Kintore Hydrogen Plant

Environmental Impact Assessment Report
Chapter 18: Summary of Mitigation, Monitoring and Residual Effects

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Kintore Hydrogen
A STATERA COMPANY

Environmental Impact Assessment Report

Volume 2

Chapter 18

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https://www.kintorehydrogen.co.uk/

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Table of Contents

List of Tables

Summary

This document summarises the environmental effects, proposed further mitigation and monitoring, and residual effects predicted in the EIA process undertaken for Kintore Hydrogen Plant. Full details can be found in the individual topic chapters (Volume 2, Chapters 6 to 15) of this Environmental Impact Assessment Report.

1 Summary of Effects

1.1 Purpose of this chapter

1.1.1 This chapter of the Environmental Impact Assessment Report (EIAR) presents the summary of environmental effects, proposed further mitigation and monitoring, and residual effects following the findings of Environmental Impact Assessment (EIA) work undertaken concerning potential impacts and significant effects of Kintore Hydrogen Plant.

1.1.2 These are shown in Table 1.1 overleaf.

1.1.3 In the table, measures adopted as part of the project refers to the embedded or designed-in mitigation, which includes aspects of the design and also management plans and other commitments made through the planning application. The magnitude of impact and significance of effect for sensitive receptors is first summarised with consideration to this embedded mitigation. In subsequent columns, where any further mitigation to reduce adverse effects, or enhancement to beneficial effects, is recommended, these measures are summarised. The residual effect with this further mitigation or enhancement is then re-stated. Finally, the proposed monitoring refers to both embedded and further mitigation or enhancement.

1.1.4 As this is a summary, the descriptions of effects and mitigation are given in abbreviated form. Full details of the environmental assessments can be found in the respective topic chapters (Volume 2, Chapters 6 to 15) of this EIAR.

1.1.5 Summaries of inter-related effects and of cumulative effects with other developments can be found in Chapters 16 and 17 respectively.

Table 1.1: Summary of mitigation, monitoring and residual effects

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Chapter 6: Landscape and Visual							
Construction							
Local Landscape Zone (LLZ) 1 – undulating open farmland	n/a	**Locally moderate-major adverse (significant).** Elsewhere minor adverse (not significant)	n/a	n/a	n/a	**Locally moderate-major adverse (significant).** Elsewhere minor adverse (not significant)	n/a
LLZ2 – undulating forested farmland		Negligible				Negligible	
LLZ3 – settled / industrial		Negligible				Negligible	
Protected and designated landscapes – Bennachie Special Landscape Area		Negligible				Negligible	
Building-based receptor B1 – properties including South Leylodge and Leylodge Schoolhouse		**Moderate-major adverse (significant)**				**Moderate-major adverse (significant)**	
Building-based receptor B2 – Dewsford		**Major adverse (significant)**				**Major adverse (significant)**	
Building-based receptor B3 – properties including Leylodge, East Leylodge and North Leylodge		**Moderate adverse (significant)**				**Moderate adverse (significant)**	
Building-based receptor B7 – properties including Bogfold, Drumnaheath and Wardes		**Moderate adverse (significant)**				**Moderate adverse (significant)**	
Building-based receptors with no significant effects (B4-B6, B8-B27)		Negligible to minor-moderate adverse (not significant)				Negligible to minor-moderate adverse (not significant)	
Route-based receptor R2 – B977		**Moderate adverse (significant)**				**Moderate adverse (significant)**	
Route-based receptors with no significant effects (R1, R3-R6)		Negligible to minor-moderate adverse (not significant)				Negligible to minor-moderate adverse (not significant)	
Operation and maintenance							

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Local Landscape Zone (LLZ) 1 – Undulating open farmland	Areas reserved for landscape planting in the Planning Parameters Plan. However, pending agreement of details of landscape planting post-consent (see further mitigation), effects are assessed prior to mitigation.	**Locally moderate adverse (<u>significant</u>)**. Elsewhere minor adverse (not significant)			Landscape planting as described in Volume 2, Chapter 6: Landscape and Visual of the EIAR.	Potential for localised operational effects to be reduced to not significant	A programme of aftercare and maintenance with monitoring the success of landscape planting establishment during a five year period, as proposed within the Design Principles Statement.
LLZ2 – undulating forested farmland		Negligible			n/a	Negligible	
LLZ3 – settled / industrial		Negligible				Negligible	
Protected and designated landscapes – Bennachie Special Landscape Area		Negligible				Negligible	
Building-based receptor B1 – properties including South Leylodge and Leylodge Schoolhouse		**Moderate-major adverse (<u>significant</u>)**			Landscape planting as described in Volume 2, Chapter 6: Landscape and Visual of the EIAR.	Potential for operational effects to reduce to not significant	
Building-based receptor B2 – Dewsford		**Moderate-major adverse (<u>significant</u>)**			Landscape planting as described in Volume 2, Chapter 6: Landscape and Visual of the EIAR. A Grampian condition imposed to ensure that commissioning and operation of the development cannot occur unless these properties are vacant.	Potential for operational effects to reduce and with Grampian condition, this location would not be considered a visual receptor location for the operational phase and no effect would occur.	
Building-based receptor B7 – properties including Bogfold, Drumnaheath and Wardes		**Moderate adverse (<u>significant</u>)**			Landscape planting as described in Volume 2, Chapter 6: Landscape and Visual of the EIAR.	Potential for operational effects to reduce but **<u>residual significant effect may remain</u>** for a small number (three or fewer) properties that have more elevated views. Maturing of screening planting of the type proposed in the Illustrative Landscape Masterplan in the Design Principles Statement together with the other design measures described in that document could potentially reduce effects to not significant in the longer term.	

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Building-based receptors with no significant effects (B3-B6, B8-B27)		Negligible to minor-moderate adverse (not significant)			Landscape planting as described in Volume 2, Chapter 6: Landscape and Visual of the EIAR.	Potential for operational effects to reduce	
Route-based receptors with no significant effects (R1-R6)		Negligible to minor adverse (not significant)			Landscape planting as described in Volume 2, Chapter 6: Landscape and Visual of the EIAR.	Potential for operational effects to reduce	
Chapter 7: Archaeology and Cultural Heritage							
Construction							
Direct physical impacts to South Leylodge, cattle rubbing stone	n/a	High	Low	Minor adverse (not significant)	Removal of the stone from its current location to avoid potential damage.	Negligible (not significant)	None
Direct physical impacts to 'Greenmoss, building (destroyed)'	n/a	Medium	Low	Minor adverse (not significant)	A programme of archaeological recording and mitigation will be conducted in order to preserve by record any archaeological remains which are disturbed.	Minor adverse (not significant)	None
Direct physical impacts to 'Backstyles, remains of cottages'	n/a	Low	Low	Minor adverse (not significant)		Minor adverse (not significant)	None
Direct physical impacts to 'East Leylodge, pond south of farmstead'	n/a	Medium	Low	Minor adverse (not significant)		Minor adverse (not significant)	None
Direct physical impacts to 'Dewsford, farmstead'	n/a	High	Low	Minor adverse (not significant)		Minor adverse (not significant)	None
Direct physical impacts to 'Dewsford, walls/banks'	n/a	High	Low	Minor adverse (not significant)		Minor adverse (not significant)	None
Direct physical impacts to 'Hill of Boghead, Clearance Cairns'	n/a	High	Low	Minor adverse (not significant)		Minor adverse (not significant)	None
Direct physical impacts to 'North Leylodge, quarries'	n/a	High	Negligible	Minor adverse (not significant)	None	Minor adverse (not significant)	None
Direct physical impacts to 'South Womblehill, pit'	n/a	High	Negligible	Minor adverse (not significant)	None	Minor adverse (not significant)	None
Direct physical impacts to other designated heritage assets	Avoidance of assets by design; demarcated working areas to avoid direct impact as specified in Outline CEMP	No change	High	No effect	None	No effect	None
Direct physical impacts to previously unrecorded archaeological remains	n/a	High	Medium to high	**Moderate to major adverse (significant)**	A programme of archaeological recording and mitigation will be conducted in order to preserve by record any archaeological remains which are disturbed.	Minor adverse (not significant)	None

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Impacts to the settings of designated heritage assets	n/a	No greater than low	Low to high	Temporary and no greater than minor adverse (not significant)	n/a	Temporary and no greater than minor adverse (not significant)	None
Operation and maintenance							
Impacts to the setting of Scheduled Monument 'South Leylodge Steading, stone circle 110 m W of' (SM 12350)	The proposed development has been iteratively designed with attention to minimising visibility of buildings and structures in the landscape (including limits on building heights in different parts of the site based on its topography), and with a proposed masterplan of screening landscape planting.	Low	High	Minor adverse (not significant)	None	Minor adverse (not significant)	None
Impacts to the setting of Scheduled Monument 'South Fornet, stone circle 250 m NW of' (SM 12353)	As above.	Low	High	Minor adverse (not significant)	None	Minor adverse (not significant)	None
Chapter 8: Ecology and Biodiversity							
Construction							
Habitat loss to Loch of Skene Special Protection Area (SPA) (qualifying goose species foraging outside the SPA) from vegetation removal	Note: see measures in the 'additional measures' column. Although these form project commitments, set out in the Outline Biodiversity Enhancement and Management Plan (BEMP) and Outline CEMP, details are proposed to be approved prior to construction via the approved CEMP and via licence applications to NatureScot (where applicable) for protected species. In accordance with guidance for assessment of ecology impacts, the potential project impacts are therefore initially assessed prior to this mitigation.	Low adverse	Negligible-low	Not significant at any geographic level	Phased removal of habitat	Not significant at any geographic level	n/a
Disturbance to Loch of Skene SPA (qualifying goose species foraging outside the SPA) from noise, vibration and lighting		Low adverse	Negligible-low	Not significant at any geographic level	n/a	Not significant at any geographic level	n/a
Habitat loss to terrestrial habitats: lowland mixed deciduous woodland, rivers (priority habitat), other rivers and streams, gorse scrub, mixed scrub and Holcus-Juncus neutral grassland from vegetation removal		Low-moderate adverse	Low-high	**Significant at site level**	Compensatory habitats and habitat creation for biodiversity net gain via Biodiversity Enhancement and Management Plan	Not significant at any geographic level during construction (see operational phase for long-term effect)	Monitoring of habitats created/ replaced
Spread of Invasive Non-Native Species		Low adverse	Low	**Significant at site level**	INNS management plan and good practice biosecurity plan in Construction Environmental Management Plan	Not significant at any geographic level	Monitoring for Invasive Non-Native Species during construction

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Disturbance to bats from noise, vibration and lighting		Low adverse	Low	**Significant at site level**	Species Protection Plan for bats, sensitive lighting scheme, avoiding works which require lighting or high levels of vibration outside of daylight hours	Not significant at any geographic level	n/a
Loss of roost opportunities to bats from vegetation removal		Low adverse	Low	**Significant at site level**	Provision of bat boxes to provide additional roost features prior to removal of trees	Not significant at any geographic level	Monitoring of bat box uptake and use by bats during construction
Loss of habitat for bats from vegetation removal		Low adverse	Low	**Significant at site level**	Compensatory habitats and creation of biodiversity enhancement and management plan, installation of bat boxes	Not significant at any geographic level	Monitoring of habitats created/ replaced
Death or injury to bats from vegetation removal		Low adverse	Low	**Significant at site level**	Species Protection Plan for bats and pre-works checks prior to removal of trees with Potential Roost Features (PRFs)	Not significant at any geographic level	n/a
Disturbance to badgers from removal of main sett and annexe sett		Moderate adverse	Medium	**Significant at local level**	Species Protection Plan for badger, compensatory sett created six months prior to construction and baited to attract badger	Not significant at any geographic level	Monitoring of sett uptake and main and annexe setts to be removed six months prior to construction and continuing during construction period
Disturbance to badgers from high vibration works effecting remaining setts		Low adverse	Low	**Significant at site level**	Species Protection Plan for badger, minimum 30 m buffers to be implemented around retained badger setts, Ecological Clerk of Works to oversee any high vibration works in proximity to buffer of badger setts.	Not significant at any geographic level	Monitoring of badger setts on sites during construction
Disturbance to badgers from noise, vibration and lighting		Low adverse	Low	**Significant at site level**	Sensitive lighting scheme, avoiding works which require lighting or high levels of vibration outside of daylight hours.	Not significant at any geographic level	n/a
Habitat loss to badgers from vegetation removal		Low adverse	Low	**Significant at site level**	Compensatory habitats and creation of biodiversity enhancement and management plan	Not significant at any geographic level	Monitoring of habitats created/ replaced
Death or injury to badgers from vehicle movement		Low adverse	Low	**Significant at site level**	15 mph speed limit to be implemented	Not significant at any geographic level	n/a
Disturbance to otters from vegetation removal		Low adverse	Low	**Significant at site level**	Species Protection Plan for otter and pre-works checks	Not significant at any geographic level	Monitoring for otter in locale throughout construction phase
Death or injury to otters from vehicle movements		Low adverse	Low	**Significant at site level**	Pre-works checks and speed limits of 15 mph	Not significant at any geographic level	Monitoring for otter in locale throughout construction phase

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Death or injury to otters from pollution		Low adverse	Low	**Significant at site level**	Construction Environmental Management Plan with adherence to SEPA Guidance for Pollution Prevention	Not significant at any geographic level	Ecological Clerk of Works to monitor compliance with Construction Environmental Management Plan during construction
Disturbance to otters from noise, vibration and lighting		Low adverse	Low	**Significant at site level**	Species Protection Plan for otter, sensitive lighting scheme, avoiding works which require lighting or high levels of vibration outside of daylight hours.	Not significant at any geographic level	Monitoring for otter in locale throughout construction phase
Habitat loss to reptiles from vegetation removal		Low adverse	Low	**Significant at site level**	Compensatory habitats and creation of biodiversity enhancement and management plan	Not significant at any geographic level	Monitoring of habitat creation/ enhancement
Disturbance to reptiles from vegetation removal		Low adverse	Low	**Significant at site level**	Species Protection Plan for reptiles, trapping and translocation programme for reptiles prior to construction works commencing, pre-works checks prior to works commencing.	Not significant at any geographic level	Ecological Clerk of Works to monitor site for reptiles pre and during construction
Death or injury to reptiles from vehicle movement and vegetation removal		Low adverse	Low	**Significant at site level**	Species Protection Plan for reptiles, translocation of reptiles, pre-works checks prior to works commencing. 15 mph speed limit.	Not significant at any geographic level	Ecological Clerk of Works to monitor site for reptiles pre and during construction
Disturbance to roosting and foraging Barn Owl from noise, vibration and lighting		Low adverse	Low	**Significant at site level**	Species Protection Plan for barn owl and appropriate buffers, pre-works checks prior to works commencing near roost, sensitive lighting scheme, avoiding works which require lighting or high levels of vibration outside of daylight hours.	Not significant at any geographic level	Ecological Clerk of Works to monitor barn owl roost pre and during construction
Disturbance to nesting birds from noise, vibration and lighting		Low adverse	Low	**Significant at site level**	Pre-works checks for nesting birds during nesting bird season	Not significant at any geographic level	Ecological Clerk of Works to monitor for nesting birds during nesting bird season
Habitat loss to birds (nesting and geese) from vegetation removal		Low adverse	Low	**Significant at site level**	Compensatory habitats and creation of biodiversity enhancement and management plan, installation of bird boxes	Not significant at any geographic level	Monitoring of habitat creation/ enhancement
Death or injury to birds (nesting and geese) from vehicle movement		Low adverse	Low	**Significant at site level**	15 mph speed limit to be implemented	Not significant at any geographic level	n/a
Death or injury to fish from pollution		Low adverse	Low	**Significant at site level**	Construction Environmental Management Plan with adherence to SEPA Guidance for Pollution Prevention	Not significant at any geographic level	Ecological Clerk of Works to monitor compliance with CEMP during construction
Death or injury to fish via sedimentation from construction of intake/outflow		Low adverse	Low	**Significant at site level**	Construction Environmental Management Plan with adherence to SEPA Guidance for Pollution Prevention	Not significant at any geographic level	Ecological Clerk of Works to monitor compliance with CEMP during construction

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Habitat loss to fish from bankside vegetation removal		Low adverse	Low	**Significant at site level**	Compensatory habitats and creation of biodiversity enhancement and management plan	Not significant at any geographic level	Monitoring of habitat creation/ enhancement
Death or injury to fish from underwater noise		Low adverse	Low	**Significant at site level**	Soft-start techniques for machinery used in watercourses	Not significant at any geographic level	Monitoring for fish
Operation and maintenance							
Disturbance to Loch of Skene Special Protection Area (SPA) (qualifying goose species foraging outside the SPA) from noise, vibration and lighting	Note: see measures in the 'additional measures' column. Although these form project commitments, set out in the Outline Biodiversity Enhancement and Management Plan (BEMP) and Lighting Principles statement, details are proposed to be approved post-consent. In accordance with guidance for assessment of ecology impacts, the potential project impacts are therefore initially assessed prior to this mitigation.	Negligible	Negligible-low	Not significant at any geographic level	n/a	Not significant at any geographic level	n/a
Spread of Invasive Non-Native Species (INNS)		Low adverse	Low	**Significant at site level**	Implementing INNS management plan	Not significant at any geographic level	Monitoring for INNS
Disturbance to bats from noise and lighting		Negligible-low adverse	Low	**Significant at site level**	Sensitive lighting scheme as set out in the Lighting Principles Statement	Not significant at any geographic level	n/a
Disturbance to badgers from lighting		Low adverse	Low	**Significant at local level**	Sensitive lighting scheme as set out in the Lighting Principles Statement	Not significant at any geographic level	n/a
Death or injury to badgers from vehicle movements		Low adverse	Low	**Significant at local level**	Speed limit of 15 mph	Not significant at any geographic level	n/a
Death or injury to otters from pollution		Negligible	Low	Not significant at any geographic level	Positive drainage system with oil interceptor	Not significant at any geographic level	n/a
Reduced prey availability for otters due to changes in water temperature and elevated mineral concentrations at outflow or sedimentation from change in flow characteristics		Low adverse	Low	**Significant at site level**	Adhering to SEPA PPC Permit and CAR authorisation requirements; thermal plume modelling and control of discharge temperature as required	Not significant at any geographic level	Monitoring water quality and temperature
Disturbance to otters from human presence		Negligible	Low	Not significant at any geographic level	n/a	Not significant at any geographic level	n/a
Disturbance to reptiles from human presence and vehicle movement		Negligible-low adverse	Low	Not significant at any geographic level	Speed limit of 15 mph	Not significant at any geographic level	n/a
Death or injury to birds (nesting and geese) from vehicle movement		Negligible-low adverse	Low	Not significant at any geographic level	Speed limit of 15 mph	Not significant at any geographic level	n/a
Death or injury to fish from pollution		Negligible	Low	Not significant at any geographic level	Positive drainage system with oil interceptor	Not significant at any geographic level	n/a

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Death or injury to fish from changes in water temperature and elevated mineral concentrations at outflow and sedimentation from change in flow characteristics		Low adverse	Low	**Significant at site level**	Adhering to SEPA PPC Permit and CAR authorisation requirements; thermal plume modelling and control of discharge temperature as required	Not significant at any geographic level	Monitoring water quality and temperature
Death or injury to fish due to entrainment in intake/outflow point		Negligible	Low	Not significant at any geographic level	Self-cleaning debris screen installed on intake/ outflow pipe	Not significant at any geographic level	Monitoring condition of intake/outfall screen
Chapter 9: Transport and Access							
Construction							
B977 users and residents							
Non-motorised user amenity	Note: see measures in the 'additional measures' column. Although these form project commitments, set out in the outline management plans (Volume 3, Appendix 9.1), details are proposed to be approved post-consent. In accordance with guidance for assessment of transport impacts, the potential project impacts are therefore initially assessed prior to approval of the details of this mitigation.	Moderate	Medium	**Moderate adverse (significant)**	A Construction Traffic Management Plan and a Path Management Plan would be secured through a planning condition and delivered by the Principal Contractor. An Abnormal Load Transport Management Plan would be prepared and delivered by the Abnormal Load supplier. A Staff Travel Plan would be delivered by the Principal Contractor.	Minor adverse (not significant)	n/a
Large loads		Moderate	Medium	**Moderate adverse (significant)**	An Abnormal Load Transport Management Plan would be prepared and delivered by the Abnormal Load supplier.	Minor adverse (not significant)	n/a
Kintore residents							
Non-motorised user amenity	Note: see measures in the 'additional measures' column and note above.	Moderate	High	**Moderate adverse (significant)**	A Construction Traffic Management Plan would be secured through a planning condition and delivered by the Principal Contractor. An Abnormal Load Transport Management Plan would be prepared and delivered by the Abnormal Load supplier. A Staff Travel Plan would be delivered by the Principal Contractor.	Minor adverse (not significant)	n/a
Large loads	Note: see measures in the 'additional measures' column and note above.	Moderate	High	**Moderate adverse (significant)**	An Abnormal Load Transport Management Plan would be prepared and delivered by the Abnormal Load supplier.	Minor adverse (not significant)	n/a
Path / Core Path users in the immediate vicinity of the application site and on construction access routes							

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Large loads	Note: see measures in the 'additional measures' column and note above.	Moderate	High	**Moderate adverse (significant)**	An Abnormal Load Transport Management Plan would be prepared and delivered by the Abnormal Load supplier.	Minor adverse (not significant)	n/a
Other impacts to B977 users and residents; Kintore residents; residents along Kirkton Cottages; path / Core Path users in the immediate vicinity of the application site and on construction access routes							
Severance, driver delay, pedestrian delay, fear & intimidation and road safety	Note: see measures in the 'additional measures' columns and notes above, which would also be applicable to further mitigate these non-significant effects.	Negligible-minor	Medium-high	Negligible to minor adverse (not significant)	A Construction Traffic Management Plan would be secured through a planning condition and delivered by the Principal Contractor. An Abnormal Load Transport Management Plan would be prepared and delivered by the Abnormal Load supplier. A Staff Travel Plan would be delivered by the Principal Contractor.	Negligible to minor adverse (not significant)	n/a
Operation and maintenance							
Users of and residents along unclassified road between the B977 and Bogfold							
Severance	Staff Travel Plan and shuttle bus. Although these form project commitments, set out in the outline management plans (Volume 3, Appendix 9.1), details are proposed to be approved post-consent. In accordance with guidance for assessment of transport impacts, the potential project impacts are therefore initially assessed prior to approval of the details of this mitigation.	Moderate	High	**Moderate adverse (significant)**	Enhanced Staff Travel Plan – adopted by the applicant and updated as necessary to provide a strategy for all employees and visitors of the Proposed Development, as well as to the wider local community. Shuttle bus – review of proposed routes to ensure suitable pick-up / drop-off points and make changes as necessary to promote its use. Proposed speed reduction from 60 mph to 40 mph.	Minor adverse (not significant)	The Travel Plan will need to be reviewed on an annual basis to ensure that it is achieving its modal share objectives. This will require a staff survey to be undertaken by the Travel Plan co-ordinator every year, with the results compared on a year-on-year basis.
Non-motorised user amenity		Moderate	High	**Moderate adverse (significant)**		Minor adverse (not significant)	
Fear & intimidation		Moderate	High	**Moderate adverse (significant)**		Minor adverse (not significant)	
Driver delay		Minor	High	Minor adverse (not significant)		Minor adverse (not significant)	
Pedestrian delay		Negligible	High	Minor adverse (not significant)		Minor adverse (not significant)	
Road safety		Minor	High	Minor adverse (not significant)		Minor adverse (not significant)	
Large loads	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Other impacts to B977 users and residents; Kintore residents; residents along Kirkton Cottages; path / Core Path users in the immediate vicinity of the application site and on operational access routes							
Severance, non-motorised user amenity, driver delay, pedestrian delay, fear & intimidation, road safety and large loads	Staff Travel Plan and shuttle bus which would also be applicable to further mitigate these non-significant effects (see notes above)	Negligible-minor	Medium-high	Negligible to minor adverse (not significant)	Enhanced Staff Travel Plan, shuttle bus and speed limit as described above.	Negligible to minor adverse (not significant)	As above for Travel Plan review.
Chapter 10: Noise and Vibration							
Construction							

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Noise from construction activity	Control of construction working hours and use of Best Practicable Means, managed via a Construction Environmental Management Plan	Negligible to minor	Medium	Negligible to minor adverse (not significant)	None	Negligible to minor adverse (not significant)	None
Construction traffic noise	Shuttle bus arrangement for construction staff to minimise traffic generation	Negligible to minor	Medium	Negligible to minor adverse (not significant)	None	Negligible to minor adverse (not significant)	None
Operation and maintenance							
Operation of the proposed development	Site layout and sound source attenuation, through subsequent detailed design, to achieve acceptable Rating Level proposed to Aberdeenshire Council. Grampian condition to avoid unacceptable adverse impacts at two nearest residential properties.	No change to moderate	Medium	Minor to moderate adverse (determined not to be significant)	None	Negligible to moderate adverse (determined not to be significant)	Noise monitoring following commissioning to ensure compliance with the levels reported in this EIAR
Chapter 11: Air Quality							
Construction							
Construction dust	Good practice dust management measures specified in the Outline CEMP	Large	High	Negligible (not significant)	None in addition to those recommended in the Institute of Air Quality Management dust guidance	Negligible (not significant)	Dust monitoring as recommended in the Institute of Air Quality Management dust guidance
Operation and maintenance							
NO_2 emissions from hydrogen flare	None	Negligible to Substantial	Specific to each receptor	Minor adverse (not significant)	Grampian condition concerning nearest two properties, or location of flare to be at a sufficient distance from occupied sensitive receptors.	Negligible (not significant)	As required by Pollution Prevention and Control Permit. No additional monitoring proposed
Chapter 12: Climate Change							
Construction							
Direct and indirect emissions of GHGs	Sustainable worker travel and measures in the Construction Environmental Management Plan to reduce emissions from construction plant and embodied carbon in materials.	<1% of lifetime emissions: negligible	High	Negligible (not significant)	Good practice goals to seek a lean design and minimise embodied carbon, employing recognised construction carbon management frameworks such as PAS2080	Negligible (not significant)	Construction-stage detailed design and as-build Lifecycle Carbon Assessments in line with carbon management frameworks
Operation and maintenance							

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Direct and indirect emissions of GHGs	Flare to manage hydrogen releases during start-up, shut-down and abnormal events. Operating model of ~40% capacity factor based on expected availability and cost of low-carbon, primarily renewable electricity.	-1,279,367 tCO_2e/annum	High	**Beneficial (significant)**	n/a	**Beneficial (significant)**	Energy efficiency monitoring required by Pollution Prevention and Control Permit (regulated by SEPA)
Chapter 13: Soils, Geology and the Water Environment							
Construction							
Generation of pollution	Good practice measures specified in the Outline Construction Environmental Management Plan. Confirmatory inspection of watercourses and areas of working to ensure efficacy of mitigation and control measures.	Negligible	High	Negligible (not significant)	None	Negligible (not significant)	Confirmatory water quality monitoring during construction.
Erosion and sedimentation	Good practice measures specified in the Outline Construction Environmental Management Plan.	Negligible	High	Negligible (not significant)	None	Negligible (not significant)	Confirmatory water quality monitoring during construction.
Surface water and groundwater flows	Good practice measures specified in the Outline Construction Environmental Management Plan.	Negligible	High	Negligible (not significant)	None	Negligible (not significant)	n/a
Flood risk	Good practice measures specified in the Outline CEMP. Appropriate drainage design that incorporates measures to attenuate and treat runoff from construction areas, which will be included in the adopted Construction Environmental Management Plan.	Negligible	Moderate	Negligible (not significant)	None	Negligible (not significant)	n/a
Operation and maintenance							
Generation of pollution	Appropriate storage and handling of potential pollutants in accordance with Controlled Activity Regulations and Pollution Prevention and Control authorisations	Negligible	High	Negligible (not significant)	None	Negligible (not significant)	As required by Pollution Prevention and Control Permit.

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Erosion and sedimentation	Appropriate drainage design that incorporates sediment management measures, including sediment traps, to attenuate and treat runoff. Adopted through a long term operational drainage and monitoring programme.	Negligible	High	Negligible (not significant)	None	Negligible (not significant)	As required by Pollution Prevention and Control Permit.
Surface water and groundwater flows	Adherence to existing Controlled Activity Regulations authorisation for water abstraction from the River Don. Compliance with Pollution Prevention and Control Permit limits for effluent discharge from the water abstraction water treatment plant. Good practice measures adopted through a long term operational drainage and monitoring programme.	Negligible	High	Negligible (not significant)	None	Negligible (not significant)	As required by Pollution Prevention and Control Permit.
Flood risk	Inspection of the operational drainage system and compliance with the attenuated rate of runoff agreed with Aberdeenshire Council at the detailed design stage, Removal of blockages from watercourse crossings in the unlikely event of occurrence.	Negligible	Moderate	Negligible (not significant)	None	Negligible (not significant)	n/a
Chapter 14: Population and Health							
Construction							
Health effects from changes in exposure to air quality (dust)	Dust mitigation, as set out in the Outline Construction Environmental Management Plan	Negligible	Very low	Negligible (not significant)	No additional health-specific mitigation proposed	Negligible (not significant)	No health specific monitoring proposed. Nuisance dust monitoring is included in Outline Construction Environmental Management Plan.
Health effects from changes in noise exposure	Noise mitigation, as set out in the Outline Construction Environmental Management Plan	Negligible	Very low	Negligible (not significant)	No additional health-specific mitigation proposed	Negligible (not significant)	No health specific monitoring proposed

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Health effects from changes in transport nature and flow rate	Transport management, as set out in the Outline Construction Traffic Management Plan and a Worker Travel Plan	Negligible	Very low	Negligible (not significant)	No additional health-specific mitigation proposed	Negligible (not significant)	No health specific monitoring proposed
Health effects from changes in socio-economic factors	n/a	Negligible	Very low	Negligible (not significant)	None	Minor beneficial (not significant)	No health specific monitoring proposed
Health effects from changes in access to open space and core paths	Core path crossing point and marshalling, as set out in the Outline Construction Environmental Management Plan	Negligible	Very low	Negligible (not significant)	No additional health-specific mitigation proposed	Negligible (not significant)	No health specific monitoring proposed
Operation and maintenance							
Health effects from changes in exposure to air quality (NO_2)	Flare design and Grampian condition concerning two nearest residential receptors	Negligible	Very low	Negligible (not significant)	No additional health-specific mitigation proposed	Negligible (not significant)	No health specific monitoring proposed. Air pollutant emissions monitoring will be required under Pollution Prevention and Control Permit.
Health effects from changes in noise exposure	Design of electrolysis plant to achieve noise levels specified in Chapter 10 and Grampian condition concerning two nearest residential receptors	Low	Very low	Minor adverse (not significant)	No additional health-specific mitigation proposed	Minor adverse (not significant)	No health specific monitoring proposed
Health effects from changes in transport nature and flow rate	Limitation of on-site parking to 40 spaces Staff Travel Plan, including proposed shuttle bus for workers from various locations	Low	Very low	Minor adverse (not significant)	No additional health-specific mitigation proposed	Minor adverse (not significant)	No health specific monitoring proposed
Health effects from changes in socio-economic factors	n/a	Low	Very low	Minor (not significant)	Employment and Skills Plan	Minor beneficial (not significant)	No health specific monitoring proposed
Health effects from changes in EMF exposure	n/a	Negligible	Very low	Negligible (not significant)	No additional health-specific mitigation proposed	Negligible (not significant)	No health specific monitoring proposed
Health effects from hydrogen safety	Compliance with strict regulations through the Control of Major Accident Hazards and Pollution Prevention and Control permitting regimes, which cove various aspects of the design and operation of hydrogen facilities	Negligible	Very low	Negligible (not significant)	No additional health-specific mitigation proposed	Negligible (not significant)	No health specific monitoring proposed. Safety will be audited under Health and Safety Commission, Pollution Prevention and Control Permit and Control of Major Accident Hazards regimes.
Chapter 15: Socio-Economics							

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Construction							
Employment	None	Moderate	Medium	**Moderate beneficial (significant)**	None	**Moderate beneficial (significant)**	None
Operation and maintenance							
Employment	None	Moderate	Medium	**Moderate beneficial (significant)**	Employment and Skills Plan	**Moderate beneficial (significant)**	None