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Green entrepreneurship in Denmark: assessment and policy recommendations

Denmark has the foundations to build a robust and fruitful green entrepreneurship ecosystem, namely an environmentally-conscious population, a world-leading research base in environmental fields, an ambitious climate agenda and a proven track record in lowering greenhouse gas emissions. These foundations are bolstered by the plethora of policy instruments that are available to support the formation and growth of green entrepreneurial ventures through the provision of loans, grants and investment, access to networks and a range of other measures. Despite this potential, Denmark lags behind other OECD countries in certain areas, most notably in the relative shortage of green entrepreneurs that successfully scale up. This chapter provides an overview of green entrepreneurship in Denmark, examining the opportunities, challenges and policy landscape and proposes policy actions to strengthen support for green entrepreneurship.

Highlights

Foundations for boosting green entrepreneurship

- Data from the European Commission's Eurobarometer survey show that the environment and climate change is the most pressing issue for the Danish public, with 51% listing it as being among the top two issues facing the country. This compares to 33% that identified health and 20% that identified the economic situation in Denmark.
- Environment-related technologies accounted for 24% of Danish patents in 2018, which is the highest share in the OECD. This illustrates the relative advantage that Denmark has in green technologies, underpinned by its world-leading research in fields such as energy.
- Denmark has moved faster and further than other OECD countries in reducing its greenhouse gas emissions. In 2020, CO₂ emissions in Denmark were 50% below their 1990 level.

Current state of green entrepreneurship ecosystem

- While Denmark is an established global player in green entrepreneurship, it is not yet a leading hub. In Startup Genome's 2022 rankings, 12 cleantech start-up ecosystems in Europe rank higher than Copenhagen, including three in Scandinavia.
- Start-ups in the environmental technology sector account for a larger than average share of employment, while scale-ups in the sector account for a below average share. This suggests that green start-ups in Denmark face particular difficulties in scaling up.
- Insufficient access to funding appears to be inhibiting the growth of Danish green start-ups. Denmark's venture capital market is small relative to other European countries such as the UK or Sweden, which limits the degree of investment compartmentalisation.

Green entrepreneurship policy landscape

- Finance for green entrepreneurship is supported by a range of dedicated funding instruments that are available through public entities, including the Danish Green Investment Fund, the Danish Growth Fund, Innovation Fund Denmark and a number of development and demonstration programmes.
- National cluster organisations such as Energy Cluster Denmark and CLEAN work to build a bridge between Denmark's research and business communities.
- Denmark has in place a wide range of further support measures that target entrepreneurs more generally. Among these are the six regional business hubs, the *Virksomhedsguiden* portal and Denmark's network of incubators and accelerators, including Beyond Beta.

Core policy recommendations

- Develop a unified green entrepreneurship strategy to align the public and private actors engaged in supporting green entrepreneurship. It would be important to include a green entrepreneurship data strategy to monitor progress and inform future policy development.
- Develop a one-stop shop for green entrepreneurship support to increase visibility of available services.
- Increase support for specialised incubators and accelerators, including the introduction of dedicated programmes for green entrepreneurs within existing incubators and accelerators.

Denmark has the potential to be a world leader in green entrepreneurship

Denmark's green entrepreneurship landscape is ripe with opportunity. In general, a strong green entrepreneurship ecosystem relies upon:

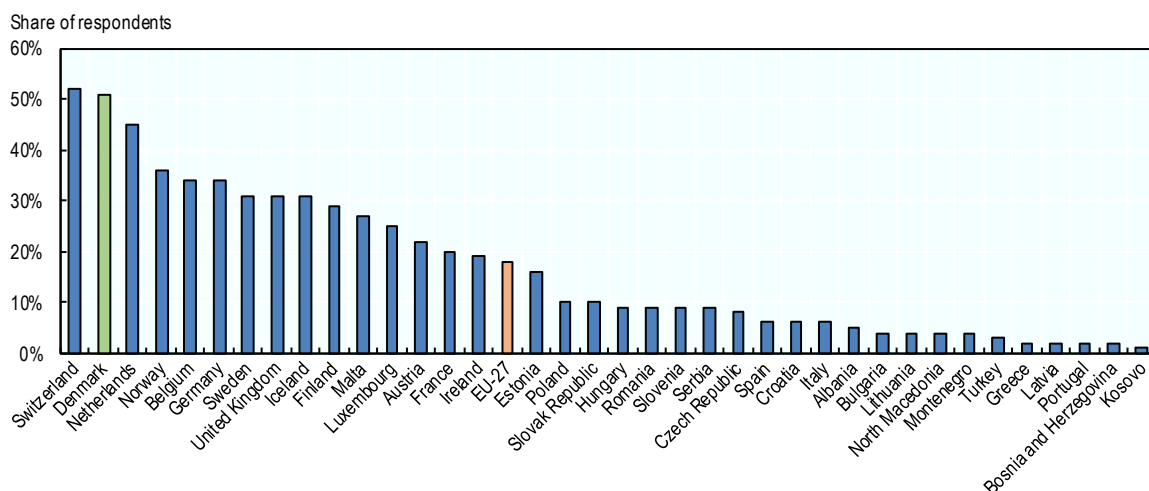
- A strong demand for green goods and services;
- The availability of the skills, infrastructure and technology necessary to develop green products, and;
- A policy framework that supports entrepreneurs in developing green products and converting these innovations into viable and scalable businesses, for instance by promoting access to finance, facilities or training.

In a number of these areas, Denmark stands out as having particularly strong foundations for a thriving green entrepreneurship ecosystem.

Danes are among the most environmentally conscious people in Europe

Opportunities for green entrepreneurs are often underpinned by consumer demand for green goods and services. Therefore, public attitudes towards the environment can influence the health of a green entrepreneurship ecosystem when these environmental concerns translate into a demand for green products. In the Spring 2021 iteration of the European Commission's Eurobarometer, 51% of Danes listed the environment and climate change as being among the top two most important issues facing the country (European Commission, 2021^[11]). This is the highest share in the European Union (EU) and the second highest share out of the 41 countries covered by the Eurobarometer (Figure 1.1).

Figure 1.1. The majority of Danes list the environment and climate change as being one of the top two issues facing the country

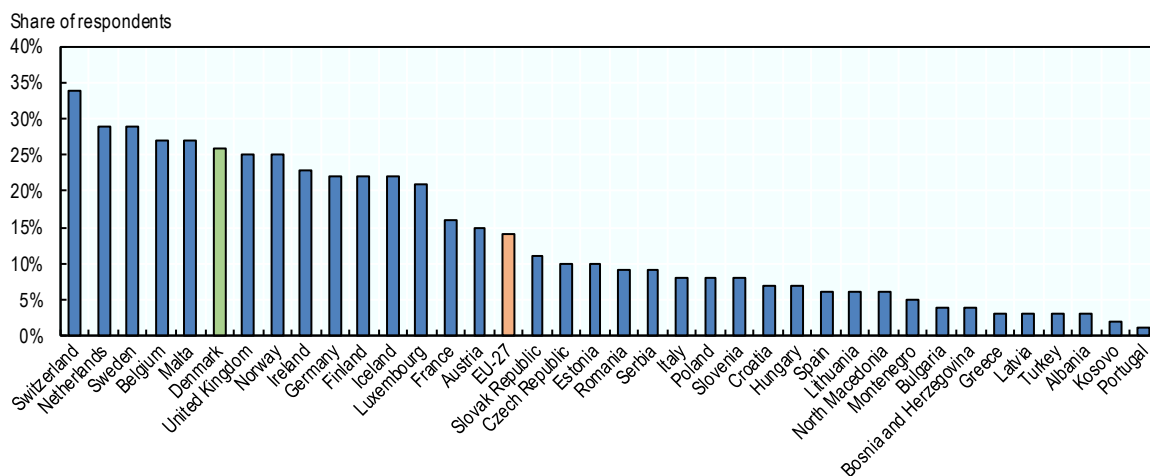


Source: (European Commission, 2021^[11])

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Danes are also concerned about environmental matters on a personal level. Indeed, more than one-quarter (26%) of respondents cited the environment and climate change as being one of the two most important issues facing them personally (Figure 1.2). Health was the only area that was of greater concern to Danes on a personal level.

Figure 1.2. The share of Danes listing the environment and climate change as being one of the top two issues facing themselves personally is the sixth highest in Europe



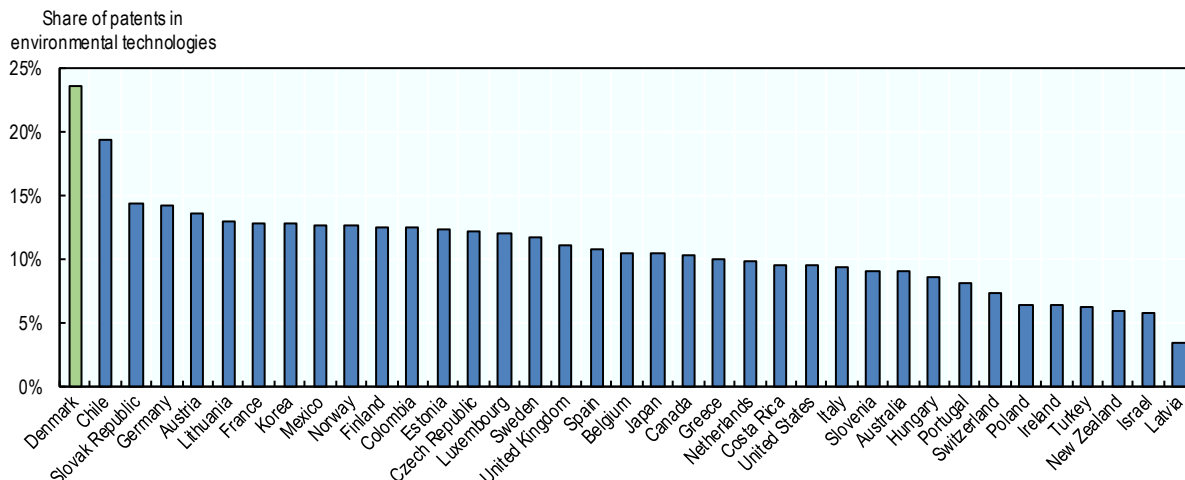
Source: (European Commission, 2021^[1])

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Denmark has a relative advantage in green innovation

Denmark is a country with high levels of innovation. The number of patents per capita was the ninth highest in the OECD in 2017 (OECD, 2022^[2]) and Denmark has a relative advantage in environmental innovation, with environment-related technologies accounting for 24% of Danish patents in 2018 (Figure 1.3). This represents by far the highest share in the OECD. These results show that Denmark punches well above its weight when it comes to innovation and, in particular, green innovation. This applies not only to the development of new technologies – as reflected in the patenting data – but also to the development of new knowledge. For instance, Denmark is a world leader when it comes to energy research, ranking second in the number of publications per million inhabitants between 2013 and 2017 and fourth on the number of citations (IRIS Group & CLEAN, 2019^[3]). Furthermore, Copenhagen is part of the STRING megaregion, which has been identified by the OECD as having the potential to become an internationally recognised green hub by virtue of its existing green expertise, high levels of innovation and ambitious infrastructure development plans (OECD, 2021^[4]).

Figure 1.3. The share of patents in environmental technologies in Denmark is by far the highest in the OECD



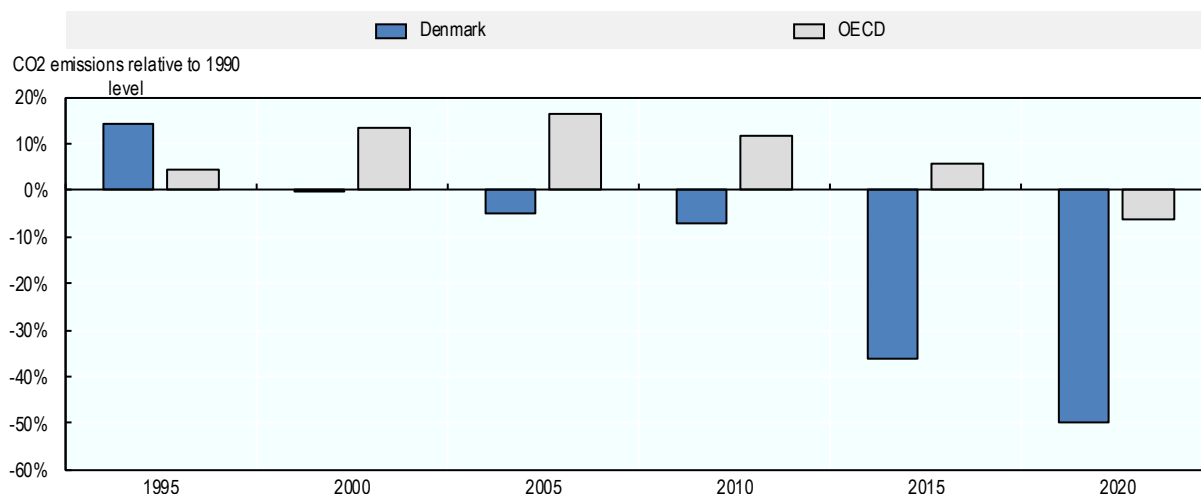
Source: (OECD, 2022^[5])

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The Danish government has an ambitious climate agenda

Denmark’s Climate Act aims to ensure that Denmark lowers its greenhouse gas emissions by 70% below 1990 levels by 2030. This goes over and above the EU’s target of lowering greenhouse gas emissions by 55% over the same period. In recent decades, Denmark has made firm progress in shrinking the size of its carbon footprint (Figure 1.4). In 2020, CO₂ emissions in Denmark were already 50% below their 1990 level. By contrast, across the OECD as a whole, CO₂ emissions in 2020 were just 6% lower than in 1990. Therefore, Denmark has a strong head start over other countries on the path towards net zero.

Figure 1.4. Denmark has moved faster and further than other OECD countries in lowering greenhouse gas emissions

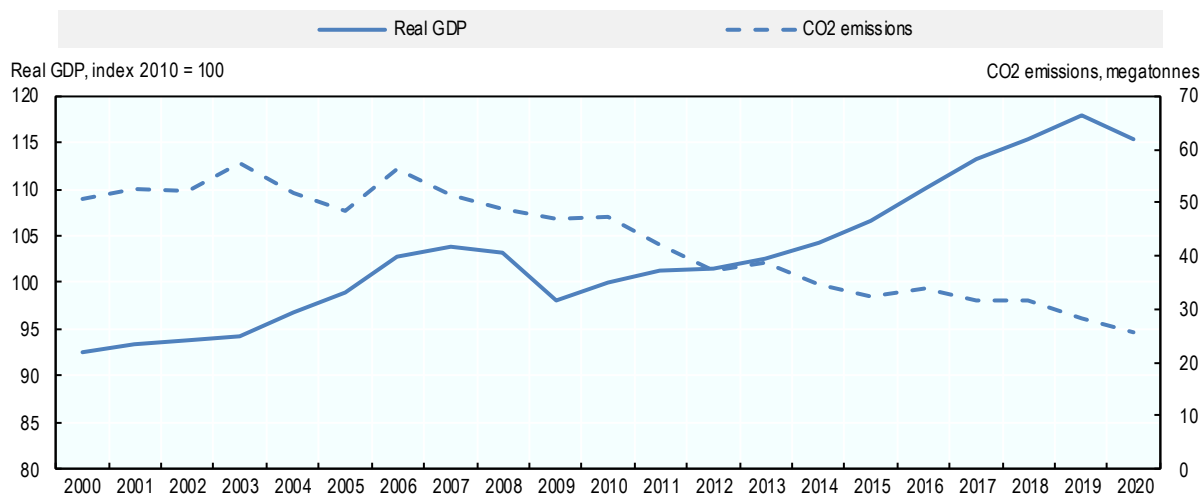


Source: (International Energy Agency, 2022^[6])

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The performance of the Danish economy over the past two decades suggests that the reduction of emissions has not come at the expense of economic growth. Indeed, Denmark’s real GDP increased by 25% between 2000 and 2020 (Figure 1.5). During the same period, Denmark’s CO₂ emissions were halved.¹

Figure 1.5. Falling emissions have not halted economic growth in Denmark

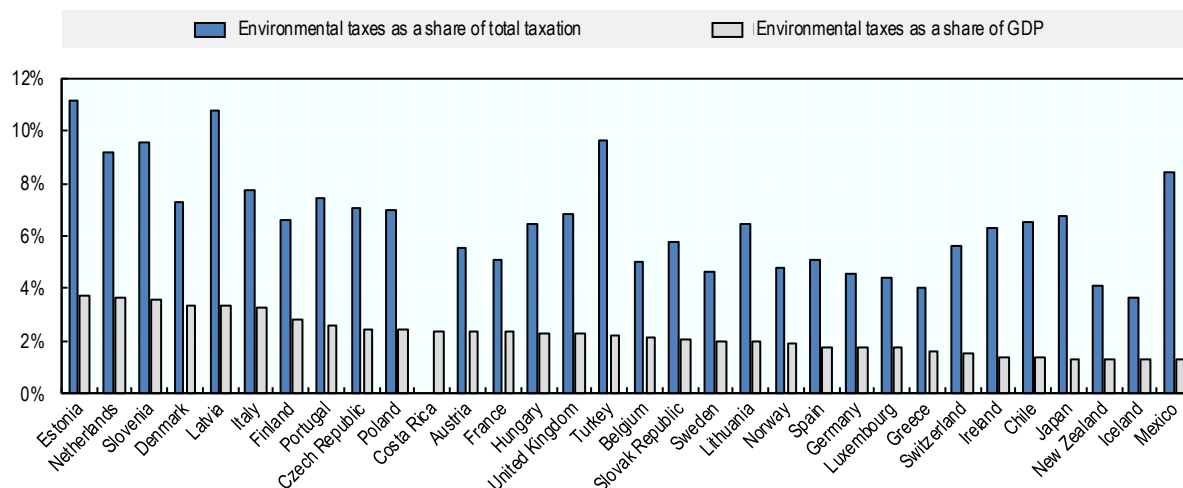


Source: (International Energy Agency, 2022^[6]), (Eurostat, 2022^[7])

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Denmark’s climate commitments are backed up by a tax regime which, relative to other OECD countries, places a high penalty on polluting activities. Environmental taxes can make it easier for green entrepreneurs to establish a market share by providing green products with a competitive advantage over more polluting alternatives. In 2019, the value of environmental taxes equated to 3.4% of Denmark’s GDP (Figure 1.6). Within the OECD, this figure was surpassed only in Estonia, the Netherlands and Slovenia.

Figure 1.6. Environmental taxation as a share of GDP in Denmark is the fourth highest in the OECD



Source: (OECD, 2022^[8])

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Denmark's green entrepreneurship ecosystem has not yet broken through as a leader on the world stage

Denmark has internationally competitive start-up ecosystems...

The level of public support, political will and technological innovation in Denmark implies that the country has the potential to build a world leading green entrepreneurship ecosystem. Strengths have been identified in areas such as wind technology, water technology, energy efficiency and environmental technologies including pollution mitigation and waste reduction (Ministry of Industry, 2021^[9]) (Escalona, 2021^[10]). However, at present, the evidence suggests that Denmark has not quite reached a leading position in terms of its green entrepreneurship ecosystems.

Copenhagen is placed among the world's 31st - 35th leading cleantech start-up ecosystems in Startup Genome's global 2022 rankings (Startup Genome, 2022^[11]). Within Europe, 12 cleantech start-up ecosystems ranked higher than Copenhagen, including three that are located in Scandinavia. The gap in the rankings between Copenhagen and Stockholm – which is Europe's top ranked cleantech start-up ecosystem – is driven principally by significant differences in the number of successful start-ups and funding deals. Startup Genome's analysis finds that the relative strengths of Copenhagen's start-up ecosystem are its research output and level of technological sophistication.

...but green start-ups in Denmark face difficulties in scaling up

Green start-ups account for an above-average share of employment but green scale-ups account for a below-average share. According to data provided by Statistics Denmark, start-ups (i.e. firms aged five years old or younger) in the environmental technology sector accounted for 15% of total employment in the sector in 2019. This compares to a figure of 14% for the business economy as a whole. However, scale-ups (i.e. firms that experienced an annualised growth rate in either employment or turnover of at least 10% over a three-year period having started the period with at least 10 employees) in the environmental technology sector accounted for 19% of employment. This is below the economy-wide average figure of 22%. The fact that start-ups in environmental technology have a larger than average employment footprint while scale-ups in the sector have a below average footprint suggest that green start-ups in Denmark face particular difficulties in scaling up. Indeed, many of the green start-ups featured in TechBBQ's Impact Series identified scaling up as a key challenge. Other issues that were frequently raised are persuading existing industries to embrace change and communicating with potential customers (TECH BBQ, 2022^[12]).

Insufficient access to funding may be inhibiting the growth of green start-ups. Denmark's venture capital market is small relative to other European countries such as the UK or Sweden, which limits the degree of investment compartmentalisation (Escalona, 2021^[10]). This implies a reduced prevalence of industry-specific venture capital funds, which may inhibit the level of financing received by green start-ups in Denmark. Indeed, TechBBQ's analysis of data from the Danish Venture Capital and Private Equity Association finds that just 7% of venture capital investments in Denmark between 2016 and 2020 were directed towards the cleantech sector, with the majority occurring in the ICT or life science sectors (Escalona, 2021^[10]). Investments in green start-ups often require more time to recoup. Also, the societal value of green start-ups' activities is not always fully captured by the financial metrics that are of most interest to traditional investors.

Current policy approaches to directly promote and support green entrepreneurs

Denmark has a range of dedicated policy measures to support green entrepreneurs by providing access to finance, networks, business support services, export promotion, incubation and acceleration, and

entrepreneurship education. The legal and regulatory framework also supports green entrepreneurs by raising the demand for green products and solutions. The remainder of this section describes the key policy initiatives that are in place to support green entrepreneurs in Denmark, covering measures at both the domestic and EU-level.

Entrepreneurship financing

Green entrepreneurs in Denmark have the opportunity to tap into a number of public funding sources. The Danish Growth Fund seeks to fill financing gaps left by the private sector by providing a range of financing support measures to entrepreneurs including loans, convertible loans, loan guarantees and direct equity investments. As part of the Danish Green Future Fund, which is a DKK 25 billion commitment designed to support the green transition, DKK 4 billion has been directed to the Danish Growth Fund to finance green businesses in Denmark.

In partnership with financial institutions, the Danish Green Investment Fund lends up to 60% of the costs of environmentally beneficial projects in the areas of energy, food and agriculture, buildings and infrastructure, materials and resources, and transport and mobility. It provides loans of up to DKK 400 million, with a maturity of up to 30 years. The state guaranteed lending limit for the Danish Green Investment Fund was lifted from DKK 2 billion to DKK 8 billion as part of the Danish Green Future Fund. In 2020, the value of outstanding loans issued by the fund stood at DKK 1 649 million. It should be noted that support is available to companies of all sizes, meaning that this initiative does not specifically target entrepreneurs.

As part of the 2022 Agreement on Strong and Innovative Companies, the Danish Growth Fund, Export Credit Agency (EKF) and Danish Green Investment Fund will gradually be merged into a single fund: the Danish Export and Investment Fund. The rationale for the merger is to facilitate synergies between the different funding entities and to make it easier for the design of government funding opportunities to adapt to international developments in a coherent manner. A focus of the Danish Export and Investment Fund will be to strengthen the green transition, which will entail support for green entrepreneurs.

Grants are made available to green entrepreneurs through Innovation Fund Denmark, which is a public investment fund that supports entrepreneurs, businesses and researchers with the potential to develop solutions to societal challenges. Investments are evaluated based on social welfare and environmental factors in addition to financial results, and there is a focus on supporting high risk and high potential projects that may have otherwise found it difficult to obtain finance. One of the three areas that the fund prioritises is climate, environment and green change. In the agreement on the 2021 research reserve, DKK 1.2 billion of investment was assigned to the Innovation Fund to invest in green research initiatives.

Denmark has in place a number of technology development and demonstration programmes, which are an important source of funding for entrepreneurs looking to develop innovative technologies. The Danish Ministry of the Environment oversees the Environmental Technology Development and Demonstration Programme. In 2021, DKK 140 million was made available to companies, research institutions or individuals for the development of environmental technology solutions. The Energy Technology Development and Demonstration Programme supports new technologies in the field of energy that contribute to Denmark's climate objectives. DKK 543 million was made available in the most recent round of funding in 2021. The Ministry of Food, Agriculture and Fisheries runs the Green Development and Demonstration Program, which funds projects that solve important challenges for the Danish food industry while contributing to food, business and environmental policy objectives. In 2020, the programme had a total budget of DKK 259 million.

Funding opportunities are also available to Danish start-ups and scale-ups through the European Innovation Council (EIC), which was established under the EU Horizon Europe programme. The EIC's work programme comprises three programmes: the EIC Accelerator programme, which provides finance

to prospective entrepreneurs, start-ups, SMEs and, in rare cases, larger businesses with up to 499 employees, the EIC Accelerator programme, which offers grants for innovation activities as well direct equity investments and convertible loans to support market deployment and scaling up activities, and the EIC Pathfinder programme, which distributes grants of up to EUR 4 million per consortia comprising at least three independent entities established in at least three different eligible countries. The purpose of these grants is to help the selected consortia to develop proofs of concept. Each of these programmes specifically target green entrepreneurship related themes as part of their scope. For instance, the EIC Pathfinder programme will issue challenge calls on the topics of carbon dioxide management and energy storage, while the EIC Transition programme allocates funding for green digital devices and clean energy technologies. Meanwhile, a significant portion of the EUR 1.2 billion allocated to the EIC Accelerator programme in 2022 will be directed to technologies that contribute to meeting the EU's 2030 climate target.

Networks

The Danish Board of Business Development has identified 13 sector strongholds and emerging industries, characterised by their significant contribution to the Danish economy and high level of international competitiveness. Two of these sector strongholds – environmental technology and energy technology – relate closely to the area of green entrepreneurship. In order to strengthen innovation and co-operation within the sector strongholds, a number of cluster organisations were launched in January 2021, with one cluster for each of the sector strongholds. The public funding allocated to the national cluster organisations between 2021 and 2024 is approximately DKK 640 million. In addition, most cluster organisations also receive funding from various national initiatives and European Union (EU) funded programmes.

The national cluster organisations aim to build a bridge between Denmark's research and business communities, hosting events which bring companies, research institutions and policy makers together in order to facilitate the formation of strategic partnerships. The national clusters also support entrepreneurs in realising their growth aspirations by connecting businesses with potential domestic and overseas partners to spur innovation. For instance, the national cluster organisation for the environmental technology sector stronghold (CLEAN) is a partner of the EU Techbridge project, which matches North American customers with European SMEs with innovative water and energy solutions.

Business support services

Denmark's six regional business hubs provide specialised advice to Danish companies, including entrepreneurs, as well as grants and support services to targeted groups. The business hubs serve as a juncture in the business promotion system, helping companies to navigate the various support measures that are available from a range of sources. In 2021, 4 790 businesses received specialised guidance through the business hubs, with three-quarters of these companies also referred to appropriate public or private advisers. Each hub covers multiple municipalities. More localised business development and government administrative services are provided by the municipal business development offices.

The 2022 Agreement on Strong and Innovative Companies also sets aside DKK 1 billion for the formation of eight local business lighthouses, tasked with future-proofing Danish strengths. The majority of these lighthouses will focus on green technology areas. For instance, the business lighthouse for Bornholm will seek to make the island the Baltic Sea's hub for green transport and a centre for offshore wind and green energy testing. Meanwhile, the business lighthouse for North Jutland will promote the region's status as an international leader in the capture, use and storage of CO₂.

In 2019, the Danish Business Authority established the *Virksomhedsguiden* portal. The portal provides entrepreneurs with 24/7 access to information and guidance on the rules and available business support services in Denmark. The website received 1.1 million visits in 2021.

Incubators and accelerators

Denmark has a number of publicly supported business incubators and accelerators, which provide accommodation, guidance, training, contacts and funding to Danish entrepreneurs. These programmes help to nurture early stage start-ups and accelerate the growth of more established businesses. Incubator programmes that are of particular relevance to green entrepreneurs are Beyond Beta's Energy Incubator and the GreenUp Accelerator. Beyond Beta's Energy Incubator, which is partially funded by the EU's Recovery Assistance for Cohesion and the Territories of Europe (REACT-EU) package, provides start-ups with access to entrepreneurial networks, mentoring and workshops, to support in the development of a strategic roadmap for the businesses' development. The GreenUp Accelerator is operated by the Technical University of Denmark's Science Park. It is a 20-month acceleration programme that provides participants with a DKK 1 million convertible loan and more than 75 hours of free counselling, with the ambition of creating climate tech start-ups that are ready to tap into international capital markets.

Exporting support

Support to start-ups and firms looking to export is primarily delivered by EKF. It operates an accelerator programme dedicated to Danish companies looking to export clean technologies. A total of DKK 30 million has been made available to finance preparatory business activities as well as short-term visits to potential export markets. EKF also issues credit guarantees, which allow Danish businesses to offer finance to their overseas customers without assuming any credit risk or delay in payment.

In addition, the exporting capabilities of Danish firms are also supported by the Trade Council of the Ministry of Foreign Affairs. The council has a presence in over 70 countries, and provides businesses with knowledge of local markets and contacts in overseas companies and trade organisations. It also has teams of expert advisors with a specialisation in a number of areas that are of relevance to green entrepreneurs, including energy, water and the environment, and food and agriculture. Through its Incubator Scheme, the Trade Council offers physical and virtual incubation services at 23 locations in 15 countries. Furthermore, the Export Sparring programme supports Danish SMEs in developing an export plan, while the Strategic Business Alliance programme facilitates the exchange of local market knowledge, expertise, networks and resources by bringing together Danish exporters.

Entrepreneurship education

The Danish Foundation for Entrepreneurship runs entrepreneurship programmes for pupils, students and teachers and allocates funds to entrepreneurship projects in educational institutions. The foundation's 2020-25 strategy sets out an aim for 300 000 pupils and students to receive entrepreneurship education during the 2023-24 school year. Another objective is for 20 000 teachers and educators to receive training from the foundation during the strategy period. In order to encourage young people to pursue their entrepreneurial ideas, the foundation also provides grants of up to DKK 50 000 to new enterprises established by students.

Building demand for green entrepreneurs' products and solutions

There is an array of laws, regulations and policy initiatives in place in Denmark that stoke demand for the green goods and services being developed by green entrepreneurs, often by attaching costs to or imposing limits on environmentally unsustainable practices. Many of these measures are at the EU-level.

EU-level measures

Emissions Trading System

The European Union Emissions Trading System (EU ETS) sets a cap on the amount of greenhouse gas emissions that can be emitted by entities covered by the system (European Commission, 2022^[13]). This creates a carbon market, whereby emissions allowances are bought, received or traded. This in turn applies a cost to generating greenhouse gas emissions. Currently, the sectors covered by the EU ETS are electricity and heat generation, energy-intensive industrial sectors and commercial aviation within the European Economic Area. However, the European Commission has published proposals to expand the coverage of the EU ETS to include maritime activities and to introduce a separate emissions trading system for fuels used in road transport and buildings. Alongside this, the European Commission is proposing to establish a related Social Climate Fund, whose size will be linked to revenues from the auctioning of emissions allowances under the emissions trading system for fuels. This fund would finance measures and investments to increase energy efficiency, decarbonise the heating and cooling of buildings, and improve access to zero and low emission-emission transport.

Effort Sharing Regulation

The EU's Effort Sharing legislation establishes binding targets for EU Member States to reduce their greenhouse gas emissions from sectors not covered by the EU ETS. The targets set differ across countries. The target for Denmark is to reduce greenhouse gas emissions by 39% relative to 2005 levels, which is the joint-third highest targeted reduction in the EU. While the sectors covered by the EU ETS are regulated at the EU-level, Member States are responsible for implementing policies relating to sectors covered by the Effort Sharing Regulation.

Land use, forestry and agriculture regulations

EU legislation requires Member States to ensure that greenhouse gas emissions arising from land use are fully balanced by an equivalent removal of CO₂ from the atmosphere (European Parliament, 2018^[14]). This incentivises more climate-friendly land use and practices.² The European Commission has also published proposals for changes to the regulatory framework in this area, with the objective of reaching climate neutrality in the EU's combined land use, forestry and agriculture sector by 2035. The proposals include setting explicit CO₂ removal targets for each Member State.

Danish measures

Climate targets

The 2020 Climate Act establishes the target of reducing Denmark's greenhouse gas emissions in 2030 by 70% compared to the 1990 level. The law also stipulates that at least every five years, a new national climate target must be set for the subsequent ten-year period that is at least as ambitious as its predecessor. Furthermore, the Danish Council on Climate Change reports annually to the Minister for Climate, Energy and Utilities on Denmark's progress in relation to its climate targets. This framework helps to ensure that the green transition remains a continued area of focus for policy makers. The policy stability that this provides can also encourage individuals and businesses to invest in green technologies, products and solutions.

Greening of energy and industry

The Climate Agreement for Energy and Industry 2020 includes a number of measures that will bolster the demand for green goods and services in Denmark. These include tax incentives to accelerate the transition

of the heating sector away from fossil fuels and towards green district heating or electric heat pumps, energy savings requirements for public buildings, and investments in renewable energy and green tech.

Waste management

The Climate Agreement for Waste Management sets out a commitment to create a climate-neutral waste sector by 2030 by transitioning from incineration to recycling. This agreement includes measures to improve recycling companies' access to recyclable waste and support businesses in developing and implementing technologies for recycling.

The Danish Government's Action Plan for Circular Economy sets out a variety of steps that can help to prevent and manage waste. These include the mandatory use of eco-labels in public procurement, the provision of guidance and professional advice, extended producer responsibility for packaging, requirements for public tenders, and regulatory changes, including a ban on certain types of single-use plastics. Denmark also has a number of programmes to support businesses in implementing circular economy practices, such as the Green and Circular Transformation in SMEs project in Zealand. These measures stoke demand for the products and solutions being developed by green entrepreneurs.

Public procurement

The Partnership for Green Public Procurement aims to leverage the considerable purchasing power of the public sector in order to support the greening of the Danish economy. Members of the partnership are obliged to follow the partnership's procurement goals and have a publicly available procurement policy which demonstrates that environmental considerations are an essential factor in determining purchasing decisions. Among the members of the partnership are 14 of Denmark's 98 municipalities (including the four most populous municipalities of Copenhagen, Aarhus, Aalborg and Odense), the central and southern regions of Denmark, and the Ministry of the Environment and Food. In 2020, the Ministry of Finance also launched a strategy for green public procurement, which sets out a variety of measures including the purchase of organic foods and eco-labelled products and a commitment to making the public sector vehicle fleet emissions free by 2030.

Policy proposals: building a green entrepreneurship hub

A range of policy recommendations have been developed for the promotion of green entrepreneurship in Denmark. These policy proposals have been developed through a comparative analysis with policy actions in Canada, Germany and Israel, which seeks to identify practices that could be used to address policy gaps in Denmark (see Chapter 4 for the country case studies and a discussion of the lessons learned). Table 1.1 provides a summary of these proposals, along with the entities that should be responsible for overseeing the implementation of each of the recommendations.

Table 1.1. Summary of policy recommendations and responsible entities

| Policy recommendation | Responsible entities |
|---|--|
| 1. Develop a unified green entrepreneurship strategy with periodic monitoring reports | <ul style="list-style-type: none"> • Ministry of Industry, Business and Financial Affairs • Ministry of Climate, Energy and Utilities • Ministry of Environment and Food • Statistics Denmark |
| 2. Develop a one-stop shop for green entrepreneurship support | <ul style="list-style-type: none"> • Danish Business Authority • Relevant government ministries |
| 3. Support specialised incubators and accelerators that build on local advantages | <ul style="list-style-type: none"> • Danish Board of Business Development • Danish Business Authority, as a secretariat of the Danish Board of Business Development • Ministry of Higher Education and Science • Selected universities |

| | |
|---|---|
| | <ul style="list-style-type: none"> Selected private incubators and accelerators |
| 4. Co-ordinate with private sector actors in the design and implementation of programmes | <ul style="list-style-type: none"> Danish Board of Business Development Danish Business Authority, as a secretariat of the Danish Board of Business Development Innovation Fund Denmark |
| 5. Help green entrepreneurs to access global markets | <ul style="list-style-type: none"> EKF Trade Council of the Ministry of Foreign Affairs of Denmark Innovation Centre Denmark CLEAN Energy Cluster Denmark |
| 6. Unleash the potential of public procurement as a driver of change | <ul style="list-style-type: none"> Ministry of Finance Government ministries responsible for purchasing decisions National Centre for Public Sector Innovation (CO-PI) Partnership for Green Public Procurement |
| 7. Seek to ensure that regulatory frameworks are conducive to green entrepreneurship | <ul style="list-style-type: none"> Danish Business Authority Relevant government ministries |
| 8. Harness consumers' environmental concerns to stoke demand for green products | <ul style="list-style-type: none"> Danish Business Authority Ecolabelling Denmark Danish Environmental Protection Agency Danish Veterinary and Food Administration Danish Competition and Consumer Authority |
| 9. Expand green entrepreneurship training and education | <ul style="list-style-type: none"> Ministry of Higher Education and Science Ministry of Children and Education Selected educational and research institutions, including universities, vocational institutes and GTS Institutes. |
| 10. Foster the development of networks within the green entrepreneurship ecosystem | <ul style="list-style-type: none"> Relevant national cluster organisations, including CLEAN and Energy Cluster Denmark Private cluster organisations |
| 11. Tailor support programmes to reflect the needs of green entrepreneurs in different sectors and at different stages of development | <ul style="list-style-type: none"> Danish Export and Investment Fund Innovation Fund Denmark Danish Board of Business Development |

1. Develop a unified green entrepreneurship strategy with periodic monitoring reports

Denmark's green entrepreneurship ecosystem could be strengthened by mapping the various policy actors operating within the ecosystem and then developing a unified green entrepreneurship strategy. Denmark has a number of public policy initiatives in place that can foster green entrepreneurship, ranging from the provision of finance through the Danish Growth Fund, Innovation Fund Denmark and the Danish Green Investment Fund to the support of national cluster organisations that specialise in environmental fields. However, the public organisations that support green entrepreneurs often operate independently with a distinct set of priorities and objectives and there is a low level of awareness about the roles of the various actors involved in supporting green entrepreneurship. The development of the unified strategy would help to facilitate the co-ordination of public efforts to build a green entrepreneurship hub in Denmark and ensure that different organisations are pulling in the same direction. The Pan-Canadian Framework on Clean Growth and Climate Change (PCF) could be a model for developing a unified green entrepreneurship strategy (see Chapter 4).

The development of a unified strategy could be led by a dedicated leadership team or task force, with representatives from relevant public authorities, the Danish Export and Investment Fund, Innovation Fund Denmark, selected national cluster organisations, the regional business hubs and prominent universities. This team would have the remit of monitoring progress, bringing together public actors and recommending changes where appropriate.

The unified strategy should contain a set of shared strategic objectives, key performance indicators (KPIs), targets and policy actions which inform the activities of relevant public actors, taking into account the various recommendations and measures described in this report. The KPIs could be a mix of indicators

that relate directly to green entrepreneurship (e.g. number of green start-ups, scale-ups or gazelles, and the corresponding number of jobs, turnover and exports) and indicators that relate to broader sustainability outcomes. More indirect metrics, such as the contribution of the green economy to GDP or employment or levels of funding leveraged, may also be appropriate. The scope of green entrepreneurship encompasses multiple sectors, groups and technologies, which should be taken into account when identifying relevant stakeholders, priorities and actions.

To monitor the implementation of the strategy, the task force could oversee the development of periodic reports on the state of green entrepreneurship in Denmark, which would provide an update on the initiatives that are in place and the progress that has been made towards green entrepreneurship targets. These regular reports could also provide a basis for revising and updating the strategy for fostering green entrepreneurship in Denmark in a way that is responsive to policy experiences, market trends and climate developments. It is important to note that, while having a dynamic approach can be beneficial given the fast changing nature of the green entrepreneurship field, this should be balanced with the need to provide participants in the green entrepreneurship ecosystem with stability and clarity over the future course of public policies, initiatives and incentives.

Data is key to monitoring the implementation of the unified green entrepreneurship strategy, as well as to assessing the overall health of the green entrepreneurship ecosystem and Denmark's progress in the green transition. To facilitate this, it would be instructive to create a green entrepreneurship data strategy, drawing inspiration from Canada's Clean Technology Data Strategy (see Chapter 4). This strategy should establish a clear and consistent understanding of which businesses are included within the scope of green entrepreneurship, which could be defined in collaboration with Statistics Denmark. It should also include the development of periodic publications that provide timely information on the number of green start-ups and scale-ups in Denmark, the sectors they operate in, and the economic footprint they generate, in terms of employment, revenue and gross value added. The green entrepreneurship data strategy could form part of a broader green economy data strategy, which monitors the steps being taken by established businesses to implement green solutions and reduce their environmental impact. An option here would be to introduce an environmental indicator(s) to the existing Business Tendency Surveys. In order to swiftly identify emerging trends, it could also be beneficial to develop new sources of data, such as recurring surveys of green start-ups, similar to the approach used for the Green Startup Monitor in Germany (see Chapter 4).

To inform future policy directions and ensure that public funds are being used effectively, it is important to assess whether the initiatives laid out in the strategy are having their intended impact on green entrepreneurship outcomes. This can be achieved through the development and implementation of a monitoring and evaluation strategy for green entrepreneurship policy initiatives, which could form part of the unified green entrepreneurship strategy. Where feasible, this should include impact evaluations for specific programmes, which involve comparing outcomes among businesses participating in a programme (the treatment group) with those of comparable businesses that are not participating in the programme (the control group).

2. Develop a one-stop shop for green entrepreneurship support

Denmark's six regional hubs, together with the *Virksomhedsguiden* portal, aim to operate as a one-stop shop for Danish entrepreneurs and SMEs, providing a roadmap for entrepreneurs to navigate the various support options and schemes that are available to them. There is a clear demand for these services, with the portal receiving 1.1 million website visits in 2021. However, there is currently insufficient visibility of green entrepreneurship initiatives in these information hubs. This information gap will grow as the scale and scope of initiatives for green entrepreneurs becomes larger and more complex. The six regional hubs and the *Virksomhedsguiden* portal could give greater visibility about events, organisations, schemes, opportunities and projects that are of relevance to green entrepreneurs.

Given the range of parties involved within green entrepreneurship ecosystems, it is important to provide both virtual and physical single points of contact, where all relevant information can be gathered and provided to green entrepreneurs, start-ups, researchers, and any other interested citizens or entities. It is also important for policy initiatives to distinguish between the two distinct activities of implementing existing green solutions and developing new green solutions. Green entrepreneurs, as defined in this report, are principally engaged in the latter. While the *Virksomhedsguiden* portal does currently have a page for green businesses, the focus is predominantly on the greening of established businesses through the implementation of green technologies. A good starting point would therefore be to create a dedicated page for green entrepreneurs on the *Virksomhedsguiden* portal, which targets entrepreneurs with innovative green solutions looking to bring these ideas to market. Strengthening signposting services can boost the uptake of public programmes. For instance, the value of loans issued through the Danish Green Investment Fund is currently well below the allocated limit, suggesting that increased awareness of the programme among entrepreneurs and other entities could help this scheme to achieve a greater reach and impact.

3. Support specialised incubators and accelerators that build on local advantages

Business incubators and accelerators play an important role in stimulating the emergence and growth of new enterprises yet there are few specialised programmes for green entrepreneurs in Denmark. The specialisation in green activities and technologies allows for the delivery of tailored advice, coaching, facilities and infrastructure. They can also bring together businesses, investors and other relevant stakeholders that support green entrepreneurs, facilitating the formation of networks and strategic partnerships, as well as knowledge spill-overs and resource sharing.

Two different approaches can be used to increase the availability of specialised incubation and acceleration programmes for green entrepreneurs. First, increased financial support could be provided to incubators and accelerators that specialise in green technologies so that they can scale up their activities. Alternatively, a greater number of dedicated programmes for green entrepreneurs could be introduced within existing incubators and accelerators. For example, there is experience and expertise within the Beyond Beta start-up programme in the areas of environmental technologies, energy technologies and the circular economy, through the involvement of the national cluster organisations. These knowledge resources could be leveraged by developing programmes within Beyond Beta that are dedicated to cohorts of green entrepreneurs in Denmark. Inspiration could be drawn from Israel's approach to creating theme-based incubators by selecting and funding private organisations to manage the incubators through a competitive tender process. The Israel Innovation Authority recently announced the formation of five incubators, one of which will focus on nurturing climate tech start-ups (see Chapter 4).

Green incubators and accelerators in Denmark would also benefit from building local assets and sources of comparative advantage into their value proposition. These include supporting new start-ups in offshore wind and energy efficient technologies. Two models of how to nest incubation programmes within a specialised ecosystem were identified in Canada, namely Start-up Yard at the Centre for Ocean Ventures and Entrepreneurship and the MaRS Discovery District (see Chapter 4). The former utilises its proximity to the water in order to attract ocean start-ups, while the latter focuses on the benefits that the density of its urban location can bring in terms of networking, knowledge transfer and relationship building. Both have been effective at building international relationships with a range of actors to support entrepreneurs within the incubators and to attract new entrepreneurs to the programmes.

4. Engage with private sector actors in the design and implementation of programmes

To ensure that resources are directed towards areas that can deliver results for Denmark in the future, both economically and environmentally, the focus of public support measures should be sensitive to cues from the private sector and responsive to fast-moving developments in technologies and markets. In all three case study countries, many of the public initiatives to foster green entrepreneurship are strengthened

by collaborations with the private sector. For instance, through its Incubator Programme, the Israel Innovation Authority (IIA) invites private groups to apply to operate an incubator that focuses on a particular area. The IIA then provides the incubators with 85% of the initial budget of investments. The IIA's decisions as to which fields or technologies to support are informed to a large extent by signals from the private sector, in order to ensure that the industries being promoted are competitive and commercially viable.

5. Help green entrepreneurs to access global markets

Denmark has a relatively small domestic market, which means that tapping into overseas markets is particularly important for entrepreneurs in realising their growth ambitions. Data compiled by Statistics Denmark suggest that green start-ups in Denmark are slightly less likely to export than other Danish start-ups – 12% of start-ups in the environmental technology sector were exporters in 2019, compared to 13% of start-ups across all sectors. Policies can support green entrepreneurs in this area by building knowledge of overseas markets and fostering links with international businesses, customers and investors. A number of supports are already in place such as the EKF's Green Accelerator programme, but these could be scaled up to help green entrepreneurs reach overseas markets. Another potentially potent tool is the formation of partnerships between Danish incubators or cluster organisations and their international counterparts, which can provide “soft-landings” for green entrepreneurs as they enter overseas markets. International connections can be created, for instance, by reaching out to universities or incubators with complementary programmes, participating in ecosystem visits and contacting consulates to invite international start-ups to visit Danish incubators or clusters.

6. Unleash the potential of public procurement as a driver of change

Public procurement is an area of great potential, with Danish public sector purchases of goods and services amounting to an estimated EUR 50 billion per year (State of Green, 2020_[15]). Through the Partnership for Green Public Procurement, Denmark already has in place a ready-to-go framework for raising the demand for green entrepreneurs' products and solutions. At present, only a minority of municipalities and regions are included in the partnership. Expanding the coverage of the partnership to cover the rest of Denmark would go a long way in helping to create a marketplace that is more conducive to green entrepreneurship. Inspiration can also be drawn from Germany's public procurement regulations, which establish strict criteria for the environmental sustainability of publicly procured goods or services. These include a requirement to, where possible, develop lifecycle forecasts of greenhouse gas emissions caused by procured goods and services.

7. Seek to ensure that regulatory frameworks are conducive to green entrepreneurship

Although regulatory frameworks play a major role in quality assurance and creating a market for green solutions, they can also act as a hurdle for green entrepreneurship. For instance, product market regulations that impose excessive barriers to entry have the potential to restrict competition and stifle entrepreneurship (OECD, 2013_[16]). Some of the key sectors that green entrepreneurs operate in, such as energy and water, are susceptible to competition deficits and barriers to entry due to the network effects that are inherent to these industries. It is therefore important to ensure that legal and regulatory frameworks do not become bottlenecks but rather act as catalysts for the development and market penetration of innovative green solutions created by green entrepreneurs. It should be acknowledged, however, that a significant number of regulations are at the EU-level, which limits the ability of domestic policy makers to implement changes.

Denmark could consider the adoption of special measures in order to accelerate the pace at which green entrepreneurship projects can navigate through the regulatory framework. These measures could include support in developing proofs of concept, the provision of pilot sites for testing solutions or the introduction of fast licensing arrangements. In some cases, it may also be appropriate to define free zones for green

technologies, where special legal or regulatory environments are applied to nurture the fast development and testing of new and innovative green solutions. Regulatory test zones are already in place in Denmark for selected businesses with innovative solutions in the energy sector. Businesses can apply for a regulatory test zone if a number of criteria are met, including that their project promotes the green transition and its implementation is impeded by regulatory barriers.

8. Harness consumers' environmental concerns to stoke demand for green products

The European Commission's latest Eurobarometer survey shows that Danish citizens are among the most environmentally conscious in Europe. The high level of environmental awareness and concern held by consumers is a significant asset for Denmark in its effort to build a hub for green entrepreneurship. A range of measures can be used to leverage this awareness to influence the behaviour of businesses and their supply chains, creating opportunities for green entrepreneurs.

Eco-labelling can be a powerful tool in helping green entrepreneurs in Denmark to build a strong customer base. According to the 2019 Nordic Consumer Survey, 90% of Nordic consumers recognise the Nordic Swan Ecolabel while half of these actively look out for this label when they shop. Green entrepreneurs could benefit from targeted programmes that boost awareness of the option of eco-labelling, provide information on how to apply and provide financial assistance where needed in order to obtain the certification. Support in this area is already being provided by the six Danish Business Hubs via their subsidy schemes, through which businesses can apply for grants to contribute towards the costs of their eco-labelling applications. In Canada, the Business Development Bank of Canada (BDC) has a similar programme in place to help companies receive B Corp certification (see Chapter 4). Continued progress in expanding the list of product groups eligible for eco-labelling would further strengthen Denmark's green entrepreneurship ecosystem by building the demand for green products. For instance, neither the Nordic Swan Ecolabel or the EU-Ecolabel are currently available for food products, which is an area that could be explored in the future.

Another mechanism for bolstering demand for the products and services developed by green entrepreneurs is through climate-related disclosure requirements. These compel large companies to publish information such as their level of greenhouse gas (GHG) emissions and their approach to managing climate-related risks. In October 2021, the Canadian Securities Administrators published details of a proposed instrument that would oblige publicly listed companies to satisfy a number of climate-related reporting requirements. A 2020 study by KPMG found that 88% of the 2 000 largest Danish companies either opted out of reporting their GHG emissions or did not adopt the World Resources Institute's GHG protocol in their reporting. More stringent reporting requirements for large Danish companies could enhance awareness of environmental impacts and risks among consumers and, in particular, investors and other businesses in the supply chain. This in turn could induce a shift towards greener products and solutions within supply chains, creating new market opportunities for green start-ups.

9. Expand green entrepreneurship training and education

Green entrepreneurship education and training can help build a pipeline of green entrepreneurs by stimulating interest among students and helping them develop their capabilities. This is particularly the case in Denmark, where high levels of public engagement on environmental issues create a strong opportunity to provide green entrepreneurship education and training by intersecting entrepreneurship topics with sustainability challenges, concerns or applications. Danish universities are increasingly examining their activities in relation to wider environmental policies or objectives, which is affecting the structure and content of the learning they provide. Some already have agendas in place that to ensure that their operations are consistent with environmental goals. Green entrepreneurship teaching activities can be a strong component of such agendas.

Denmark already has a considerable number of public entities that contribute to green entrepreneurship awareness, teaching and learning. These include the Danish Foundation for Entrepreneurship, the *Virksomhedsguiden* portal, the Danish Business Hubs, the municipality development offices and the Trade Council of the Ministry of Foreign Affairs. By forming partnerships with these public entities and other elements of the green entrepreneurship ecosystem, Denmark's excellent higher education institutions can further improve their offering of sustainability education and green entrepreneurship programmes to a variety of target audiences.

10. Foster the development of networks within the green entrepreneurship ecosystem

Entrepreneurship networks comprised of entrepreneurs, established businesses, research institutions, support organisations, investors, and other private, non-profit and public actors can help start-ups and early-stage businesses overcome skills gaps and improve access to resources. Denmark has invested in building formal networks through the creation of 14 national cluster organisations in the sector strongholds and emerging industries identified by the Business Promotion in Denmark 2020-23 strategy. Membership levels of the national cluster organisations are relatively low, ranging from approximately 200 in the Danish environmental cluster (CLEAN) to more than 500 in the digital technologies cluster. According to data provided by Statistics Denmark, there were more than 9 000 Danish companies in the environmental technology sector in 2019, suggesting that further progress can be made in growing the networks surrounding the national cluster organisations.

The impact of the cluster organisations can be lifted through measures to raise awareness and visibility of the benefits that membership can bring to start-ups, for example through informational campaigns or the dissemination of information via the regional business hubs or the *Virksomhedsguiden* portal. In addition, cluster organisations could engage more start-ups by offering targeted incentives. This could include, for example, exemptions from membership fees, which is not currently the case with all of the cluster organisations. In addition, cluster organisations could be made more relevant for start-ups by increasing their representation in the leadership and/or board membership.

11. Tailor support programmes to reflect the needs of green entrepreneurs in different sectors and at different stages of development

Rather than adopting a one-size-fits-all approach, green entrepreneurship policies and initiatives should be tailored to reflect the different needs of green start-ups and early-stage businesses that operate in different sectors and technology areas. Where appropriate, separate sets of public policies, initiatives and incentives should be implemented for low-tech and high-tech green entrepreneurial ventures. Low-tech green entrepreneurship projects, which could include, for example, a plant-based restaurant or a consultancy firm that advises businesses or consumers on energy efficiency, have different policy needs to high-tech green entrepreneurship projects, such as the development of renewable energy. Even within the category of high-tech green entrepreneurs, the most appropriate policy measures will depend on the corresponding technology readiness levels and will change according to the maturity of the projects.

Green entrepreneurship support offers in Denmark currently favour high-tech start-ups but more can be done to tailor the initiatives offered by entities such as the Danish Growth Fund, Innovation Fund Denmark and Danish Green Investment Fund to the needs of entrepreneurs working on different technologies and at different stages of development. The BDC in Canada is a good case study of co-ordinating and articulating policy support in this way, bringing also a whole of government approach that actively includes several segments of the population in an inclusive way (see Chapter 4). Moreover, even if cleantech is one of the main policy priorities, it is important that low-tech projects also receive public visibility and support because they also have a role in contributing to the achievement of overall environmental and entrepreneurship policy goals. The case study countries offer some examples of initiatives that support

low-tech green entrepreneurs, including the SwitchMed project in Israel that supports green entrepreneurs with non-tech start-ups and the DBU's Green Startup Programme in Germany (see Chapter 4).

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Notes

¹ The 2020 figures for GDP and CO₂ emissions will have been distorted by the effects of the COVID-19 pandemic.

² Biomass and soils act as a sink for CO₂. The use of land or changes in the use of land can therefore have an effect on the amounts of CO₂ in the atmosphere, by triggering CO₂ flows between terrestrial CO₂ reservoirs and the atmosphere.



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