, backpackers, and conservationists. Thus, Noosa's natural environment is key strength of the Region, and will provide the basis for many future opportunities directly involved with, or related to, the green economy. This is especially true for opportunities related to ecotourism and aged-care, economic subsectors which already currently offer a sizeable percentage of green jobs in Noosa and the Sunshine Coast Region. Other key strengths can be classified under three categories:

TABLE 9. NOOSA, KEY STRENGTHS

Leadership and Policy
▶ Strong leadership from Council and other government bodies ▶ Existing environmental and economic strategies ▶ Existing initiatives and programmes: net zero by 2026, UNESCO Biosphere Reserve, etc. ▶ Public Administration is leading green job postings
Demographic
▶ Highly educated population ▶ High level of prosperity and welfare
Economic
▶ Low level of unemployment ▶ Growing household income ▶ High growth in retail trading ▶ Relatively good internet connectivity ▶ Strong growth of green jobs in Professional Services ▶ High green intensity in Professional and Financial Services

6.3 Weaknesses and Challenges

The green economy is still in infancy, not only in Noosa but across Australia and worldwide. Nevertheless, there exists several challenges that could be addressed to accelerate the development of the green economy ecosystem in Noosa:

TABLE 10. NOOSA, WEAKNESSES AND CHALLENGES

Leadership and Policy
▶ Lack of a dedicated Green Economy Industry Development Plan
Demographic
▶ An aging population ▶ Low retention of young professionals and university students (Economic/ demographic weakness) ▶ A large proportion of Noosa residents work outside of the Shire (Economic/ demographic weakness)
Economic
▶ Relatively low household income ▶ High reliance on tourism ▶ Low green intensity in the biggest employment industry – the Health Care and Social Assistance

6.4 Opportunities

Global trends and local statistics provide the basis and rationale for a range of industry development opportunities. Figures 18 to 21 demonstrate the following trends:

- High demand of green focused thematic skills that horizontally benefit all industries by improving environment sustainability.
- Innovative and scientific skills are also in high demand.
- Green jobs in Financial and Insurance Services and Professional, Scientific and Technical Services industries are growing very rapidly with high green intensity factors.
- Accommodation and Food Services industry, which is the main enabler of the tourism and hospitality sector, is growing with 20% average annual increase in green jobs.
- Public Administration and Safety enjoyed a 16% average annual increase in green jobs between 2016 and 2021.

As evidenced by this Report, there exist numerous industry development opportunities, with too many for inclusion in the first iteration of the Green Economy Industry Development Plan. The 7 short-listed opportunities in the table overleaf were considered appropriate when evaluating Council feedback, regional deficiencies, and existing local strengths, expertise, skills, and competitive advantages in green industries where they exist.

When combined with an evaluation of worldwide trends to identify areas of global opportunity (Sections 2 and 3), and the green jobs analysis (Section 5.4) to distil green economy trends in Noosa, a clearer picture of the most suitable opportunities available to Council is presented. Of the 7 broad opportunities available for green economy industry development in Noosa identified in the table below, Section 6.5 identifies 4 opportunities which demonstrate full alignment between global growth trends and local strengths and capabilities.

Based on the above trends, the following opportunities can be identified:

TABLE 11. OPPORTUNITIES, LOCAL ADVANTAGES AND AVAILABLE POLICY LEVERS

Opportunity	Global Demand, Growth, and Opportunities	Local Strengths & Competitive Advantages	Policy Levers
Green Professional Services	▶ Global green finance has grown exponentially in the past decade ▶ Booming global consultancy services in green economy ▶ New workplace dynamics allows work from everywhere	▶ Strong growth of green jobs in Professional and Financial services ▶ High green intensity in Professional and Financial services ▶ Positive inward migration trend of old age groups	▶ Economic Development Strategy ▶ Green Economy Industry Development Plan
Ecotourism	▶ Ecommodation - trending among millennials ▶ Unique destinations gaining high traction among tourists ▶ Rise of social media positively impacting the travel industry	▶ Noosa as a popular tourism destination ▶ Increasing green jobs in Accommodation and Food Services industry	▶ Economic Development Strategy ▶ Noosa Environment Strategy ▶ Green Economy Industry Development Plan ▶ Destination Management Plan
Green Tech Hub (Including Climate Tech)	▶ More than 3,000 Climate tech start-ups identified world-wide in 2021 ▶ 210% growth in global climate tech investment year-on-year[3] ▶ Synergistic benefits with green research and living labs ▶ Trend towards global net-zero	▶ Strong growth of green jobs in Professional Services ▶ Opens opportunities for young entrepreneurs ▶ High demand of scientific and innovative skills	▶ Economic Development Strategy ▶ FireTech Program ▶ Noosa Environment Strategy ▶ Green Economy Industry Development Plan ▶ Disaster Management Plan

[3] PWC, State of Climate Tech, 2021

Research and Innovation (Living Labs)	▶ More than 3,000 Climate tech start-ups identified world-wide in 2021 ▶ 210% growth in global climate tech investment year-on-year ▶ Synergistic benefits with green tech and innovation hubs	▶ Relatively good connectivity ▶ Opens opportunities for young entrepreneurs ▶ High demand of scientific and innovative skills	▶ Economic Development Strategy ▶ Green Economy Industry Development Plan ▶ FireTech Program ▶ Disaster Management Plan
Sustainable Fashion	▶ Sustainable fashion is the top global growing green skill	▶ Addresses youth retention weakness ▶ Noosa as a popular tourism and shopping destination	▶ Economic Development Strategy ▶ Green Economy Industry Development Plan
Circular Economy & Waste Management	▶ Only 8.6% of the 100 billion tonnes of materials which enter the global economy every year are cycled back into the economy ▶ Global call for a global commitment to double circularity every ten years	▶ Strong growth of green jobs in Professional Services ▶ Opens opportunities for young entrepreneurs ▶ High demand of scientific and innovative skills	▶ Economic Development Strategy ▶ Noosa Environment Strategy ▶ Green Economy Industry Development Plan ▶ Waste Plan
Sustainable Transport	▶ In the 2030 Agenda for Sustainable Development, sustainable transport is mainstreamed across several SDGs and targets ▶ Multiple transport modes and ride sharing are gaining increasing popularity across Australia and worldwide	▶ High tourist visitation concentrated in the coastal communities and eastern beaches ▶ Natural spaces make intermodal transport more prevailing	▶ Noosa Environment Strategy ▶ Green Economy Industry Development Plan ▶ Transport Plan

6.5 Opportunity Matrix

Supported by the insights above, the recommendations in Section 7 are crafted with an aim of developing the highest-value opportunities available to Council. High-value opportunities are those which make use of existing local strengths, expertise, skills, and endowments, and align with global trends in the green economy.

Of the 7 opportunities identified in Section 6.4, 4 of these opportunities show tangible alignment with both global growth trends and local strengths and capabilities. For instance, while green waste management is a clear and emerging trend of the green economy, Noosa possesses little or no relative or competitive advantages in terms of scale or expertise which may help to build clusters of green activity in the area. In contrast, Noosa is well positioned in areas of ecotourism and living labs and has demonstrably unique value propositions in both areas.

TABLE 12. THE OPPORTUNITY MATRIX

Areas of Opportunity	Areas of Alignment	
	Global Growth Prospects	Local Advantages, Strengths, and Capabilities
Green Professional Services	✓	✓
Ecotourism	✓	✓
Green Tech Hubs	✓	✓
Green Research and Innovation (Living Labs)	✓	✓
Sustainable Fashion	✓	X
Circular Economy & Waste Management	✓	X
Sustainable Transport	✓	X

While some opportunities may be more aligned than others, the above table highlights the alignment of opportunities in Green Professional Services, Ecotourism, Green Tech Hubs, and Green Research and Innovation (Living Labs) with both global growth prospectus and local advantages.

It is worth noting, that Council will need to consider other dimensions in assessing the green economy industry development opportunities available to them, including political and funding considerations. Nevertheless, a first-best approach should cater towards those opportunities which demonstrate clear alignment between global growth and local strengths.

The descriptions below offer a more comprehensive account of the 7 green economy industry development opportunities available to Council, including the 4 opportunities which exhibit dual alignment.

6.5.1 Green Professional Services

> Professional Services are those jobs that "cut across many industries including franchising and the legal and accounting services industries, building and construction (e.g., architects, town planners, engineering consultants), business (e.g., recruitment consultants, human resource management consultants, market researchers, PR consultants, events managers and many more)" (Australian Trade and Investment Commission).

Green Professional Services are the professional services associated with the Green Focused Economy. I.e., the professional services that require green skills that enable the environmental sustainability of economic activities. E.g., environmental consultants, green financers, green insurance providers, green architects and town planners, green policy makers, etc.

Over the last couple of years, during COVID-19 outbreak, there has been a growing trend of remote work, with employees increasingly able to work from anywhere in the world. In Australia, the social, economic, and technological impacts of COVID-19 have raised the possibility of a longer-term shift in migration patterns between capital cities and regional areas. This shift is likely magnified for Noosa with its beautiful beaches, rainforest, and ecological areas. With the right green economy strategy in place and enabling infrastructure, Noosa can explore the possibility of becoming a green economy hub that attracts individual and corporate professional service providers. Green professional services are not meant to serve the complete green ecosystem in Noosa alone, but allow for the export of services to other places in Australia and overseas. Thus, the opportunity to develop Green Professional Services represents a chance to build on an existing area of strength for the region, namely its ability to attract remote workers, but also taps into a global trend towards remote work. Continued support for green professional services therefore represents a high-value opportunity for Noosa.

6.5.2 Ecotourism

> "Ecotourism is ecologically sustainable tourism with a primary focus on experiencing natural areas that fosters environmental and cultural understanding, appreciation and conservation." (Ecotourism Australia).

In 2007, Noosa Shire was designated as the Noosa Biosphere Reserve by the United Nations Educational, Scientific and Cultural Organisation (UNESCO). Designation as a biosphere reserve reinforces Noosa's reputation as a natural environmental tourism destination. Noosa's natural endowments, and predisposition towards ecotourism aligns with a broader global trend towards more sustainable tourism practices making it a high-value opportunity for Council.

However, it is important to note that a successful ecotourism industry, as part of a comprehensive green ecosystem, requires other enablers, such as: policy frameworks, a business-friendly environment and green

enabled talent. As a role model for ecotourism, Noosa can thus play a role that is not only limited to attracting more discerning tourists but in developing a knowledge-based economy that can export the ecotourism know-how to other regions. Noosa can explore the possibility of becoming a worldwide ecotourism destination targeting ecotourists, naturalists, and scientists. Noosa can also explore adjacent economic activities related to ecotourism training centres, ecotourism financing and ecotourism consultations. The ecotourism opportunity for Noosa is thereby multifaceted and multilayered and includes the ability for Noosa to export its ecotourism knowledge and intellectual property after successful implementation.

6.5.3 Green Tech Hub (including Climate Tech)

> "Green Tech refers to a type of technology that is considered environmentally friendly based on its production process or its supply chain." (Investopedia).
>
> It may also refer to the use of technology and science to create environmentally friendly products and services, prevent climate damage in the future and mitigate the damage already done by reducing or eliminating the sources of it. (Martyna Żegota, 2022)

Promoting Noosa as a green tech hub will attract entrepreneurs interested in decarbonising the global economy, with the aim of reaching net zero emissions. Large technology companies, as well as research institutes and innovative solution providers, are keen to protect and restore the environment, conserve natural resources, and restore the damage inflicted on it in the past harnessing by smart digital solutions including artificial intelligence, robotics, 3D printing, AR, VR, deep learning, IoT and mobile applications. Smart cities are thus intimately related to many of the green and climate tech opportunities and should be considered as part of the opportunity to develop as a green tech hub.

Noosa is well positioned to take a leading position in this area and has all the prerequisite strengths to qualify as a green tech hub, with existing infrastructure such as digital workspaces, relatively good connectivity, and a lifestyle and natural environment which will attract talent away from metropolitan areas. In addition to the unique natural preserves, Noosa identified the Smart Biosphere as the next step in the evolution of economic development. Noosa can therefore leverage existing innovation programs to support green economy activities.

The Peregian Digital Hub is an example of a digital workspace within Noosa. This facility provides an inspiring work environment for digital professionals, tech entrepreneurs and remote workers. Specialised groups, such as: digital agencies and creatives, and technologists can foster green tech innovation in Noosa. As a subset of green tech, climate tech is a fast-emerging global sector and can provide additional opportunity and impetus for green economy industry development in Noosa, where the dangers of climate change pose real risks to the natural endowments of the area. The alignment of local strengths, and global growth prospects make green tech hubs a high-value opportunity for Council.

For younger workers who may currently prefer migrating to big cities to study and work, inspiring tech events and an extensive skill development program for digital talents can instead help to retain Noosa's youth and attract young entrepreneurs.

6.5.4 Green Research and Innovation (Living Lab)

Living labs are real-life dynamic environments which provide collaborative opportunities between researchers, businesses, and Council to experiment with new technologies for the benefit of the community. While living labs in Noosa should be supportive of the green technology and climate technology eco-systems, the benefits extend well beyond into other sectors, driving development across a range of industries.

As the in-situ nexus between academia and business, living labs provide a place-based vehicle for industry and economic development which is characterised by long term partnership between multiple stakeholders. Living labs go directly to issues of green research, green science, academia, engineering, investment, and insurance, offering suitable locations to help develop innovative projects and pilot schemes. As a key smart city component, Living Labs help to integrate smart technology, data, and innovation into local industry, with risks, costs, as a well as benefits, shared by several stakeholders. Noosa is well-positioned to leverage existing living labs for the benefit of the community, with the Noosa Biosphere and the FireTech Living Lab demonstrating the local appetite for innovation and providing a strong bedrock of success on which to build.

The transition towards smart cities is a global phenomenon which, when aligned with existing progress in the green research and the living lab space, demonstrates that the continued development of living labs in Noosa presents a high-value opportunity for Council.

6.5.5 Sustainable Fashion

Sustainable fashion is one of the fastest growing green industries globally (2016-2021) (LinkedIn, 2022). Traditional fashion workers, including fashion designers, stylists, and merchandisers, are increasingly applying sustainable fashion skills to their work to align to consumer demand. This includes many apparel and clothing industries across Australia promoting products made of natural fibres (bamboo, merino, and organic cotton).

For example, Blocktexx, the textile recovery facility based in Logan, is monetising textile waste and creating new green fashion frontiers. In their second investment round, Blocktexx secured $5.5 million capital from private investment and government funding. Another example from Finland where Infinited Fibre, a cellulosic/cotton recycler, has developed a 500-tonne-per-year industrial plant to use its 'carbomate' chemical separation process to produce its 'Infinited Fibre', like a viscose or a lyocell.

At some stage, Noosa can leverage its popularity as a tourism and retail hub to position itself as a green fashion hub. This may include organising green fashion international fair to promote green fashion products and attract interested visitors and well-known exhibitors, such as: Tyton Biosciences, BlockTexx, Worn Again and Fibersort Consortium. Noosa can also explore the possibility of establishing itself as a trading centre of green fashion. However, despite the emerging global trend towards sustainable fashion, local strengths and advantages do not

immediately align with this opportunity, and thus it may be prudent to pursue this opportunity in a subsequent iteration of the Green Economy Industry Development Plan.

6.5.6 Circular Economy & Waste Management

The circular economy is an innovative model for viewing with products and services so that they are regenerative by design. This closely aligns with the adopted definition of green economy in this Report. On a national level, the Australian Circular Economy ACE Hub is committed to facilitating and accelerating the transition to a circular economy in Australia. The ACE Hub's key role is to establish the network that will support collaboration and knowledge-sharing so that all those active in circularity in Australia can optimise their collective impact.

Circular economic activity is expected to represent $210 billion in value as part of Australia's GDP by 2048. This transition into a circular economy requires economic analysis, preservation and sharing of knowledge, strong governance and ongoing monitoring and evaluation. To this end, Noosa can play a important role in piloting and implementing circular economy activities that are green in and of themselves, but also act to enhance sustainability and environmental outcomes in other industries. Thus, the concept of a circular economy can be applied and promoted in other identified opportunity areas, such as ecotourism and sustainable fashion. Circular economies can also attract green professionals and entrepreneurs to work and invest.

The following two opportunities are pertinent to Noosa as they not only circulate recycled materials but use such materials in clean renewable energy generation and clean energy consumption.

Renewable Energy: Noosa can explore the possibility of establishing a solar energy panel recycling centre. This in turn will create new jobs but most importantly promote clean source of energy using recycled materials. Lotus Energy is one example of a specialised Melbourne based company that reuses 100% of the recovered materials of solar panels.

Electric Vehicles (EVs): EVs include electric cars, bikes and scooters are reliant on batteries. In a 2020 report, CSIRO estimated that each tonne of lithium-ion battery waste could be worth between $4,400 and $17,200 in materials. That could amount to a few thousand dollars for each EV on the road – and up to $3.2 billion nationally by 2036. Recycling EV batteries still requires more research and many challenges remain in place, highlighting the need for green tech hubs and living labs to explore solutions to such problems. Nevertheless, Noosa can explore the possibility of establishing EV battery recycling excellence centre to manage battery recycling and conduct relevant research.

However, given these challenges, the need to further develop local waste management capabilities, and a lack of obvious local competitive advantages, it may not be prudent to pursue this opportunity in the short term, in favour of other high-value opportunities.

6.5.7 Sustainable Transport

Air pollution emitted from transportation contributes to smog and poor air quality. Globally, transportation accounts for between 15% and 20% of emissions each year. Transitioning to more sustainable transportation methods is therefore a great way for a region reduce its ecological footprint whilst building its local green economy, and represents a key trend of the global green economy.

Ride sharing offers new, sustainable, convenient transportation. Mobility as a Service (MaaS) is a potential alternative to the current transportation system into a more seamless, flexible and sustainable one.

MaaS could be useful to Noosa considering the growing residential and tourist requirements. Appropriate MaaS solutions can provide seamless and convenient experience to tourists and residents alike. Noosa may leverage the Noosa Heads Transport Hub to further explore increasing e-bike availability, e-bike ridesharing Apps, intermodal park and ride, and 3rd party ridesharing. However, given the presence of other opportunities which both align with global growth prospects and local strengths, it may be prudent to prioritise other high-value opportunities in the first iteration of the Green Economy Industry Development Plan.

6.6 Enablers

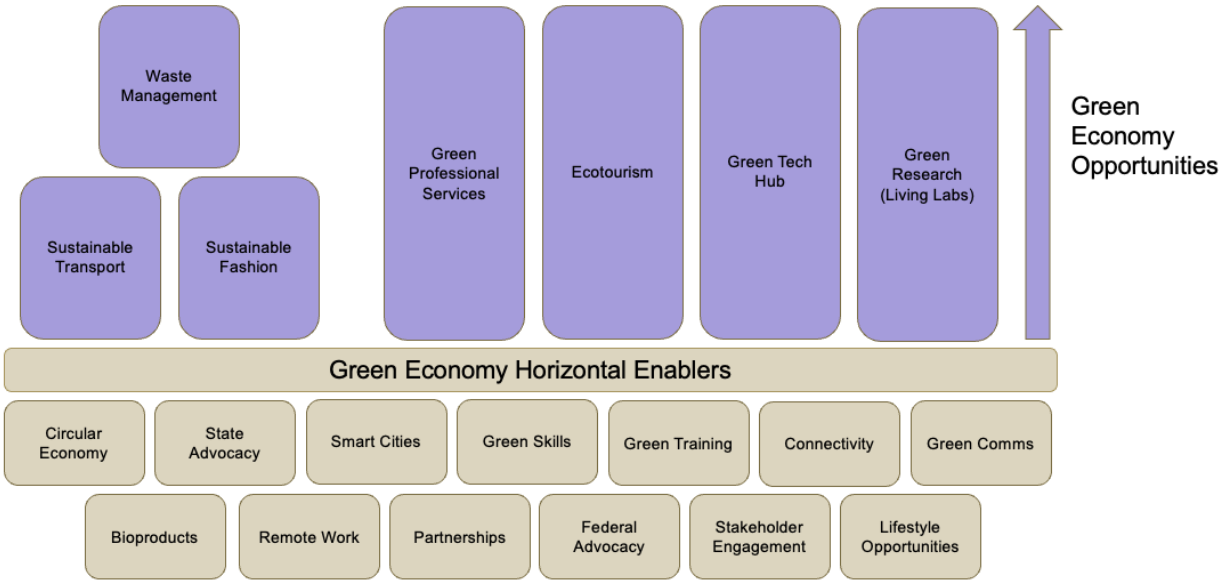
The above 'vertical' opportunities provide Noosa with 7 areas of potential growth. These opportunities and any other new opportunities require a solid foundation of horizontal enablers (figure 26). In developing its Green Economy Industry Development Plan, it is envisioned that Noosa Council will define the strategic vision, priorities, objectives, and action plan. The strategic vision should aim to build a robust green economy as a complete ecosystem. The strategy should also establish horizontal enablers for Noosa to accelerate green economy industry development, such as, smart tech, net zero, circular economies, smart working, green communication and awareness, green skills, training, and education, etc.

Raising awareness and fostering practices of a circular economy help develop by cutting across several areas of green economy activity. Sharing, leasing, reusing, repairing, refurbishing, and recycling of existing material and products are all part of the circular economy framework that addresses environmental sustainability. "The core idea is to 'close the entire loop' of the production cycle (cradle-to-cradle) and maximise the recycling and re-use of material. The concept promotes new product design to facilitate such re-use and recycling, as well as new product-service models that transform the way we consume and who owns the product." (Green Economy Coalition, 2019).

Similarly, building green skills and capabilities through education, training and practice will enable every green economy opportunity. Whether it is green professional service, ecotourism, green tech hub or green fashion, these opportunities are all reliant on environmental sustainability knowledge. Noosa's strategic vision can aim even higher by establishing Noosa's green economy as a knowledge-based green economy. This will not only serve all vertical growth area but enable the export knowledge to other destinations.

Smart Tech and smart infrastructure can also horizontally benefit all green economy verticals. Having the right infrastructure in place will attract green professionals, ecotourists and green investment to Noosa. It will also support innovation and enable entrepreneurs to test new solutions to sustain environment. Smart tech and innovation can also be used to widely monitor natural life, analyse environmental data and ensure timely actions; a dedicated and formalised smart city agenda can help to channel the benefit of digital technology which can be leveraged to improve green economy outcomes.

FIGURE 26. GREEN ECONOMY ENABLERS



When considering green economy enablers, the following three concepts should be closely considered by Council:

6.6.1 Work & Leisure

COVID-19 saw a shift in the ways in which people work, with technology and connectivity enabling work from home. This dramatic change has impacted the travel sector, with many leisure destinations considering a model of developing permanent locations for professionals who are willing to relocate and 'melt' work with social convenience. Noosa has already built a very good brand as a tourist and retirement destination. Having the right infrastructure and policy in place can also help attract professionals who would like to relocate temporarily or permanently and export their services from Noosa.

6.6.2 Advocacy

Despite high levels of community support, and the abundance of natural endowments, Council will need to advocate for political, financial and industry support. With the simultaneous transition towards a green economy ongoing at the local, state, and federal levels, Noosa's resources and capabilities will not be fully sufficient to support the development of all green economy opportunities. Therefore, Noosa should align green economy

policy levers with green economy strategic directions of the Queensland and Australian governments, with strategic alignment positioning Noosa to attract government funding and industry interest.

6.6.3 Bioproducts

The Sunshine Coast is an emerging hotspot for biotech activities that Queensland is already taking a lead in. For example, companies like Provectus offer end-to-end solutions for multiple industries, from product development through to commercial production for natural and biosynthetic molecules. Likewise, Servatus and an international joint-venture partner are building a production and research facility at Coolum, Queensland for medical-grade biopharmaceuticals. Bioproducts are a crosscutting domain that enable many of the green economy opportunities previously identified, particularly in sustainable fashion and green tech.

7. Recommendations

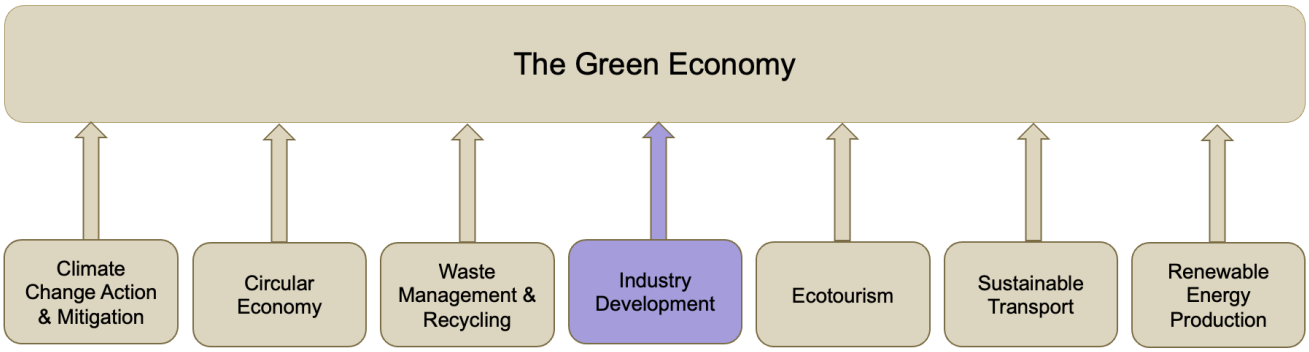
Delos Delta presents the following recommendations based on meeting the stated objectives of the project and to assist in the development of Council's intended Green Economy Industry Development Plan. The research, data and insights provided throughout this Report are critical to these recommendations. The following recommendations have been prioritised in order of strategic relevance as they progress down the strategy pyramid (figure 28).

1. Framework Recognition

To fully develop green economic opportunities available in the region, Council must remain cognisant of the need for a consolidated, overarching green economy framework. This framework should recognise the multidimensional nature of the green economy by providing an integrated and holistic approach to green issues. As a corollary to this recognition, it is important to acknowledge that the development of a successful green economy is not the responsibility of any single actor, but multiple actors within Council and across the private sector. As such, Council should focus resources on initiatives which instigate collaboration between stakeholders across the region.

Noting that several elements of this framework already currently exist within Council operations, the below diagram represents a starting point for evaluating the green economy at the strategic level.

FIGURE 27. RECOMENDED GREEN ECONOMY FRAMEWORK



It is worth noting that the above diagram does not provide an exhaustive list of potential components of the green economy, but as the focus of this Report, and subsequent recommendations, industry development is highlighted as a key area for Council prioritisation.

Recommendation

Recognise the importance of a consolidated green economy framework and commit to building and activating such a framework over time.

2. Green Economy Industry Development Plan

A dedicated industry development plan should be prepared which purposefully targets a range of strategic, policy and associated factors to both accelerate and diversify the development of Noosa's green economy. As a key element of the green economy, industry development merits its own governing roadmap which capitalises on the competitive advantages of the region, global trends, and the policy levers available to Council as evidenced by this Report. As a result, it is recommended that the Green Economy Industry Development Plan considers four initial areas of focus.

Recommendation

Continue to develop a dedicated Green Economy Industry Development Plan, focusing on four areas of specialisation in which Noosa enjoys existing advantages and capabilities.

3. Specialisation Programs

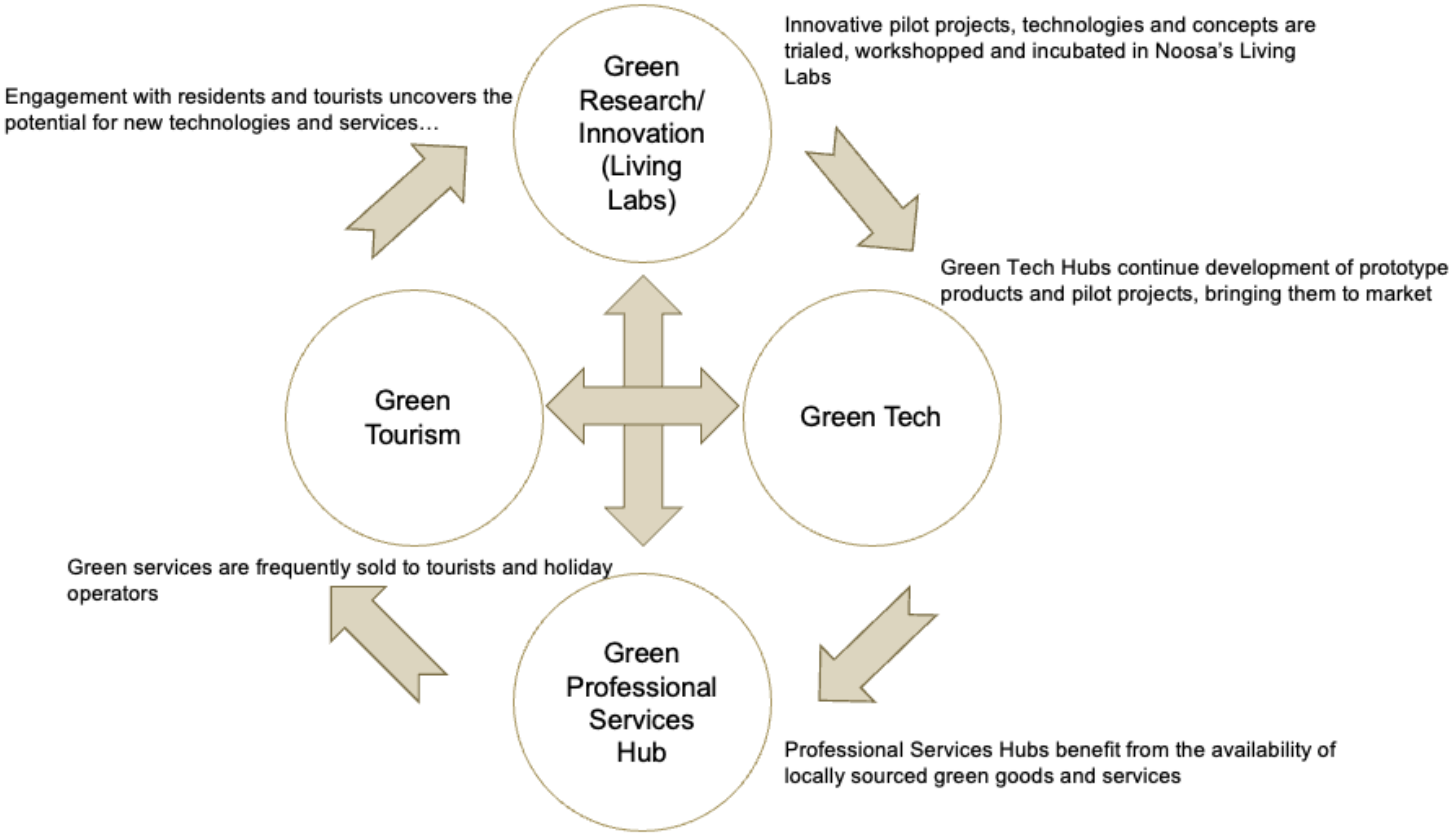
To leverage existing capabilities, allocate resources efficiently, and build lasting competitive advantages for Noosa, it is recommended that Council initially focuses efforts and develops feasibility studies across four sectors; Green Professional Services, Green Tech, Research and Innovation (Living Labs), and Ecotourism. Delos Delta understands that Council is soon to develop a new Destination Management Plan. This being the case, the ecotourism and broader visitation opportunities should be developed via this vehicle. It is envisioned that the remaining three vehicles would be led by distinct and separate vehicles coordinated by Delos Delta.

It is important to note that the rationale behind these focus areas is inextricably linked to the research and analysis contained within this Report. Of the 7 opportunities identified in Section 6.4, Delos Delta recommends developing feasibility studies in the 4 areas with the greatest potential return on investment in the short term. In sum, the recommended focus areas were found to align with global growth prospects, local momentum including strengths, weaknesses, opportunities, and threats, and the analysis of Noosa's current and predicted green economy. It is also useful to highlight the synergy across the areas of specialisation recommended for immediate consideration by Council. Figure 27 demonstrates the interdependent and reinforcing benefits which are expected to accrue to the region as a result of targeted industry development undertaken by Council.

Recommendation

Initially prioritise green economy industry development across four focus areas, which capitalise on synergistic benefits; Green Professional Services, Green Tech, Research and Innovation (Living Labs), and Ecotourism.

FIGURE 28. THE SYNERGIES BETWEEN GREEN RESEARCH, GREEN TECH, PROFESSIONAL SERVICE HUBS, AND TOURISM



4. Diversifying Noosa's Green Economy Into the Future

Only once the four building blocks of the initial Green Economy Industry Plan are in place, is it recommended that Council explore other areas and sectors for specialisation including some of the additional opportunities identified in Section 6.4 (including waste management industry development and sustainable transport industry development).

Delos Delta appreciates that a successful green economy is diverse and multi-faceted. A desirable future-state for the green economy in Noosa should therefore look to support a wide variety of green industries including those sectors without historic strength in the region. Due to synergistic and reinforcing benefits, however, it is recommended that Council helps develop green economy specialisations in which the region is currently predisposed towards. By drawing on existing strengths, Noosa will be more readily able to promote cross-industry collaboration, attract skilled workers to the region and rapidly grow its green economy. Given the tendency for industries such as waste management and recycling to favour large regional hubs, it will prove more difficult, but not impossible, to develop these areas of Noosa's green economy. By reprioritising these area of focus at a later date, they will stand to benefit from the pre-existence and availability of other industries, infrastructure, skills and workers in Noosa's green economy. In short, Council should prioritise the easy wins first.

Recommendation

Reconsider the scope of the Green Economy Industry Development Plan after the successful implementation of the four preferred areas of specialisation.

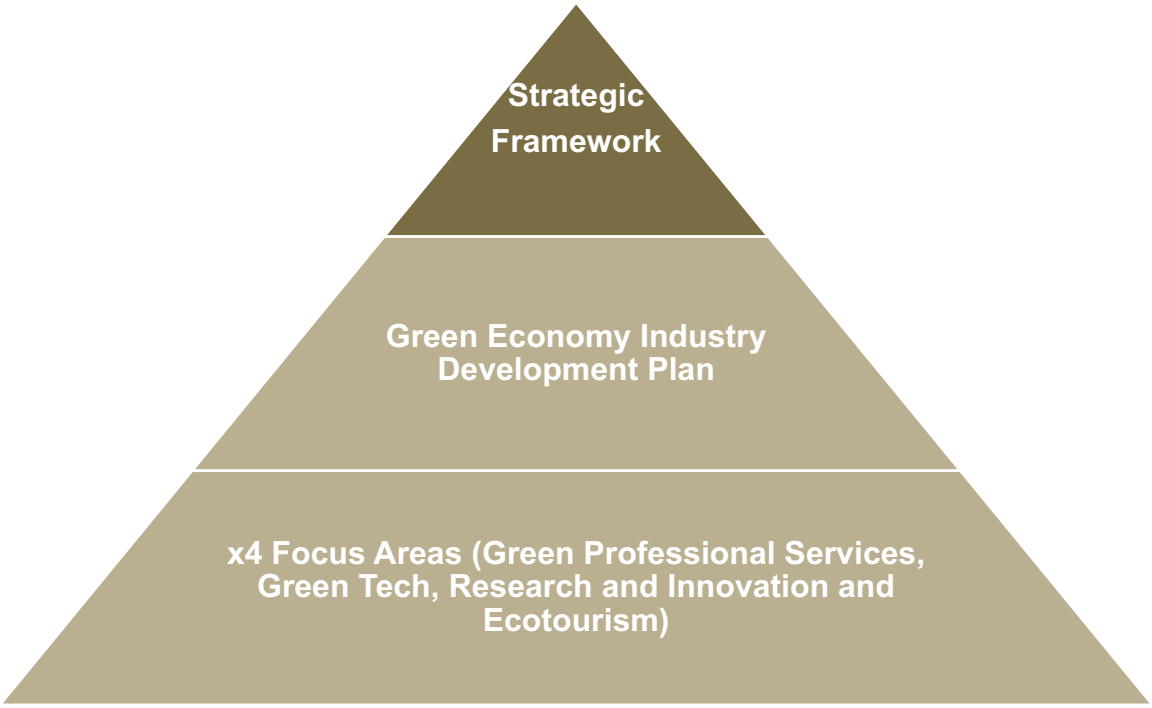
4. Review and Advocate

Delos Delta expects the various elements of the Green Economy Industry Development Plan to come together slowly, guided by the oversight of a robust implementation plan developed to ensure project fruition. It is expected that the implementation plan will enable the regular monitoring and review of industry development projects. The importance of partnerships cannot be understated, and a level of lobbying and advocacy will be required to ensure that the Queensland and Australian Governments effectively collaborate with Council's agenda.

Recommendation

Monitor and regularly review the progress of the Green Economy Industry Development Plan, embedding robust advocacy and partnership models.

FIGURE 29. THE GREEN ECONOMY STRATEGIC PYRAMID



As noted above, Delos Delta recommends that the Noosa Council – Economic Development Unit considers further feasibility studies in the four focus areas outlined in the recommendations. The nomination of the recommended focus areas is based on factors evidenced throughout the Report including:

- The current and future position of Noosa's green economy
- Insights from the Noosa SWOT analysis
- National and International trends

The strategic pyramid (figure 28) offers a broad overview of the proposed implementation progression of recommendations in that it sets out the need for Council to develop a comprehensive and holistic framework first before moving into specific programs.

To further illuminate the recommendations, the below table highlights some of the possible risks and challenges associated with the recommended focus areas, as well as some of the policies and actions that can be leveraged to grow Noosa's green economy in the context of industry development and high value jobs.

	Green Professional Services Hub	Green Tech Hub	Ecotourism	Research/ Innovation (Living Lab)
Current position and future potential	▶ Relatively high green job postings in: • Financial and Insurance Services • Professional, Scientific and Technical Services • Administrative and Support Services ▶ Relatively high green intensity in: • Financial and Insurance Services • Professional, Scientific and Technical Services • Administrative and Support Services ▶ Very high growth rate in green jobs in: • Financial and Insurance Services • Public Administration and Safety	▶ Relatively high green job postings in: • Professional, Scientific and Technical Services • Electricity, Gas, Water and Waste Services • Education and Training ▶ Relatively high green intensity in: • Professional, Scientific and Technical Services • Electricity, Gas, Water and Waste Services ▶ Very high growth rate in green jobs in: • Electricity, Gas, Water and Waste Services • Public Administration and Safety	▶ Relatively high green job postings in: • Education and Training • Administrative and Support Services ▶ Relatively high green intensity in: • Administrative and Support Services ▶ Very high growth rate in green jobs in: • Accommodation and Food Services • Public Administration and Safety	▶ Relatively high green job postings in: • Professional, Scientific and Technical Services • Electricity, Gas, Water and Waste Services • Education and Training ▶ Relatively high green intensity in: • Professional, Scientific and Technical Services • Electricity, Gas, Water and Waste Services ▶ Very high growth rate in green jobs in: • Electricity, Gas, Water and Waste Services • Public Administration and Safety
Insights from Noosa SWOT analysis	▶ Attractive destination for peaceful and environment friendly lifestyle	▶ The Peregian Digital Hub ▶ New opportunities to retain and attract youth	▶ Attractive destination for tourism activities ▶ A key component of economic activity	▶ The FireTech 2020 program ▶ New opportunities to retain and attract youth

	Green Professional Services Hub	Green Tech Hub	Ecotourism	Research/ Innovation (Living Lab)
National and International trends	▶ National trend, particularly in big cities like Sydney and Melbourne ▶ Global green finance has grown exponentially in the past decade ▶ Booming global consultancy services in green economy ▶ New workplace dynamics allows work from everywhere	▶ Australian Clean Energy Innovation Hub ▶ South Sydney transforms to green tech office precinct ▶ The next 1,000 unicorns will be green energy companies (global estimate). ▶ 210% growth in investment year-on-year (global estimate)	▶ The trend towards Ecommodation among millennials ▶ Unique destinations gaining traction among tourists ▶ Rise of social media positively impacting the travel industry	▶ Australian Clean Energy Innovation Hub ▶ South Sydney transforms to green tech office precinct ▶ The next 1,000 unicorns will be green energy companies (global estimate). ▶ 210% growth in investment year-on-year (global estimate)
Risks and challenges	▶ Competition from other LGAs such as Cairns, and other overseas locations ▶ Low quality infrastructure ▶ High cost of relocation and living ▶ Strict and long process migration schemes	▶ Competition from other LGAs such as Cairns ▶ Low quality infrastructure and connectivity ▶ Housing affordability and availability	▶ Risk of climate change inaction and damage to natural endowments	▶ Lack of collaboration between industry and academia ▶ Comfortability with pilot or prototype project failure ▶
Policies/actions	▶ To attract specialised green professionals from overseas, visa process should be considered with state and federal governments. ▶ Policy actions should consider all aspects of liveability ▶ Other incentives might be considered such as: funding, promotion, training, conferences, etc. ▶ Green Economy Industry Development Plan	▶ Green Economy Industry Development Plan ▶ Policy actions should consider the horizontal enablers necessary to develop a successful tech hub (connectivity, etc).	▶ Policy actions should seek to protect natural endowments. ▶ Destination Management Plan ▶ Green Economy Industry Development Plan ▶ Noosa Environment Strategy	▶ Green Economy Industry Development Plan ▶ Policy actions should aim to foster collaboration between industry, academia and related business services. ▶ To communicate that Noosa is open to pilot projects and risk-taking or entrepreneurial endeavours.

7.1 Next Steps

This Research and Analysis Report provides an initial exploration of the trends and size of Noosa's green economy for Council to consider when developing its Green Economy Industry Development Plan. A series of recommendations followed a multi-dimensional analysis of global trends, green jobs in Noosa, and local context. These recommendations are tailored to accelerate the growth of Noosa's green economy, with high-value opportunities identified as those which make use of existing local strengths, expertise, skills, and endowments, and align with global trends in the green economy. It is ultimately up to Council to decide how best to advance this agenda. This Report is for consideration by Council, who may accept/note/decline the recommendations, either in part or in full, in joint consideration with internal advice, and other political and policy imperatives.

This Research and Analysis Report should be accompanied by additional steps to translate the enclosed insights and recommendations into strategic vision and actionable plans. The purpose of stakeholder engagement workshopping is to raise awareness about the green economy in Noosa and obtain feedback about the potential opportunities and the challenges. Stakeholder feedback is crucial in developing tailored green economy opportunities which build on the initial insights of this Report.

This Research and the Feasibility Reports will inform the final Green Economy Industry Development Plan to be completed by Noosa Council. The purpose of the intended Green Economy Industry Development Plan is to accelerate the economic impact of the green economy locally and regionally, to build the capacity of the local industry and achieve a structural transformation that provides higher value jobs and additional investment.

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Appendix – Methodology

Despite the growing trend of greening the economy and introducing completely new economy streams, green economy is not currently measured by the national statistics authority ABS. This challenge has been addressed by leading research institutions by using green jobs as a proxy to estimate the value of green economy. Having this said does not mean that measuring green jobs is an easy task. It is in fact very delicate process and has some limitations and caveats that should be considered.

Online job posting has become the standard way of advertising jobs. Even if not 100% of jobs are posted online, still can be considered as a very good representing sample of total jobs. The available historical data of job ads is a very rich data source that can be used to analyse in-demand skills, demanding industries, job types and occupations. For the purpose of this report, Lightcast (formerly Burning Glass) LabourInsight database was used as a powerful platform to identify job postings in a particular area over time. The platform provides the capability of searching job ads by industry, skill, occupation, etc.

As per the adopted definition of the green economy, this report counts green jobs that are placed in the 'green focused' subset. Green jobs are the jobs that clearly require green skills in their job descriptions. The following sample of keywords were used to filter total job postings:

Agribusiness	Agtech	Climate	Waste Management	Ecotourism	Emissions	ClimateTech
Environment	Solar	Circular	Renewable Energy	Sustainability	Conservation	Green
Renewable	Wind	EV	Water treatment	Biofutures	Recycling	

This process of searching total job postings and identifying green job postings was carried out through a number of iterations to ensure the highest possible level of accuracy. Green job postings were further analysed to identify growth rate of green job postings over time, top in-demand green skills, top industries requiring green jobs, and green intensity.

Green intensity is a calculated as a ratio of number of green job postings to total number of job postings at a certain location in the same period of time. Green intensity was also calculated on industry level to understand the level of concentration of green jobs in different industries.

Total number of green jobs is calculated by multiplying the 'green intensity" factor by total number of jobs that is published by ABS. Similarly, the estimated value of green economy is calculated by multiplying the 'green intensity" factor by the total value of Gross Regional Product that is published by ABS.

Caveats and Assumptions

1. The lowest level of job postings data is available at the Statistical Area 4. Sunshine Coast data was used to calculate the green intensity factor in Noosa, assuming that Noosa shares most of the features and characteristics of Sunshine Coast.
2. Job postings is a very acceptable statistical sample of total jobs. Yet, like any other sample, there is an expected error factor.