

Statement of Need

Ninfield Greener Grid Park

Statkraft’s planning application is not only for a Battery Energy Storage System (BESS) but predominately for the installation of Synchronous Compensator(s) to provide Stability to National Grid Energy System Operator (NGESO). This project is called a Greener Grid Park (GGP) to highlight its function of decarbonising the grid system and enabling greater use of the increasingly abundant transmission connected sources of renewable energy (from Photovoltaics to Offshore wind).

Ninfield is in an area identified by NGESO with a “large growth in stability need” which has led to the Stability Phase 3 service as shown in Figure 1. A grid without inertia is one that is unstable, suffers from issues of power quality and is susceptible to blackouts.

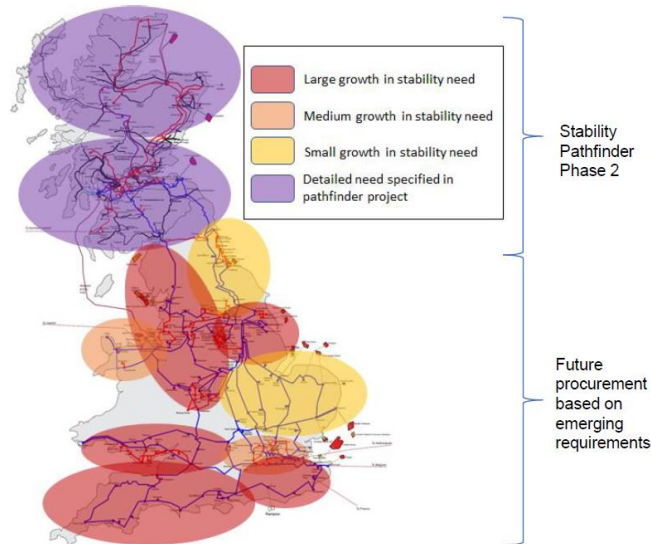


Figure 1. GB areas of stability requirement¹

Ninfield has been selected as it not only is within NGESO’s area of need for Stability but also for its proximity to critical Transmission Boundaries B10, B12, B15 & SC3 as shown in NGESO Electricity Ten Year Statement (ETYS)² (refer to Figure 2). The closer this Greener Grid Park is to these transmission boundaries, the more effective it becomes. Greener Grid Parks also operate at their optimum when connected at a 400kV transmission level. After much research, the Ninfield substation has been selected because it is able to accommodate our stabilising technology whilst being close to the transmission boundaries and at a 400kV grid connection level, optimising the delivery of the service.

¹ Source: <https://www.nationalgrideso.com/document/171546/download>

² Source: <https://www.nationalgrideso.com/research-publications/etys-2020>

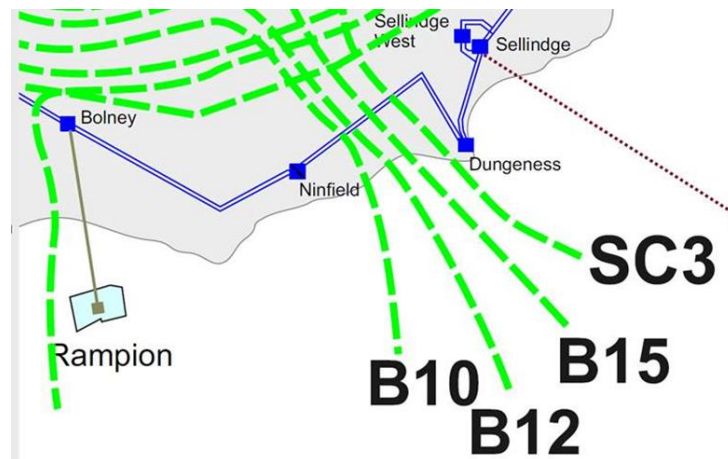


Figure 2. Transmission System Boundaries around Ninfield³

The GGP will provide significant benefits to electricity consumers and to the environment by providing cuts to carbon emissions in the GB grid this decade. Rapid decarbonisation before 2030 is important and valuable in a Climate Emergency. Wealden District Council have also committed to achieving Net Zero carbon emissions by 2050. Statkraft’s GGP is contributing to the UK’s pledge to meet the Carbon Budgets (Fourth Carbon Budget 2023-2027) and to deliver the 64% emissions reductions (Figure 3) by 2030, in accordance with the Paris Agreement⁴.

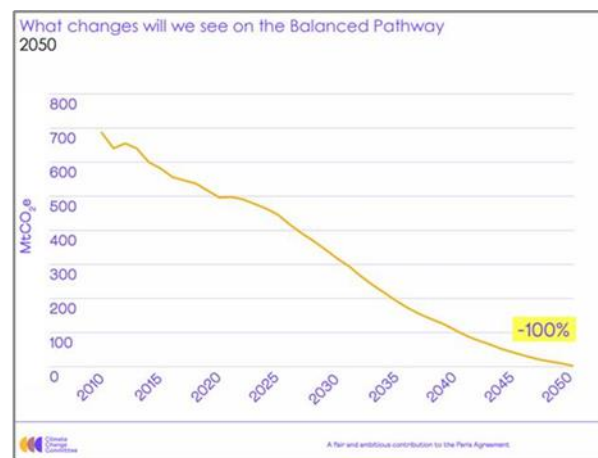
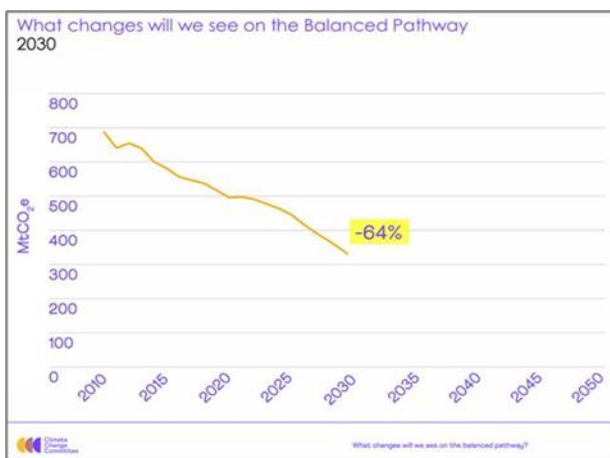


Figure 3. Climate Change Committee - 2030 and 2050 modelled changes on the Balanced Pathway⁵

In January 2020, Statkraft was successful in NGENSO’s Stability Phase 1 Tender⁶. NGENSO stated that this would save consumers £128 million in the contract period up to 2025/26. Statkraft is constructing one of these projects at Keith in Moray Scotland as reported in Machinery Magazine⁷. The Keith GGP will host the Stability technology as well as a Battery Energy Storage System (BESS), which is similar to the plans for Ninfield.

³ Source: <https://www.nationalgrideso.com/document/181446/download>

⁴ Source: https://ec.europa.eu/clima/sites/clima/files/long_term_strategy_brochure_en.pdf

⁵ Source: https://www.theccc.org.uk/wp-content/uploads/2021/01/Path-to-Net-Zero-the-role-of-business-slides_FINAL.pdf

⁶ Source: <https://www.nationalgrideso.com/news/national-grid-eso-outline-new-approach-stability-services-significant-step-forwards-towards>

⁷ Source: <https://my.mydigitalpublication.co.uk/publication/?m=65921&i=696681&p=10>

Statkraft is also participating in NGENSO’s tender for Stability Phase 2 which is for sites in Scotland only; Figure 4 shows the type of technologies to deliver the Stability Phase 2 service. Following this, Statkraft intend to tender for Stability Phase 3, which will be focused on the south of England and the Midlands (Figure 1).

Summary of submissions

The Expression of Interest (EOI) invited potential participants to express an interest in participating in the NOA Stability Pathfinder Phase 2 tender process which is seeking to procure short circuit level, inertia and dynamic voltage services. The EOI closed on 8th January 2021 and we received 29 submissions with 1575 solutions.

All solutions have passed the EOI stage and have qualified to progress to the feasibility study stage.

- 29 Submissions
- 3 Technology categories
- 1575 Solutions
- 67 Substations (different voltage levels/sites)



Figure 4. Summary of Stability Pathfinder Phase 2 Expression of Interest (EOI) submissions⁸

Above it was mentioned that the Ninfield project will focus on delivering stability but will also include BESS to allow the project to provide energy storage. BESS can be sited at any location on the transmission or distribution electricity networks within GB, although there are additional locational price signals which encourage projects to locate in areas beneficial to the grid system and electricity market. However, when co-locating stability and BESS technologies, developing anywhere is not possible and Statkraft have to be more selective about the location of the development as described at the beginning of this paper.

Statkraft’s parks are also designed to minimise environmental and social impacts of the grid connection i.e. cables or overhead line connection to the Ninfield substation. By siting adjacent to the substation, Statkraft’s project does not impact third parties in this regard. The preservation of biodiversity and wildlife onsite is a top priority for Statkraft, which is why we are committing to provide ecological enhancements in order to obtain a net biodiversity gain on the entire secondary field of our site, equivalent to ~2 hectares.

As a global energy company, strategically focused on scaling renewable energy solutions, Statkraft believes that we can be instrumental in driving progress toward achieving the UN Sustainable Development Goals (SDGs) by 2030. Statkraft have numerous initiatives that can be linked to different SDGs, these positive impacts are naturally concentrated around the goals for Climate Action (SDG 13). Statkraft contribute directly to climate change mitigation by displacing fossil fuels whilst meeting growing energy demand.

We have provided this information to demonstrate the need for the Ninfield GGP and to differentiate Statkraft’s project from other planning applications which are only for BESS. Whilst these technologies

⁸ Source: <https://www.nationalgrideso.com/document/187371/download>

are important for the energy transition and decarbonisation, they are not as effective as Statkraft's proposal in decarbonising the GB grid and meeting UKs Climate targets for:

1. 2050 Net Zero⁹
2. Fourth Carbon Budget¹⁰
3. Paris Agreement¹¹
4. NGENSO's target for Zero Carbon Operation in 2025¹²

⁹ Source: <https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law>

¹⁰ Source: https://www.theccc.org.uk/wp-content/uploads/2010/09/CCC-4th-Budget-Book_with-hypers.pdf

¹¹ Source: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

¹² Source: <https://www.nationalgrideso.com/electricity-explained/zero-carbon-explained>