

# HumeLink Environmental Impact Statement

## Greenhouse Gas Assessment

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### What is an Environmental Impact Statement (EIS)

The HumeLink project has been classified by the NSW Government as Critical State Significant Infrastructure (CSSI). All CSSI development applications must be accompanied by an Environmental Impact Statement (EIS). The purpose of the EIS is to identify and assess the potential environmental, economic and social impacts of the project to help government agencies, relevant authorities, community and stakeholders make an informed decision or provide an informed submission on the merits of the project.

#### EIS project footprint

The [HumeLink project](#) extends from the existing Wagga Wagga 330 kV substation to the existing Bannaby 500 kV substation and the future Maragle 500 kV substation.

The EIS footprint is based on an indicative 200 metre corridor and is defined as the area directly affected by the construction and operation of the project. It includes the indicative location of project infrastructure, the area that would be directly disturbed during construction and any easements required during operation. The final location of all proposed infrastructure will be confirmed during detailed design.

#### HumeLink planning approvals and EIS

As part of the planning approval process for HumeLink, Transgrid is preparing an EIS in accordance with the [Secretary's Environmental Assessment Requirements \(SEARs\)](#). The SEARs identify matters which must be addressed in the EIS and essentially form its terms of reference. It includes the requirements from both the NSW and Commonwealth Governments.

A series of detailed technical studies and reports are completed as part of the EIS. This includes the greenhouse gas topic covered in this fact sheet.

#### Can I provide feedback?

Once the EIS is finalised, the NSW Department of Planning and Environment (DPE) will place the EIS on exhibition and call for public submissions. Feedback on the EIS can be provided directly to the DPE during this public display period.

To learn more about the HumeLink EIS, please visit the [EIS Frequently Asked Questions](#) on our website.



**Greenhouse gas and climate change risk**

#### HumeLink Environmental Impact Statement Specialist Studies



Aboriginal heritage



Electric and magnetic fields



Social



Agricultural land



Greenhouse gas and climate change risk



Soils, geology and contamination



Air quality



Historic heritage



Surface water and groundwater



Aviation safety



Hydrology and flooding



Sustainability



Biodiversity



Landscape character and visual amenity



Traffic and transport



Bushfire risk



Land use and property



Economic



Noise and vibration



## Greenhouse Gas Assessment

### What does this assess?

As part of HumeLink's EIS, Transgrid undertook an assessment of potential impacts from greenhouse gas (GHG) emissions during construction and operation of the project.

This project is a critical part of the NSW transmission network upgrade required for Australia to meet its goal of net-zero emissions by 2050. Once operational, HumeLink is expected to contribute positively to a reduction in emissions from the NSW electricity grid by enabling the introduction of new renewable energy generation in the Wagga Wagga and Tumut Renewable Energy Zones (REZ) as well as the declared South West NSW REZ.

### Greenhouse gas effect and emissions

The GHG effect is a naturally occurring process that heats the earth's surface and atmosphere. It is caused when gases such as carbon dioxide, water vapour and methane absorb longwave radiation emitted from the Earth's surface.

**Longwave radiation** refers to the energy that is emitted from the earth's surface in the form of infrared radiation.

The GHG effect maintains a stable average temperature on earth. Without it the average temperature would be around -18 degrees Celsius.

GHG emissions can result from natural or man-made sources. Examples of natural sources include the

decomposition or burning of plant material and methane emissions from animal digestion processes. Emissions also occur as a result of human activities such as producing and burning fossil fuels, using refrigerants, vegetation clearing and fertilisers.

Human activities, particularly the release of carbon dioxide and methane into the atmosphere, are changing the natural GHG effect.

### GHG emissions: Scope 1, Scope 2 and Scope 3

HumeLink used a model developed by the Greenhouse Gas Protocol Initiative to quantify the project's GHG emissions and impacts on climate change.

GHG emissions are categorised as

- Direct – Scope 1
- Indirect – Scope 2 and Scope 3.

See Figure 1 on next page.

**The Greenhouse Gas Protocol Initiative** is a multi-stakeholder partnership that includes businesses, non-governmental organisations and other stakeholders. Its objective is to develop internationally accepted GHG standards for businesses.

Visit the [GHG Protocol Initiative website](#) for more information on the greenhouse gas effect and GHG emissions.



**Pictured:** A transformer being transported.



## Potential impacts and how are these proposed to be managed?

Potential Scope 1, Scope 2 and Scope 3 GHG emissions from construction and operation of the project were assessed and quantified as part of the HumeLink EIS.

### Scope 1

Scope 1 direct emissions are those produced by the HumeLink project.

Diesel consumption was identified as the largest contributor to Scope 1 emission during construction.

Other direct causes of emissions may include:



transporting materials, waste or construction



generating heat, electricity or steam



managing on-site waste, including liquid waste management via on site sewage treatment plants



other emissions including from land clearing.

During operation, the main source of Scope 1 emissions would be associated with the potential leakage of sulphur hexafluoride (SF6), an inert insulating gas, from substation equipment.

### Scope 2

Scope 2 emissions are indirectly caused by HumeLink. These are physically produced by another organisation.

During construction this would include electricity consumption at substations, construction compounds and workers accommodation facilities.

During operation this would mainly be attributed to transmission losses. Transmission losses occur when electricity passes through the transmission line and some of it is lost as heat.

The impact of the project on the State and National GHG emission loads is estimated to be negligible, with the project's operations annual emission estimate representing less than 0.1 per cent of NSW's annual emissions.

### Scope 3

Scope 3 are indirect emissions resulting from the full life-cycle of the HumeLink project. These may include the raw materials used to build HumeLink, fuel and transport-related activities such as employees commuting to and from work.

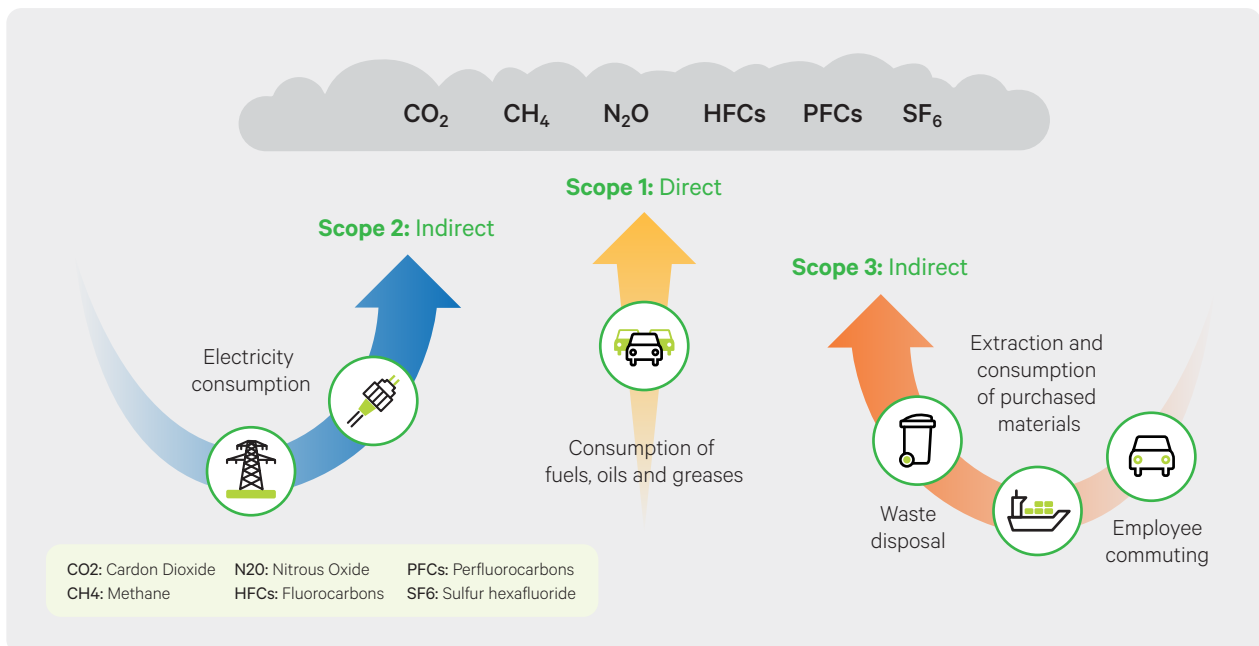


Figure 1: Scope 1, 2 and 3 GHG emissions as defined in the GHG Protocol Initiative. Source: Adapted from (WRI/WBCSD, 2004a).





**Pictured:** Example of renewable energy generation connected to the grid, helping to reduce the nation's carbon emissions.



## Proposed management measures

To assist in monitoring and reporting on the project's GHG emissions, a management plan including strategies to reduce GHG emissions will be prepared and delivered.

The objectives of the plan will be to:

- incorporate energy efficiency initiatives into project design, procurement, engineering, construction and operation
- integrate GHG management and energy efficiency initiatives into business decision making
- report on GHG emission levels in compliance with relevant legislation.

As the project progresses through the development of the EIS and detailed design, more information about the identified GHG emission impacts as well as the proposed mitigation measures will become available.

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## Connect with us

Transgrid is committed to working with landowners and communities through the development of HumeLink. Please connect with us for more information.



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