

Hydrogen Action Plan

Partial Business and Regulatory Impact Assessment

November 2021

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1. Purpose and intended effect

On 10 November 2021, the Scottish Government published a draft Hydrogen Action Plan that articulates the actions that will be taken over the next five years to support the development of the hydrogen economy in Scotland and the Scottish Government's efforts to reduce greenhouse gas emissions from Scotland's energy system, homes, industry and transport, while ensuring a just transition.

This document provides an indicative assessment of the impact of the Hydrogen Action Plan on various parties and sectors within the Scottish economy.

1.1 Background

The Scottish Government's overall approach to meeting the country's climate change targets is set out in its Climate Change Plan which outlines a decarbonisation trajectory for each of Scotland's main sectors and describes the policies and proposals that will facilitate these reductions. The plan which was updated in 2020, sets ambitious targets to end Scotland's contribution to climate change by 2045, committing to reduce emissions by 75% by 2030 (compared with 1990) and to net zero by 2045.

While the Scottish Government has not stipulated a preferred mix of technology solutions for enabling Scotland's transition to a net-zero emissions economy, hydrogen represents one such solution, referenced within the Climate Change Plan as a potential mean of decarbonising heat, transport and industrial processes, as well as being a potentially important vector for balancing energy supply and demand.

The Scottish Government published its Hydrogen Policy Statement in December 2020, confirming its support for a strategic approach to the development of a hydrogen economy in Scotland and setting a clear ambition to achieve 5GW of installed hydrogen production capacity by 2030 and 25GW by 2045. The Hydrogen Policy Statement was informed by the Scottish Hydrogen Assessment and a range of other analysis to deepen the evidence base in order to inform the Government's policies on hydrogen going forward. From the assessment, it is clear that hydrogen is not just an energy and emissions reduction opportunity; it could also have an important role in generating new economic opportunities in Scotland.

The Hydrogen Action Plan is now the next step in the development of the government's hydrogen policies and sets out the actions that the Scottish Government's will take forward from 2021-2026 to assist the strategic development of a Scottish hydrogen economy capable of supporting Scotland's energy transition to net zero and a key component of a just green economic recovery.

1.2 Objective

1.2.1 The main objective of the Hydrogen Action Plan is to ensure we take the action needed over the next five years, working in partnership with others, to ensure Scotland is in the best possible position to achieve our ambition of 5GW of hydrogen capacity by 2030. The actions are designed to set Scotland on the pathway to becoming a leading nation by 2045 in the production of reliable, competitive, sustainable hydrogen and provide the potential to secure Scotland's future as a

centre of international excellence as we establish the innovation, skills and supply chain that will underpin our energy transition.

1.2.2 These actions are intended to:

- Drive Scotland's hydrogen production capability to meet an ambition of 5GW of renewable and low-carbon hydrogen by 2030 and at least 25GW by 2045.
- Address current barriers to the uptake of hydrogen including the need to reduce production costs
- Support the growth of Regional Hydrogen Energy Hubs.
- Encourage and stimulate demand for hydrogen by supporting hydrogen use and developing supply chain capability
- Secure broad economic benefit from public sector and private sector support for development of regional hydrogen production and use.
- Encourage the development of a strong hydrogen sector in Scotland which supports a Just Transition to net zero.

1.3 Rationale for Government intervention

1.3.1 The Scottish Government has a strong track record of supporting a number of world-leading hydrogen demonstration projects in Scotland that have assisted in determining the role that hydrogen could play in Scotland's energy system. This section briefly describes why it is unlikely we will realise the scale of hydrogen production and use required to meet our ambitions and at the pace required to meet our climate change targets in the absence of government intervention.

1.3.2 While there are a number of successful demonstration hydrogen projects already in operation in Scotland, the market is immature and commercialisation pathways are not certain or sufficiently proven to negate risks for early project developers. This makes it unlikely for the market to develop at the pace required without government signalling and intervention. These risks include the need for settled long term policy and regulatory frameworks, certainty of offtake or production costs which results in early mover-projects facing greater risks.

1.3.3 To realise the economic, environmental and societal opportunities presented by the growth of a hydrogen sector in Scotland, action must be taken in the short term to create the required environment to help de-risk early projects, to support the growth of the supply chain, to upskill the workforce and to unlock private sector investment.

1.3.4 The Hydrogen Policy Statement published in 2020 confirmed the Scottish Government's position of support for hydrogen production as set out in previous publications, including the Scottish Energy Strategy and the Climate Change Plan (both previously subject to SEA).

1.3.5 The Action Plan reaffirms the Government's support for the development of a Scottish hydrogen economy and sets out the actions that it will take over the coming

5 years to ensure that the development of a hydrogen economy delivers increased environmental, economic and social benefits.

2. Consultation

2.1.1 This consultation on the business and regulatory impacts of the development of a Scottish hydrogen economy is the latest step in the evidence-led approach adopted by the Scottish Government in considering the use of hydrogen and fuel cell technologies in Scotland. Previous work included the Hydrogen Assessment report commissioned by the Scottish Government and published in December 2020.

2.1.2 The final BRIA will take account of this previous work, views received in the course of the consultation and the partial BRIA, and will focus on costs and benefits of the preferred option.

2.2 Within Government

2.2.1 A wide range of directorates, agencies and non-departmental public bodies were consulted during the development of the strategy, including:

- Energy and Climate Change Directorate
- Directorate for Economic Development
- Directorate for Fair Work, Employability and Skills
- Directorate for International Trade and Investment
- Directorate for External Affairs
- EU Directorate
- Directorate For Local Government And Communities
- Marine Scotland Directorate
- Transport Scotland
- Scottish Enterprise
- Highlands and Islands Enterprise
- South of Scotland Enterprise
- Scottish Development International

2.3 Public Consultation

2.3.1 An 8 week public formal consultation will take place between 10 November 2021 and 5 January 2022 to allow stakeholders time to provide their views and feedback on the draft action plan. Scottish Ministers will publish a report setting out the consultation process and the ways in which views expressed during the process have been taken account of in preparing the hydrogen action plan.

2.4 Business

2.4.1 The development of the Hydrogen Action Plan is aligned with the recommendations regarding the development of the hydrogen economy made by the Scottish Energy Advisory Board (SEAB) during the Energy Task Force Joint Business Plan meeting on the 18 March 2021. SEAB provide a forum for strategic discussion on the current and future energy challenges and opportunities for Scotland and is formed by key organisations in the Scottish energy sector, including

the Scottish Government, Scottish Enterprise, Highlands and Islands Enterprise, and from industry and the STUC.

2.4.2 Further discussions are planned with hydrogen and fuel cell businesses during the consultation period, including the Scottish Hydrogen Fuel Cell Association (SHFCA) which hosts some of Scotland's specialised fuel cell companies, power generation companies, academic institutions, research and development bodies, energy consultants, Scottish Enterprise and local enterprise companies and councils with an interest in Hydrogen & Fuel Cells.

3. Options

3.1 Options 1: Do nothing

3.1.1 An assessment like this usually requires consideration of a 'do nothing' option. The Scottish Government could choose not to publish a Hydrogen Action Plan for Scotland.

3.1.2 However, the Scottish Government has committed to publishing the Hydrogen Action Plan in its Programme for Government 20/21 as well as in its previously published Hydrogen Policy Statement. Therefore, the "Do nothing" approach is not a viable option.

Benefits

3.1.3 The staffing, resource and capital costs associated with the Hydrogen Action Plan would not be required.

Costs

3.1.4 There would be significant reputational, political, environmental, social and economic costs for Scotland if Ministers were unable to support the development of a Scottish hydrogen economy due to the Hydrogen Action Plan not being published.

3.1.5 Moreover, failing to provide the sector with a cohesive strategy, long-term vision, objectives and priorities for action could have a detrimental effect on its future growth and development. Hydrogen has been identified as a significant business opportunity for Scotland and the benefits to potential investors, developers and supply chain of having a clear strategic commitment to the development of the sector from Government are therefore significant. Without government intervention in support of the growing sector and transition of the existing supply chain, the full range of benefits that a hydrogen economy could provide may not be effectively realised in the desired timescales.

3.1.6 This would not be in alignment with the Scottish Government's ambitions for the sector or its aspirations to transition to a net zero economy by 2045 and support a just green economic recovery.

3.2 Options 2: Publish a Hydrogen Action Plan

3.2.1 A Hydrogen Action Plan is published as committed in the Scottish Government's Programme for Government 20/21 and 21/22 as well as in its Hydrogen Policy Statement.

Benefits

3.2.2 As outlined above, the development of a Hydrogen Action Plan will be required to ensure that Ministers are able to strategically support, over the coming 5 years, the strategic development of a Scottish hydrogen economy capable of supporting Scotland's energy transition to net zero and a key component of the green economic recovery.

3.2.3 The Hydrogen Action Plan does not propose new policy, but is a complimentary document to be read alongside the Hydrogen Policy Statement. The Hydrogen Action Plan provides details on our planned approach and proposed actions to implement our policy positions between 2021-2026. The exception to this, is the inclusion of a new policy position on unabated hydrogen.

3.2.4 Economic impact scenarios developed the Scottish Hydrogen Assessment Project published in 2020 suggest that in the most ambitious scenario, establishing Scotland as an exporter of renewable hydrogen to Europe, where there is already growing demand, could result in a £25 billion annual gross contribution to Scotland's Gross Value Added (GVA) with over 300,000 jobs supported by 2045.

3.2.5 The report suggests that this would be achieved by unlocking Scotland's vast offshore wind potential, resulting in Scotland producing large-scale, 'green hydrogen' that is competitively priced within a growing European market.

3.2.6 The Scottish Government has a strong track record of supporting a number of hydrogen demonstration projects in Scotland that have assisted in determining the role that hydrogen could play in Scotland's future energy system. The development of a Hydrogen Action Plan is a continuation of that established approach, providing focus for action and assurance to businesses on the direction of travel.

3.2.7 The proposed Government funding and support outlined in the Hydrogen Action Plan will help to de-risk early projects, accelerate the pace of development and stimulate further private sector investment essential to the deployment of renewable and low carbon hydrogen production at scale, whilst also ensuring the benefits of the growing sector are spread geographically across Scotland and facilitate a just transition for our communities and businesses.

Costs

3.2.8 The Hydrogen Action Plan is accompanied by £100 million funding to boost excellence in research, innovation development and demonstration of secure, renewable hydrogen production. This will be provided through the Emerging Energy Technologies Fund (EETF) – a £180m package of funding over five years that will provide capital support to accelerate low carbon infrastructure projects that will be essential to deliver net zero – as committed in the Hydrogen Policy Statement.

3.2.9 The purpose of this hydrogen funding programme is to support the development of a hydrogen economy in Scotland, facilitate a just transition and to help overcome challenges to scaling up hydrogen production and deliver lasting benefits for business and communities.

3.2.10 During the next 5 years, the Scottish Government will invest in the emerging hydrogen sector through its capital funding programme focusing on the following types of activity:

- Regional hydrogen production hubs
- Renewable Hydrogen production linked to demand case
- Innovation

3.2.11 With an emphasis on balancing support for supply and demand and supply chain opportunities along the whole value chain, the EETF will continue to support appropriate pre-commercial projects to accelerate demand and support the sector to move beyond small pilot stage to large scale commercial projects.

3.2.12 Innovation and research across hydrogen production, storage, distribution and end-use technologies will be central to driving the efficiencies, performance optimisation and cost reduction that will underpin the growth of commercial scale hydrogen projects.

3.2.13 A £10m Scottish Hydrogen Innovation Fund, to be launched in early 2022 as part of the EETF, will aim to support Scottish researchers and innovators to drive innovation that will support the realisation of Scotland's 5GW by 2030 ambition and to ensure Scotland benefits from and contributes to the global research and innovation network through international collaboration.

3.2.14 The actions and funding principles set out in the Hydrogen Action Plan intend to enable government, industry and academia to work together to lay some of the early building blocks required to enable the growth of a strong and sustainable hydrogen economy in Scotland. All these represent new and sustainable economic activity and transition opportunity for the Scottish supply chain.

3.2.15 The action plan provides a structured approach for the Scottish Government to support the strategic development of a hydrogen economy in Scotland and is not expected to have negative impact on business operations or impose any additional burdens or duties on the sector.

3.2.16 Following the public consultation, a full BRIA will be developed to assess the costs and benefits of the final plan.

3.3 Sectors and groups affected

3.3.1 The Hydrogen Action Plan will provide a framework for the strategic development of a Scottish hydrogen economy. The actions within the plan to support this will have an impact on the people in Scotland. For some, the impact of these actions will be direct e.g. through increased use of hydrogen fuel across various applications or the availability of funds to develop hydrogen projects. For others, the impact of these actions will be indirect, e.g. through the decarbonisation of hard to abate sectors and the enhancement to air quality.

3.3.2 Actions in the plan will have an impact on hydrogen and fuel cell businesses, from developers supporting the production of hydrogen fuels through to business using hydrogen fuel in different applications.

3.3.3 The main businesses affected by the development of a Scottish hydrogen economy include well established sectors such as oil and gas, subsea, maritime, onshore and offshore renewables, chemicals and petrochemicals and aerospace which contain a wealth of skills and capacity, and for which hydrogen represents an attractive diversification opportunity the economy continues its transition to net zero.

3.3.4 The development of a hydrogen economy will also require a strong domestic supply chain across the whole hydrogen value chain, including engineering, manufacturing, consultancy, and design.

4. Legal Aid Impact Test

4.1.1 It is not anticipated that the action plan will have any effect on individuals' rights of access to justice through the legal aid fund or in an increase in people seeking legal assistance or being taken through the courts.

5. Implementation and Delivery Plan

5.1.1 An 8 week consultation on the draft action plan will be conducted to allow stakeholders adequate time to provide their views and feedback on the draft plan and its associated draft/partial impact assessments. Feedback gathered during the consultation will inform the final plan and the final BRIA.

5.2 Post-implementation review

5.2.1 The finalised Hydrogen Action Plan covers a period from 2021-2026. The Action Plan will be reviewed in the mid-2020s to evaluate progress and to assess the support that will be required to accelerate this progress throughout the second half of the decade.

6. Summary and recommendation

6.1.1 The Scottish Government has undertaken an extensive and comprehensive period of evidence-gathering over the past years which examines the issues, challenges and opportunities presented the development of a Scottish hydrogen economy.

6.1.2 The principles of Government setting strategic direction for the development of a hydrogen economy in Scotland are well established. The economic impact associated with publishing the action plan in addition to the £100m of supportive funding already committed in our 2021/22 Programme for Government, are expected to be outweighed by the benefits to society and businesses.

6.1.3 Based on the analysis above and on the fact that, to enable Ministers to carry out the ambition set in the Hydrogen Policy Statement to support the development of a Scottish hydrogen economy, a Hydrogen Action Plan that meets the requirements and policy positions outlined in the Policy Statement must be in place, the Scottish Government recommends the adoption of Option 2.

Declaration and publication

I have read the Business and Regulatory Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options. I am satisfied that business impact has been assessed with the support of businesses in Scotland.

Signed:



Date

10/11/2021

Michael Matheson

Cabinet Secretary for Net Zero, Energy and Transport

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