



PRINCIPAL PARTNER
**UN CLIMATE
CHANGE
CONFERENCE
UK 2021**
IN PARTNERSHIP WITH ITALY

FROM TARGETS **TO ACTION**

SSE's Net Zero Transition Plan

March 2022

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|| ABOUT SSE

SSE plc is a UK-listed leading generator of renewable electricity and one of the largest electricity network companies in the UK. We develop, own and operate low carbon infrastructure to support the zero-carbon transition. This includes onshore and offshore wind, hydro power, electricity transmission and distribution grids, and efficient gas-fired generation, alongside providing energy products and services for businesses, and we have interests across Great Britain and Northern Ireland, Republic of Ireland, Japan, Spain, Portugal, Denmark and Poland. SSE's strategy is to create value for shareholders and society in a sustainable way by developing, building, operating and investing in the electricity infrastructure and businesses needed in the transition to net zero.

For more detail about SSE's strategy and its business activities, see [sse.com](https://www.sse.com).

|| ABOUT THIS PLAN

As a result of a resolution at its 2021 Annual General Meeting, a framework has been established for annual shareholder advisory votes on SSE's Net Zero Transition Report. This document details SSE's Net Zero Transition Plan, from which its Net Zero Transition Report will be based.

The aim of this Net Zero Transition Plan is to provide SSE's stakeholders with clarity around the actions SSE intends to take towards achieving its net zero ambitions in both 2040 and 2050. It is not intended to be an update on progress made so far. From June 2022, progress against this Net Zero Transition Plan will be detailed within SSE's Annual Report, Sustainability Report – and to aid stakeholder engagement – in a stand-alone, summary Net Zero Transition Report.

While SSE has an important role in supporting the UK and Ireland achieve national net zero commitments, the scope of this plan is focused on SSE's actions to achieve its own net zero ambition.

Feedback is encouraged and very welcome. Please get in touch by emailing sustainability@sse.com if you have any comments or queries relating to the content of this report.



FOREWORD

It is beyond question that, to avoid the most dangerous climate change, no more greenhouse gases can be emitted into the atmosphere after 2050.

SSE is wholly committed to providing solutions to combat climate change and, working with investors, we placed a resolution at our Annual General Meeting last July committing to net zero and proposing annual votes on a Net Zero Transition Report. That resolution attracted 99.96% of votes in favour. This Net Zero Transition Plan is designed to aid engagement with shareholders in advance of those future votes.

In pulling this Plan together, three themes have guided us: firstly, to outline very clearly, the greenhouse gas **targets** SSE has set, secondly, to spell out the **actions** that will ensure those targets are met and, finally, because no one yet has all the answers, we have sought to explain the challenges transparently and with **integrity**.

Targets

According to the key decarbonisation pathways established by climate science, the electricity sector must be the first sector of the economy to completely decarbonise. Once carbon is removed from electricity, then electricity supports the decarbonisation of other sectors, especially transport and heat.

That means there is a special pathway for the power sector. So, in November 2021, one week after the close of COP26, we published new set of accelerated science-based targets on the 1.5°C power sector pathway. That means we intend to cut our absolute scope 1 and 2 emissions by 72.5% between 2017 and 2030 and we are targeting net zero for scopes 1 and 2 by 2040, providing the appropriate policy mechanisms are in place to support security of supply for customers.

These targets are very important because they define the destination we are aiming for. However, targets are only action in theory, they are not yet action in practice.

Actions

That's why a Net Zero Transition Plan is so important. A good plan not only outlines targets, it also explains how we intend to achieve them. SSE's Net Zero Acceleration Programme, also published in November, establishes a five-year, £12.5bn investment plan to deliver the low carbon energy infrastructure required in the UK, Ireland and beyond. Furthermore, this Plan outlines actions beyond SSE's current investment cycle, that support the achievement of its long-term net zero ambition.

Integrity

My last theme relates to integrity. While we do know where we need to get to, none of us knows exactly, for example, how we will neutralize the last kilogram of residual emissions in a way that is affordable to customers and delivers security of supply too.

Net zero transition plans can do a very useful job in that they can expose challenges, conundrums and even the contradictions. Being open about these issues has a function in itself, by giving a signal to all stakeholders – especially policy makers and regulators – of the policy interventions that will be required not just to deliver net zero at a company level, but at a system level too.

Finally, this Plan is being published at a time of significant upheaval in global energy markets and SSE is concerned of the impact of rising energy costs on consumers. The current energy crisis caused by the Russian invasion of Ukraine means there is some readjustment to European energy strategies, SSE is confident that continued investment in renewables backed up by low-carbon flexibility to support energy security is more important than ever.



Alistair Phillips-Davies
Chief Executive



SETTING THE SCENE

STRENGTHENING CONSENSUS ON GLOBAL CLIMATE SCIENCE

The Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment cycle is delivering its starkest warnings yet. In August 2021, its Physical Science Report explained that the window of opportunity to avoid the worst impacts of climate change, and prevent warming beyond 1.5°C, is closing. The 2020s was identified as the key decade to keep 1.5°C alive.

The Glasgow Pact, the result of COP26 climate negotiations in November 2021, represents the most stretching commitment to global carbon reductions yet, however they fall short of limiting global warming to 1.5°C above pre-industrial levels. Stronger action is needed by governments and business to support the delivery of net zero.

THE CENTRAL ROLE OF THE POWER SECTOR IN NET ZERO

Across climate science, all pathways to net zero emissions by 2050 globally rely on the accelerated decarbonisation of the power sector as the foundation. Throughout 2021, there has been a hardening of expectations around the pathway for electricity system decarbonisation.

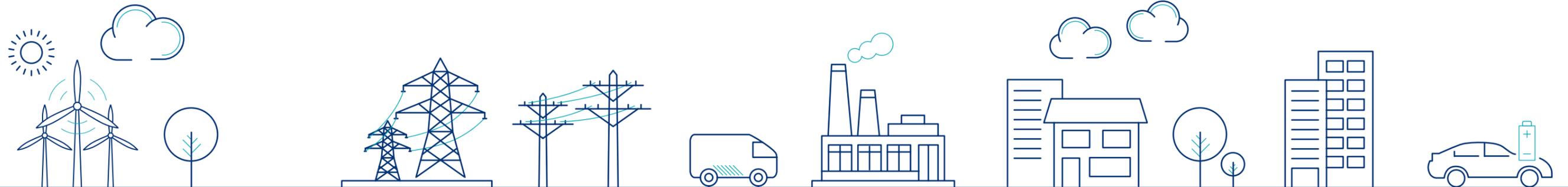
This special status for net zero electricity is further reinforced

by the important social impact it has, in providing power and heat for homes and businesses. That role is developing to providing energy for transport too. That means that electricity affordability and security of supply are vital elements in delivering a legitimate system transition to net zero.

SSE operates principally within the UK and Ireland, which have stretching climate ambitions, both seeking to achieve net zero across their economies by 2050. The UK Government's Net Zero Strategy outlines plans to decarbonise the UK's power system by 2035 and Ireland's Climate Action Plan 2021 is targeting up to 81% emission reduction from electricity by 2030. SSE's ambitions for the development of renewable energy now extend beyond the British Isles to carefully selected international markets, including East Asia, Europe and North America.

What is net zero?

Net zero refers to the balance between the amount of greenhouse gas (GHG) produced and the amount removed from the atmosphere. Net zero is reached when the amount added is no more than the amount taken away. To limit global warming to 1.5°C above pre-industrial levels, it is estimated that global GHG emissions must be net zero by 2050.



SSE AND NET ZERO

SSE's net zero commitment

SSE made a clear public commitment in 2020 to the long-term goal of achieving net zero greenhouse gas (GHG) emissions across all its operations by 2050 at the latest, covering scope 1, 2 and 3 GHG emissions.

Recognising the national and international importance of decarbonising the power sector as quickly as possible, SSE aims to achieve net zero across scope 1 and 2 emissions by 2040 at the latest.

Achieving Net Zero:

2040: net zero for SSE's scope 1 and 2 emissions.

2050: net zero for all SSE's remaining scope 3 emissions.

SSE's long-term net zero ambitions are supported by a series of interim targets approved by the Science Based Targets Initiative (SBTi). These targets are aligned to the Paris Agreement and a 1.5°C pathway, and meet the strict SBTi criteria which requires that they cover scope 1, 2 and 3 GHG emissions.

Interim science-based targets:

Reduce absolute scope 1 and 2 GHG emissions by 72.5% between 2018 and 2030.

Reduce the carbon intensity of electricity generated (scope 1 emissions) by 80% per gCO₂e/kWh between 2018 and 2030.

Engage with 50% of suppliers by spend to set science-based targets by March 2024.

Reduce absolute emissions from products sold by 50% between 2018 and 2034.

SSE's two economically regulated businesses, SSEN Transmission⁽¹⁾ and SSEN Distribution⁽²⁾, as part of their respective business plans, have set their own science-based greenhouse gas emission targets. To achieve these targets, these regulatory businesses have outlined the actions that they need to take to meet their targets. These targets and actions, which are outlined throughout this Net Zero Transition Plan, deliver GHG emission reductions and contribute to SSE's overall net zero ambitions.



SSE's Net Zero Acceleration Programme

To support the delivery of its net zero ambition, SSE published its 'Net Zero Acceleration Programme' in November 2021.

The Programme seeks to accelerate clean growth, lead the energy transition and maximise value for all stakeholders. It includes a significantly enhanced, fully-funded £12.5bn strategic capital investment plan to 2026 alongside ambitious 2031 targets, aligned with net zero and 1.5°C. The Programme represents the optimal pathway for SSE to build on its position as the UK's clean energy champion, enabling delivery of over 25% of the UK's 40GW offshore wind target and over 20% of UK electricity networks investment, whilst deploying flexibility solutions and exporting renewables capabilities overseas.

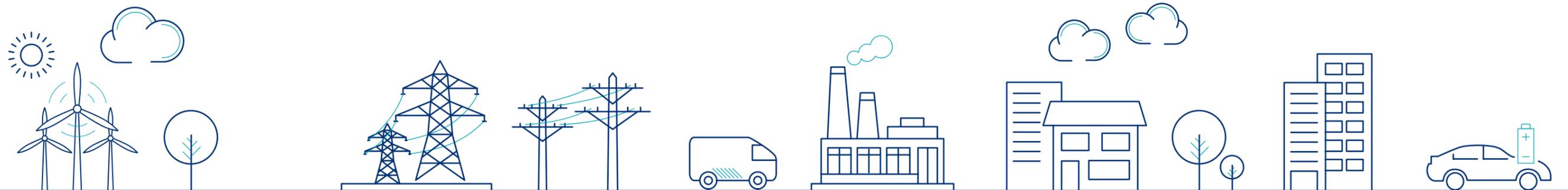
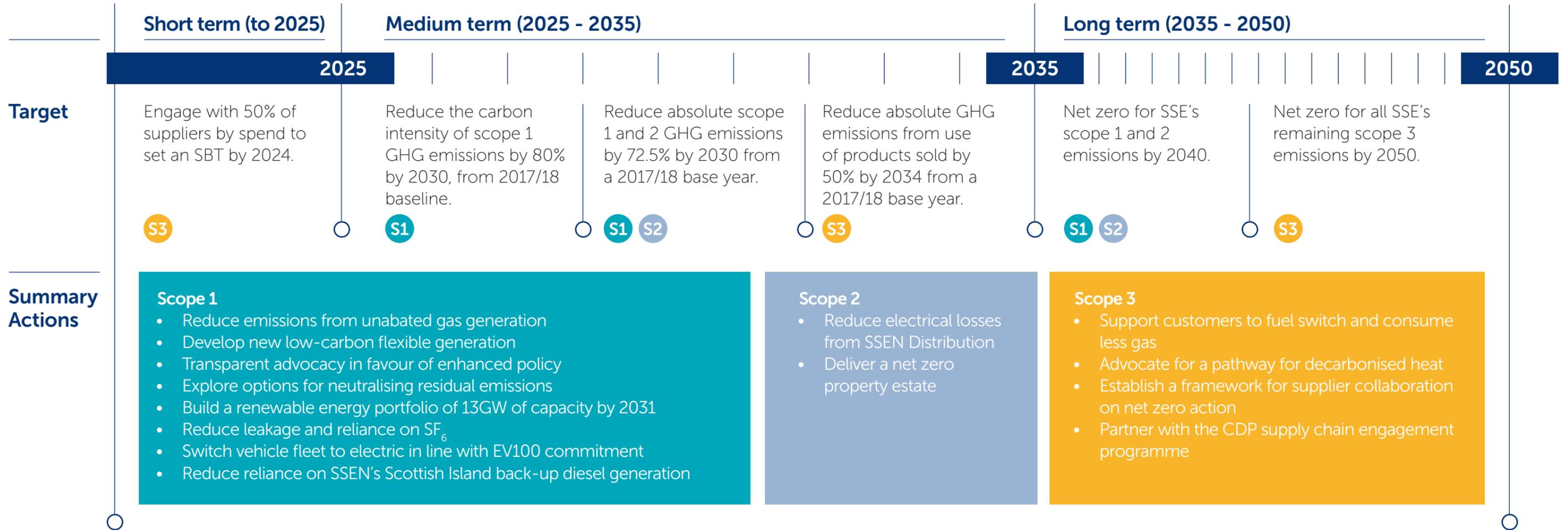
(1) SSEN Transmission, operating under licence as Scottish Hydro Electric Transmission plc (SHET), owns, operates and develops the high voltage 132kV, 275kV and 400kV electricity transmission system in the north of Scotland and remote islands.

(2) SSEN Distribution, operating under licence as Scottish Hydro Electric Power Distribution plc (SHEPD) and Southern Electric Power Distribution plc (SEPD), is responsible for safely and reliably maintaining the electricity distribution networks supplying over 3.8 million homes and businesses across central southern England and the north of Scotland.

NET ZERO TRANSITION PLAN ON A PAGE

The below graphic shows SSE's short-, medium- and long-term carbon targets, alongside key action it will take to achieve them.

S1 Scope 1 **S2** Scope 2 **S3** Scope 3



SSE'S BASE YEAR FOR TARGET SETTING

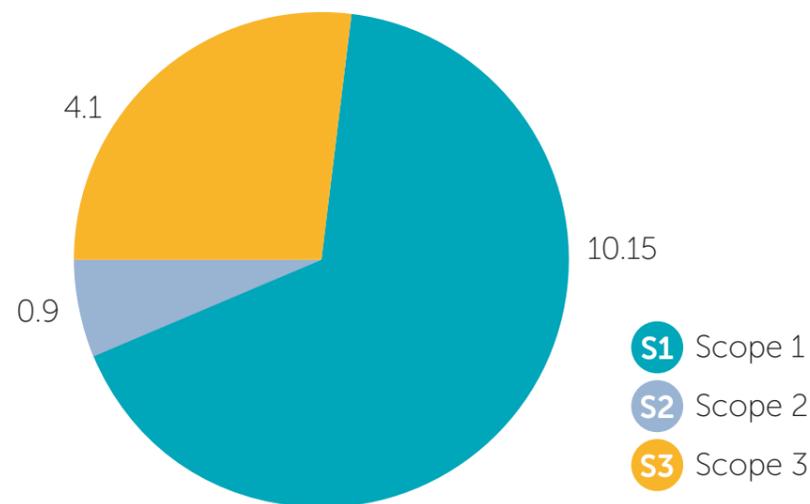
Establishing science-based greenhouse gas emissions (GHG) targets with integrity requires clarity of a base year for emissions.

TOTAL GHG EMISSIONS IN SSE'S 2017/18 BASE YEAR

While SSE's carbon reduction journey started nearly 15 years ago, this Net Zero Transition Plan is based on a base year emissions inventory from its financial year 2017/18. To understand the context of the targets and actions that follow, an understanding of the base year of emissions is important.

SSE's total GHG emissions in 2017/18 comprised 67% scope 1 emissions, 6% scope 2 emissions and 27% scope 3 emissions (see Figure 1). GHG emissions from SSE's portfolio of thermal power stations accounts for the majority of scope 1 and 2 emissions. That is why SSE electricity generation is the most important aspect of its Net Zero Transition Plan.

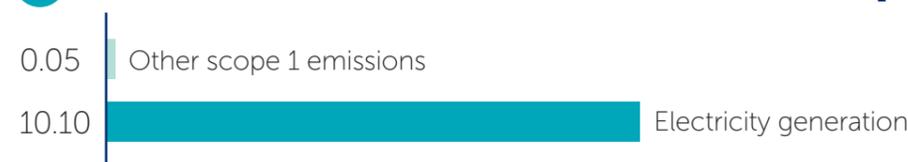
Figure 1: SSE's 2017/18 total GHG emissions by scope (MtCO₂e)



SSE's scope 1 emissions

In the 2017/18 base year, 99% of SSE's scope 1 GHG emissions were attributed to the generation of electricity from thermal sources (coal, gas and oil). With the remaining 1% of emissions ('other scope 1 emissions') associated with: fugitive emissions from SF₆ used in networks for its insulating properties; fuel used in company vehicles, fixed generators and mobile plant; and gas consumption in offices and depots.

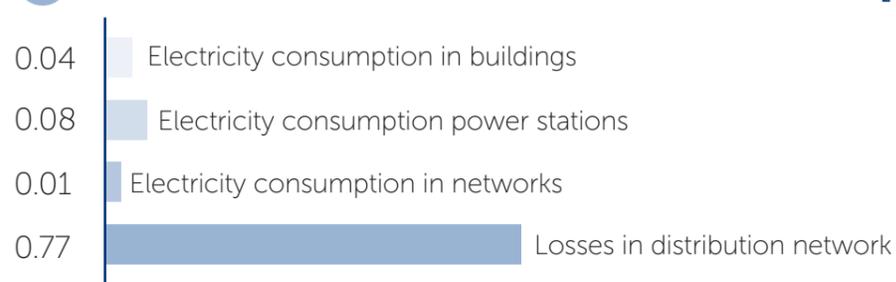
S1 Figure 2: SSE's 2017/18 scope 1 GHG emissions by category (MtCO₂e)



SSE's scope 2 emissions

In the 2017/18 base year, 15% of scope 2 GHG emissions were attributed to electricity consumed by SSE's offices, electricity networks (such as substations) and power stations; and 85% attributed to electricity lost in SSE's distribution networks in the north of Scotland and southern central England.

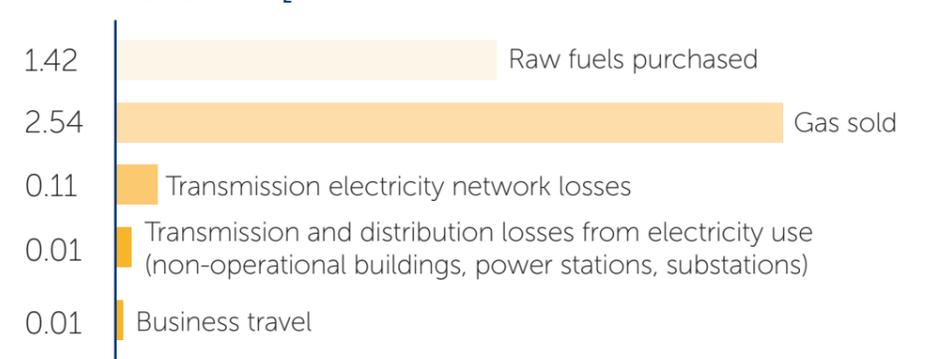
S2 Figure 3: SSE's 2017/18 scope 2 GHG emissions by category (MtCO₂e)



SSE's scope 3 emissions

SSE's total scope 3 GHG emissions were 4.1MtCO₂e in 2017/18. The largest contributions to scope 3 emissions were from gas sold to customers and the emissions relating to the fuel purchased to generate electricity. These emissions combined accounted for 97% of SSE's 2017/18 reported scope 3 emissions (see Figure 4).

S3 Figure 4: SSE's 2017/18 reported scope 3 GHG emissions by category (MtCO₂e)



More information on SSE's GHG reporting, including key definitions and the standards and guidelines it aligns to, is detailed in SSE's GHG emissions and water reporting criteria which can be found on [sse.com/sustainability](https://www.sse.com/sustainability).



REDUCING SSE'S SCOPE 1 GHG EMISSIONS FROM POWER GENERATION

With the overwhelming majority of SSE's direct impact on climate change coming from the generation of electricity from thermal sources, SSE's Net Zero Transition Plan focuses urgently on actions to reduce emissions from these activities.

Historic progress in reducing emissions from power generation

SSE made significant progress in reducing GHG emissions from electricity generation before its 'base year' in 2017/18. From its peak emissions in 2006/07, SSE's scope 1 GHG emissions had already reduced by 61% by 2017/18 and emissions have continued to fall. This was achieved through an orderly transition from a generation portfolio weighted towards coal and gas, to one weighted towards gas and renewables.

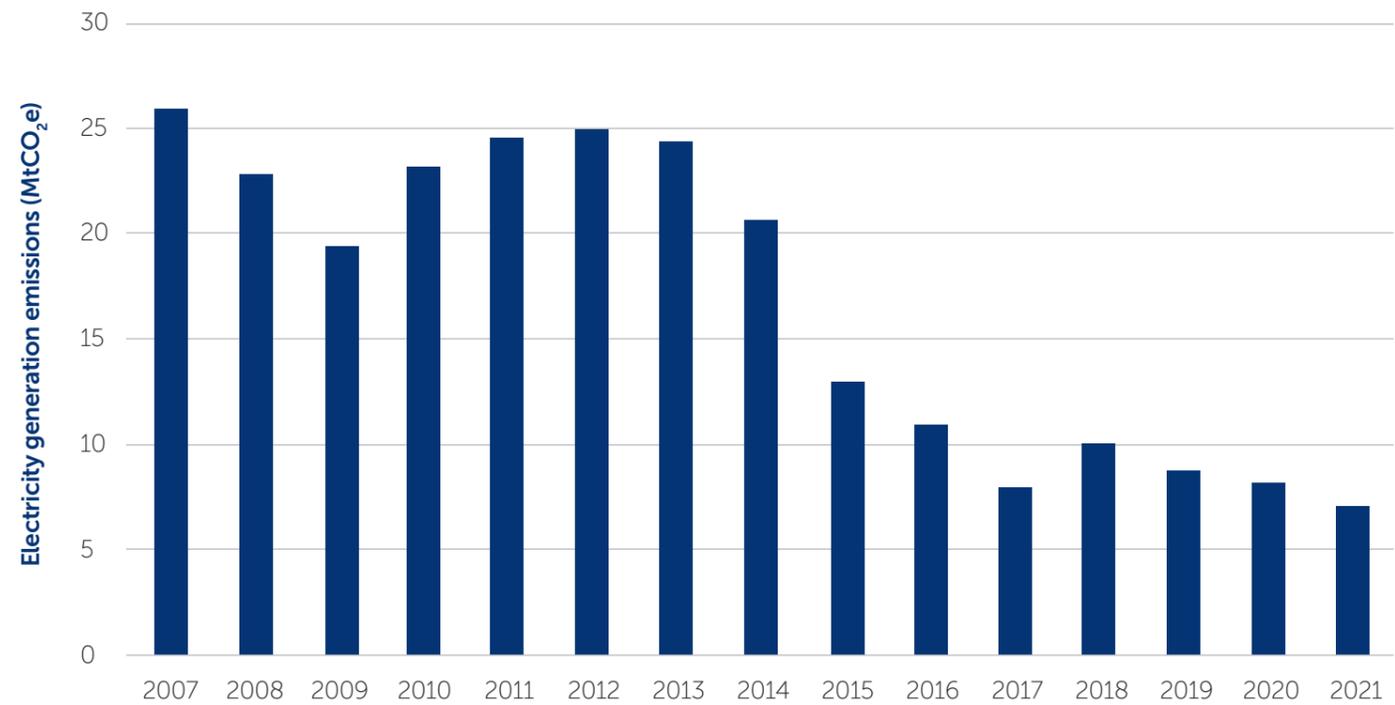


Figure 5: SSE's historical electricity generation GHG emissions 2006/07 – 2020/21

REDUCING GHG EMISSIONS FROM POWER GENERATION

Targets:

Net zero emissions by 2040 at the latest across SSE's scope 1 and 2 emissions.

Reduce absolute scope 1 and 2 GHG emissions by 72.5% by 2030 from the 2017/18 base year.

Actions:

1. **Reduce** generation emissions associated with unabated gas generation
2. **Develop** and progress new low carbon flexible generation
3. **Transparent advocacy** to support the establishment of policy frameworks that will:
 - Increase the ambition for the number of gas generation plant fitted with carbon capture and storage
 - Enable the deployment of significant new pumped storage hydro
 - Progress the potential for hydrogen generation, particularly through the 2030s
 - Establish a mechanism that will bring about a responsible phased reduction of unabated gas generation
4. Start to **explore options** for the neutralisation of residual emissions in the mid 2030s

To achieve both its interim 2030 target and net zero emissions in electricity generation, SSE's investment criteria requires capital to be allocated in strategic alignment with SSE's commitments to reduce GHG emissions. Working towards its interim absolute scope 1 and 2 GHG emissions reduction target of 72.5% between 2017/18 and 2030, SSE expects its scope 1 GHG emissions from electricity generation to fall from 10.1MtCO₂e in the base year to 2.8MtCO₂e in 2030.

SSE notes that some of its competitors have pursued a divestment strategy, with high carbon assets being sold to new owners. With the UK and Ireland continuing to need gas generation for electricity system security, SSE seeks to take responsibility for its high-carbon assets over the long term, operating them in a responsible way, managing the phased reduction of emissions and repurposing the assets for the net zero world.

The Group's strategy is focused on both decreasing the output from, and therefore investment in, existing unabated generation whilst at the same time increasing investment to build a significant portfolio of carbon capture and storage (CCS) and hydrogen plants.

This portfolio will be supported by other carbon-free technologies such as pumped storage hydro designed to provide the firm flexible capacity needed to support a renewables-led power system in the UK and Ireland. While this strategy is being executed, SSE anticipates that further developments to policy frameworks will be required to achieve the targets in full.

1. Reducing emissions from unabated gas generation

In the medium term, SSE will achieve its interim targets by:

- Operating existing plant differently: for those combined cycle gas turbine (CCGT) power stations that continue to be required to maintain security of supply SSE expects the running hours of those plant to reduce as renewable generation output on the electricity system increases.
- Closing some of its unabated gas plant as it reaches the end of its economic and engineering design life or in line with government policy.
- Exploring the potential for introducing hydrogen blending to SSE's most efficient gas-fired power station, Keadby 2.

Volatility in global fossil fuel prices, as has been seen from the Russian invasion of Ukraine, can impact on the relative merit of alternative sources of electricity generation. While short-term volatility can be expected, in the medium to long run SSE anticipates a strategic shift away from electricity generation output from unabated gas at scale.

2. Develop and progress new low-carbon flexible generation

To ensure continued security of supply and deliver the flexible



electricity generation that net zero electricity systems in the UK and Ireland require, SSE is pursuing the development of a flexible low carbon generation portfolio. It seeks to:

- **Build new abated CCGT** plant that provides the security of supply for the system using CCS technology from gas generation. SSE has a leading CCGT power station with CCS site being developed at Keadby in the Humber which is part of the East Coast Cluster in the Government's cluster sequencing process. It also has a potential site at Peterhead in the Scottish Cluster, which has reserve cluster status in the process.
- Continue to develop its consented large-scale **pumped storage hydro** project at Coire Glas in the Scottish Highlands, preparing for an investment decision subject to the emergence of a policy framework to support long duration flexible storage facilities in the UK, alongside the deployment of batteries and hydrogen storage.
- Explore and develop **hydrogen-generation** options. SSE has plans to develop a hydrogen power station at Keadby, supported by hydrogen storage facilities at Aldbrough also in the Humber, and is advocating for a policy framework to bring forward investment in these technologies. SSE also has advanced plans for hydrogen electrolyzers at its wind farm sites at Gordonbush in the north of Scotland and Galway in Ireland.

3. Transparent advocacy to support the establishment of policy frameworks that deliver a net zero power sector

SSE understands the imperative to completely decarbonise electricity systems in developed economies by 2035. However, it believes that without further policy intervention, that goal will not be achieved in either the UK or Ireland. It therefore seeks to be a constructive partner with governments and will advocate for the following key developments in energy policy:

- **Carbon capture and storage:** UK Government policy supports at least one CCS power station by the middle of the 2020s, but with multiple credible projects coming forward through the cluster sequencing process, SSE believes a Government commitment to five power-CCS projects in the 2020s is both achievable and necessary to achieve a net zero electricity system in the 2030s.
- **Pumped storage hydro:** pumped storage hydro at scale provides highly valuable long duration energy storage with SSE making this case to policy makers for many years. A recent Aurora study found that just 24GW of long duration energy storage could reduce GB's reliance on gas in the power sector by up to 50TWh in 2035. SSE is progressing projects and advocating for bespoke policy mechanisms to advance these technologies such as a "cap and floor" mechanism similar to interconnectors. While there is welcome recognition of a role for pumped storage hydro in the UK electricity system, SSE will continue to support policy makers deliver a practical and workable mechanism.
- **Hydrogen generation:** the UK Government's Hydrogen Strategy recognises that hydrogen is likely to play an important role in enabling a fully decarbonised power sector, with the potential for flexible power generation to use low-carbon hydrogen as a fuel, with zero emissions at the point of combustion. SSE is advocating for policies which can support the use of hydrogen, blended with natural gas, in existing assets this decade and to progress the potential for 100% hydrogen fuelled generation, particularly through the 2030s.

- **Responsible phased reduction of unabated gas generation:** to ensure security of supply as the energy system decarbonises there will be a requirement to progress the reduction of unabated thermal generation output in a measured and controlled way at an industry level, as was seen in the past through mechanisms to reduce pollutants such as the Large Combustion Plant Directive or the Industrial Emissions Directive. SSE will advocate for the introduction of an appropriate policy regime to ensure that unabated thermal generation output at a national level will be reduced in a responsible way.

Finally, to support government and policy makers to implement the market mechanisms to drive the transition from unabated gas generation to abated gas generation SSE will outline in detail the projections for electricity supply and demand in the 2030s and highlight the potential shortfall in abated flexible generation. SSE will also demonstrate the social and economic case for market mechanisms to support long-term storage such as large-scale pumped storage hydro to support the electricity system.

4. Neutralising residual emissions

While SSE seeks to achieve net zero emissions across its scope 1 and 2 emissions by 2040 at the latest, it is understood that negative emissions technology may be required to neutralise the remaining, residual emissions associated with electricity generation.

The reduction of greenhouse gas emissions associated with unabated gas generation is the most important action in achieving net zero. Notwithstanding the primary importance of focusing on the reduction of unabated emissions, SSE will start to explore options for the mid-2030s for the neutralisation of its residual scope 1 emissions, and will be guided by the best available science and independent frameworks available, including the GHG Protocol and the Science Based Targets Initiative as well as energy policy frameworks in the UK and Ireland.



EMISSIONS TRANSPARENCY

Understanding SSE's potential scope 1 generation emissions in 2035

Achieving net zero is core to SSE's business strategy, and as a leading generator of electricity in the UK and Ireland, SSE is also mindful of its social contribution to support the security of electricity supply to customers.

While SSE has a clear pathway to achieve its 2030 interim scope 1 target, in the longer term, the pathways are less clear. To provide stakeholders with clarity of the challenge in reducing scope 1 emissions to zero, a spectrum of plausible greenhouse gas emissions from SSE's thermal generation plant has been identified for 2035. The spectrum is illustrative and will depend on many variables outside of SSE's control, nevertheless, to aid understanding of the challenge associated with the last step to achieving net zero, two scenarios are described below that represent two ends of that spectrum of outcomes.

Figure 6: SSE's low-end and high-end emissions spectrum



Low-end emissions scenario

The low-end emissions scenario assumes very low running hours (also known as load factors) of SSE's remaining, efficient, unabated gas power stations. Low load factors of unabated thermal plant in the UK and Irish systems would be an anticipated outcome of very high wind penetration, some demand management and new low carbon flexibility services.

The low-end scenario represents an emissions reduction of 93% to 0.7MtCO₂e between 2017/18 and 2035.

High-end emissions scenario

The high-end scenario assumes an even greater requirement for flexible electricity output from unabated gas power stations to deliver security of supply in both the UK and Irish electricity systems. This results in higher load factors from SSE's existing power stations to support customer demand. These higher load factors might be an expected result of higher demand in the 2030s, and limited new low carbon flexible generation on the UK and Irish electricity systems.

The high-end scenario represents an emissions reduction of 78% to 2.3MtCO₂e between 2017/18 and 2035.

Dependencies

Energy policy in both the UK and Ireland will have a significant impact on the outcome of SSE's scope 1 emissions in 2035. In all scenarios, SSE assumes a policy framework that will enable it to have developed a minimum of three power generation plant with carbon capture and storage and two hydrogen power plant.

SSE believes that the lower end of the spectrum will be achievable with greater policy intervention from governments, specifically the introduction of policy mechanisms that reduce emissions from unabated thermal plant. The objective of such policy must be to deliver an orderly transition whilst supporting security of supply, similar to previous environmental regulations in the 2000s that reduced pollutants from industry and power generation, such as the Large Combustion Plant Directive or the Industrial Emissions Directive.



REDUCING SCOPE 1 CARBON INTENSITY OF ELECTRICITY GENERATED

Target:

Reduce the carbon intensity of scope 1 GHG emissions by 80% by 2030, from 2017/18 baseline.

Actions:

- Build a renewable electricity generation portfolio of 13GW of capacity by 2031
- Reduce absolute scope 1 greenhouse gas emissions from electricity generation as described on pages 9 and 10

Targeting a reduction in scope 1 GHG emissions intensity

One of SSE's core 2030 business goals is to reduce the carbon intensity of scope 1 GHG emissions by 80% by 2030, compared to 2018 levels, to 61.4gCO₂e/kWh. This is in line with a 1.5°C Paris-aligned pathway. The achievement of this key strategic goal requires two important developments. The first, is a very significant reduction of greenhouse gas emissions associated with electricity generation from fossil fuels. As described in the previous section, SSE expects to achieve that through changes to the operating regimes at existing gas power plant, in line with electricity system requirements. It also expects older power stations to come to the end of their natural economic and engineering lives. The second key contributing factor in reducing carbon intensity of electricity generation, is the rapid scaling up of renewable generation output, especially from offshore wind.

Accelerating growth in renewables

In 2020/21, SSE owned around 4GW of installed renewable generation capacity. It expects to increase its global renewable output by fivefold by 2031, to 50TWh annually, with a target

portfolio of over 13GW installed capacity that is owned by SSE. SSE Renewables currently has a secured project pipeline of around 10GW, of which 2.6GW is already under construction, which includes Dogger Bank Offshore Windfarm which will be the world's largest offshore wind farm when complete.

As well as SSE's flagship construction projects, offshore options include Berwick Bank, which would have a potential capacity of 4.1GW, and Coire Glas, which could be the UK's largest pumped storage project.

Figure 7 shows the expected growth in SSE's renewables generation portfolio in the 10 years to 2031.

To realise this growth in renewables, £5bn of SSE's £12.5bn strategic capital investment plan to 2026 will be invested in renewables and support the delivery of SSE's ambition of around 8GW of installed capacity by 2025/26.

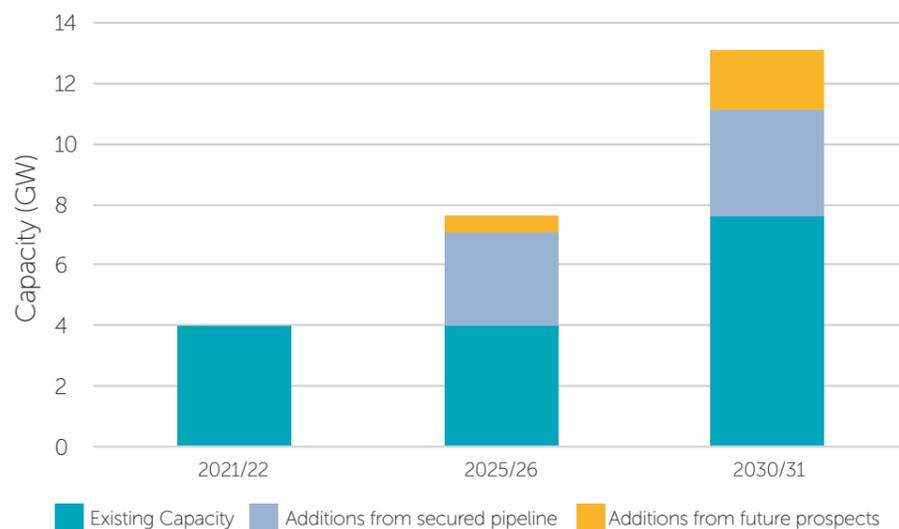


Figure 7: Targeting growth in SSE's renewable generation portfolio by 2031

As of 30 September 2021. More detail on SSE's renewables pipeline in SSE's Half Year Results and Strategic Update Presentation 2021/22 available at [sse.com/investors/reports-and-results/](https://www.sse.com/investors/reports-and-results/).



Renewables output reducing reliance on imported fossil fuels. Increasing energy production from renewable sources makes a very important contribution to tackling climate change, representing SSE's most important contribution to climate targets in the UK and Ireland. Importantly, it also supports energy security and affordability, reducing national reliance on imported fossil fuels.

That is why SSE will continue to advocate for an accelerated deployment of wind energy, both onshore and offshore, reducing the reliance of households and business on volatile global energy markets, and improving energy security for all.

ADDRESSING REMAINING SCOPE 1 AND 2 GHG EMISSIONS

The next part of the net zero reduction plan is to reduce the GHG emissions that arise in other areas of SSE's business and that are not directly linked to electricity generation.

Targets:

Reduce absolute scope 1 and 2 GHG emissions by 72.5% by 2030 from a 2017/18 base year.

Supported by SSE's regulated businesses' 1.5°C-aligned, SBTi-verified targets:

- SSEN Transmission: 46% absolute reduction in scope 1 and 2 carbon emissions by 2030 from a 2018/19 baseline
- SSEN Distribution: 55% reduction in Scope 1 and 2 emissions by 2033 from a 2020 baseline

Actions:

- Target actual reduction in scope 2 electricity losses from SSEN Distribution
- Reduce reliance on diesel back-up generation exploring local solutions and flexibility opportunities across SSEN's Scottish Island diesel generators
- Reduce SF₆ leakage and install SF₆ free assets across SSEN's networks
- Reduce energy consumption, install renewable generation across SSE's non-operational property portfolio and buy renewable electricity
- Replace vehicles up to 3.5 tonnes and where feasible vehicles up to 7.5 tonnes with electric and install charging infrastructure

SSE'S ELECTRICITY NETWORKS

S2 Electrical losses in distribution networks

For electrical losses, SSEN Distribution is committed to investment in understanding, managing and reducing actual losses. This means it will set minimum cable sizing and specify loss reduction equipment as a first choice for specifications as well as applying substation energy efficiencies to maximise impact. This is particularly important as the energy transition is expected to drive electricity consumption up and this could also drive losses up too.

S1 Diesel use in distribution networks

SSEN Distribution is focused on reducing reliance on all types of back-up generation in its electricity networks by strengthening reliability of the network and transitioning to hybrid mobile generators across network areas. In the Scottish Islands, it is looking to improve the efficiency of current arrangements and commit to exploring local solutions to reduce reliance on diesel generation as a back-up generation when links to mainland electricity supplies are unavailable. SSEN Distribution will be exploring whole system and flexibility solutions through innovation projects like RaaS (Resilience as a Service) to develop local solutions to reduce island diesel consumption.

S1 Removing SF₆ in SSEN's transmission and distribution networks

SSEN Transmission is taking a leading role in reducing SF₆ by working with suppliers to install SF₆ alternatives across the network at the 132kV level. It is also aiming to build the world's

first 400kV substation using SF₆ alternatives at its Kintore substation in Aberdeenshire. It continues to work with its trade association, Energy Networks Association, to support industry-wide adoption of SF₆ alternative technologies.

SSEN Distribution is targeting the removal of SF₆ equipment with the highest leakage rates and reducing the overall SF₆ asset bank by not adding any new installations of SF₆ at 132kV unless absolutely necessary. SSEN Distribution will also improve the management of SF₆ assets. For all replacements of SF₆ SSEN Distribution will explore alternatives through innovation and working in collaboration with its suppliers.

BUILDINGS AND VEHICLE FLEET

S1 S2 Gas and electricity use in SSE's buildings: Net zero by 2035 across its building and operational estate

To do this SSE will: install energy efficiency measures to its properties alongside monitoring equipment to reduce energy and carbon; and install micro generation technologies to reduce electrical consumption where viable. Whilst SSE works towards reducing energy use and carbon emissions, it will buy 100% of electricity from a renewable source.

S1 Diesel and petrol use in vehicle fleet: EV100 initiative

SSE will be 100% electric across its vehicles up to 3.5 tonnes and 75% across its vehicles up to 7.5 tonnes by 2030. SSE will make EVs the 'new normal' by switching 2,785 of its vehicles to electric and install charging points for its employees to use.

SSE'S SCOPE 3 GHG EMISSIONS

While not all of SSE's scope 3 emissions are within its direct control, they are nevertheless significant and SSE has influence on the scale of those emissions. In particular, it can influence the demand for the products it sells and the focus from its suppliers on reducing the carbon content of the products they sell.

TARGETING SCOPE 3 EMISSIONS REDUCTIONS

SSE's reported scope 3 GHG emissions in 2017/18 represented just over a quarter of SSE's total reported GHG emissions. SSE has two scope 3 GHG emissions targets: the first is a medium-term target to reduce emissions for its gas sold by 50% by 2034 and the second is a short-term target to engage with 50% of its supply chain (by spend) to set science-based targets by 2024.

Reducing scope 3 emissions relating to gas sold

Target:

Reduce absolute GHG emissions from use of products sold by 50% by 2034 from a 2017/18 base year.

Actions:

- Support customers consume less gas and switch to different fuel sources
- Advocate for policies that establish and support a pathway for decarbonised heat

Gas sold to customers contributed to 62% of SSE's scope 3 emissions in 2017/18 and is required by the Science Based Target Initiative to be included as a specific target in an electricity company's 1.5°C-aligned net zero ambition.

SSE sells gas to both domestic and business customers to heat their homes or businesses. The transition towards net zero for heating is unclear with few options or alternatives at this stage

for low-carbon heat to be produced at scale. However, SSE understands how important it is to transition the heat sector towards net zero and therefore has a series of actions in place to support this target including:

Reducing gas consumption: working with customers to install energy efficiency technologies including retrofits for homes and demand management technologies such as vehicle to grid technologies for charging EVs that enable storage of electricity when demand is low.

Fuel switching: options include working with customers to use renewable technologies such as solar, ground source heat pumps and battery storage; being ready for alternative heat technologies such as hydrogen by installing hydrogen ready equipment; and, supplying low-carbon gas alternatives to reduce GHG emissions associated with gas consumption (i.e. green gas or biomethane).

Advocating for policy mechanisms to reduce and remove GHG emissions: to support customers to transition to renewable or energy efficient technologies, for example the grants available for retrofitting homes in Ireland.

Educating and raising awareness: of the importance of reducing gas consumption using energy efficiency technologies and reducing GHG emissions associated with heat.

By focusing on reducing the GHG emissions associated with the gas products sold to customers, SSE believes that it will reduce emissions associated with this scope 3 category by 1.27MtCO₂e by 2034 ensuring its target is achieved.



Working with suppliers to set science-based targets and reduce emissions

Targets:

Engage with 50% of suppliers by spend to set an SBT by 2023/24.

Supported by SSE's regulated businesses' 1.5°C-aligned, SBTi-verified targets:

- SSE Transmission: 67% of suppliers will set a SBT by 2025
- SSE Distribution: 35% of suppliers will set a SBT by 2026

Actions:

- Establish a framework for supplier collaboration on net zero action
- Partner with the CDP supply chain engagement programme

SSE has an engagement target to support suppliers to set their own science-based targets by 2024 which, in turn, will support the reduction of emissions in the sectors that SSE's supply chain represents.

To achieve this objective:

- SSE's Sustainable Procurement Code outlines the expectation on suppliers to have a net zero carbon reduction strategy with an associated commitment or target that is aligned with climate science;
- Workshops are being held with key suppliers to facilitate dialogue and knowledge-sharing around the setting of science-based carbon targets and the challenges and opportunities presented for various industries;
- SSE is working with CDP Supply Chain to deliver webinars around carbon reporting and science-based target setting; and,
- Tools and techniques are provided through the Supply Chain Sustainability School partnership that supports suppliers to understand and set net zero carbon reduction strategies.

ADDRESSING OTHER SCOPE 3 EMISSIONS

Lowering emissions from electricity transmission losses

Network losses occur as power is transported through the electricity system. While losses predominately result from the transformation of electrical energy into heat, there are also other losses caused by

inaccurate metering, billing and energy theft.

As the electricity system grows to support the transition to net zero, losses are expected to increase across SSE's transmission network. It is projected that losses will increase from 103MW in 2017/18 to around 374MW in 2027. This will lead to an increase in the carbon emissions associated with the transmission losses even if the UK grid decarbonises at the planned rate. It is expected though that in the longer-term transmission losses will reach zero when electricity is completely decarbonised.

Despite the fact that generation connected to the SSE Transmission network is largely zero carbon, SSE Transmission has a strategy which focuses on monitoring and minimising losses on the network.

Losses can be reduced by reconductoring overhead lines, voltage upgrades, use of flexible AC Transmission systems, HVDC technology and low-loss transformers. However, all measures need to be considered in conjunction with load requirements, efficiencies, asset utilisation, system requirements set by the Electricity System Operator and the cost to the customer.

By implementing its transmission losses strategy and connecting more renewable electricity to its network in the north of Scotland, SSE Transmission seeks to reduce GHG emissions intensity by 50% per gCO₂e from losses/kWh by 2030 from a 2018 base year. This target is core to SSE Transmission's set of SBTi-verified science-based targets.

Quantifying scope 3 emissions from goods and services purchased

One challenge SSE faces in improving the disclosure of its scope 3 emissions is the quantification of emissions associated with purchased goods and services and the capital goods it buys. The emissions arising from its supply chain and capital projects, are a significant source of scope 3 emissions. Currently, SSE cannot confidently quantify these emissions, however, it is working towards collecting reliable and consistent data and in particular through its partnership with CDP.

SSE is updating its Large Capital Projects framework so that sustainability risks and opportunities from projects are assessed and managed through a project cycle, from design, build, operate and decommission. This includes an assessment of embodied carbon through the life of a project in addition to an assessment of the contribution a project would make to national net zero targets.

SSE Transmission is also collaborating with other Transmission Operators (TOs) in Great Britain to better understand supply chain emissions. As part of the UK ROCCIT (Reduction of Capital Carbon in Infrastructure: Transmission) group, it has published a methodology, product calculator and carbon asset database for suppliers to use in measuring and reporting the embodied carbon in their assets. This has been a joint effort from all three TOs, building on work started by National Grid and the tools and datasets have been published on the Supply Chain Sustainability School's website

SSE Transmission is also implementing a supply chain sustainability reporting tool to capture data on capital carbon from construction projects. The tool will be trialled on its Shetland HVDC project prior to a wider roll-out across its other projects.

Reducing emissions related to extraction, processing and transport of raw materials to power stations

SSE purchases gas and oil for use in electricity generation. SSE's 'well to tank' emissions arise as a result of extracting and transporting these raw materials to SSE's power stations. In 2017/18, well to tank emissions arising from fuels (also including coal consumed at that time) accounted for around 35% of SSE's scope 3 emissions (1.42MtCO₂e). It is expected that well to tank emissions will continue to fall between 2017/18 and 2030 due to the closure of older thermal plant and the change to operating regimes of existing power stations, this is despite the operation of new carbon capture power stations that generate electricity. SSE is working with its suppliers to identify the potential for future emissions reductions associated with the production of fuels purchased.

IMPROVING REPORTING OF OTHER SCOPE 3 EMISSIONS

SSE strategy for scope 3 emissions has been to continually improve completeness and accuracy of its scope 3 inventory through improvements to its data collection and reporting processes. For example, SSE included the emissions from the fuel used by its third-party vessels in its data in 2020/21 reflecting its increasing offshore wind farm developments.

SSE will continue to work to understand its scope 3 inventory, for example, potentially through work being led by SSE Transmission, which is trialling Natural Capital tools which include assessment of carbon impacts from land use, land use change and forestry (LULUCF). The guidance around accounting for carbon emissions from land is still in development but this is an area of important development.

A PLAN FOR A JUST TRANSITION

SUPPORTING A JUST TRANSITION TO NET ZERO

While it is well understood that global warming above 1.5°C will have serious consequences for human life in every part of the world, the transition to net zero to avoid this dangerous climate change will also have social consequences. This can include both positive and negative impacts, for example: the loss of high-carbon jobs; the creation of new low-carbon jobs; access and use of new technologies; economic opportunities from new investments; and impacts on household energy bills. A just transition seeks to reach net zero in the fairest way possible for working people, consumers and their communities.

Companies like SSE have a responsibility to influence those impacts as they transition out of high-carbon activities and transition into a net zero world: minimising potential negative impacts while at the same time seizing the opportunities to increase value and share economic prosperity.

SSE believes that a good Net Zero Transition Plan should consider, carefully, the social consequences of that industrial transformation from high-carbon economic activity to low carbon.

SSE'S JUST TRANSITION STRATEGY

In November 2020, SSE published its Just Transition Strategy which outlines a framework of 20 principles, helping to guide SSE's decision-making and influence greater fairness for those impacted by the decline of high-carbon economic activity and increase the opportunities of climate action.

The strategy is framed into two themes: 'transitioning in' to new or reformed activities with low or reducing carbon emissions, while simultaneously 'transitioning out' of high-carbon operations. Under these themes, SSE considers principles for good, green jobs; consumer fairness; building

and operating new assets; supporting people in high-carbon jobs; and supporting communities.

PUTTING PRINCIPLES INTO ACTION

Following on from the publication of its Strategy, in September 2021 SSE published a new report focused on moving from principles to action. This report outlines 20 commitments from SSE, 10 recommendations for industry and 10 recommendations for government to support workers transition from high- to low-carbon careers.



A just transition to net zero can only be achieved through a collaborative approach. SSE's Just Transition Strategy and its

commitments and recommendations within this report are the result of the robust relationships it has with its stakeholders, including numerous industry, education and skills bodies. Ongoing engagement, consultation and collaboration with these partners, and others, is critical in developing just transition plans and strategies.

REPORTING ON PROGRESS

SSE will continue to evaluate and mitigate the impacts of the Net Zero Transition Plan on workers, consumers, suppliers and communities by aligning to its Just Transition Strategy. To evaluate SSE's impacts of its Plan on these stakeholders SSE will report progress against its Just Transition Strategy annually in its Sustainability Report. SSE will also detail mitigation plans as part of the progress report.

SSE'S 20 PRINCIPLES FOR A JUST TRANSITION

TRANSITIONING INTO A NET ZERO WORLD			TRANSITIONING OUT OF A HIGH-CARBON WORLD	
 SSE'S PRINCIPLES FOR GOOD, GREEN JOBS	 SSE'S PRINCIPLES FOR CONSUMER FAIRNESS	 SSE'S PRINCIPLES FOR BUILDING AND OPERATING NEW ASSETS	 SSE'S PRINCIPLES FOR PEOPLE IN HIGH-CARBON JOBS	 SSE'S PRINCIPLES FOR SUPPORTING COMMUNITIES
<ol style="list-style-type: none"> 1. Guarantee fair and decent work 2. Attract and grow talent 3. Value employee voice 4. Boost inclusion and diversity 	<ol style="list-style-type: none"> 5. Co-create with stakeholders 6. Factor-in whole-system costs and benefits 7. Make transparent, evidence-based decisions 8. Advocate for fairness 	<ol style="list-style-type: none"> 9. Support competitive domestic supply chains 10. Set social safeguards 11. Share value with communities 12. Implement responsible developer standards 	<ol style="list-style-type: none"> 13. Re-purpose thermal generators for a net zero world 14. Establish and maintain trust 15. Provide forward notice of change 16. Prioritise retraining and redeployment 	<ol style="list-style-type: none"> 17. Deliver robust stakeholder consultation 18. Form partnerships across sectors 19. Promote further industrial development 20. Respect and record cultural heritage

GOVERNANCE AND ACCOUNTABILITY

GOVERNING THE NET ZERO TRANSITION PLAN

This Net Zero Transition Plan is governed and approved by the SSE Board. This is in line with the Board's role to set SSE's purpose, vision and strategy and consider wider stakeholder matters, including priorities surrounding SSE's principal sustainability impacts – the most material of which is climate change. As head of the Board, the Chair is responsible for ensuring the Board receives the required information to ensure the ongoing validity and clarity of the Plan for SSE's individual context.

The implementation of the Plan is the responsibility of the Group Executive Committee (GEC). Through leadership of the GEC and as head of executive management, the Chief Executive retains ultimate responsibility for the management of climate-related initiatives under the Plan and in turn, driving progress. In support of this, the Chief Executive will agree the annual objectives and priorities for the Chief Sustainability Officer who is a direct report. The Chief Sustainability Officer (CSO) advises the Board, GEC, Group Risk Committee and Business Units on climate-related matters and the Net Zero Transition Plan. Governance of the Net Zero Transition Plan sits within a wider context of sustainability governance following a comprehensive review of ESG governance pathways in 2021.

The Annual Report and the Sustainability Report will provide details of the governance of the Plan and any updates on progress each year.

ACCOUNTABILITY

Executive remuneration

SSE remunerates its Executive and Non-executive Directors in accordance with the Directors' Remuneration Policy. Performance on targets contained within the Net Zero Transition Plan is currently rewarded through the Annual Incentive Plan that assesses performance against SSE's 2030 business goals which are linked to the UN's Sustainability Development Goals. Progress against these SDGs currently contributes to

20% of the total Annual Incentive Plan. In February 2022, SSE proposed amendments to its Remuneration Policy that would further enhance the role of climate targets and will be subject to shareholder approval in July 2022.

Robust reporting on progress

This Net Zero Transition Plan is designed to be an enduring document with any changes to timescales for goals and targets and core assumptions used being updated annually in the SSE Sustainability Report.

Both the Annual Report and the Sustainability Report will summarise the governance of the Net Zero Transition Plan and any updates on progress through the year. The Annual Report will also report the extent to which its climate risk reporting is consistent with the Task Force on Climate-related Financial Disclosures (TCFD). The totality of SSE's approach to the four TCFD recommendations – Governance, Strategy, Risk Management and Metrics and Targets – will also be presented in the Annual Report, with supplementary information provided in the Sustainability Report. To help stakeholders navigate the totality of disclosures relating its Net Zero Transition Plan, SSE will also provide a summary document.

SSE will report any updates to frameworks, relevant methodologies on climate-related disclosures in its GHG Criteria document which is published with independent limited assurance annually.

ECONOMIC ALIGNMENT WITH NET ZERO

SSE is a champion of sustainable finance, and believes that the UK Government's delivery of a UK Green Taxonomy is an important step for investors and consumers to understand how a company is impacting the environment. That is why the UK Green Taxonomy, when implemented, will provide the framework that SSE will use to evaluate the economic activity of the Net Zero Transition Plan. However, with consultation on the UK Green Taxonomy expected to last over the course of 2022 and into 2023, the framework has not sufficiently progressed to allow immediate application against

this Net Zero Transition Plan.

Therefore, as a starting point, SSE will apply the broad principles and frameworks provided by the EU Taxonomy and will adapt for any emerging technical guidance as the UK Green Taxonomy is developed. As a consistent starting point for both taxonomies, economic activities will only be considered taxonomy-aligned if they:

- Make a substantial contribution to one of six environmental criteria (climate change mitigation, climate change adaptation, water, circular economy, pollution and ecosystems);
- Do no significant harm to the other five criteria; and
- Comply with the minimum safeguards covering social and governance standards.

Provided SSE's taxonomy alignment interpretation and approach align with emerging guidance and best practice, it expects to report under the UK Green Taxonomy ahead of mandatory adoption.

ALIGNING ENGAGEMENT AND COMMUNICATIONS WITH NET ZERO

SSE actively and positively advocates for more ambitious climate change policy to achieve net zero and, with it, a more favourable climate for investments in renewable and low-carbon generation and investment in electricity networks. SSE only conducts lobbying and advocacy activity that is in line with the goals of the Paris Agreement and its own net zero strategy and ambitions.

SSE is transparent around its policies and advocacy on climate change. One way it does this is through undertaking an annual review of its trade association memberships to ensure that the policy positions of the organisations it is part of are aligned with its own principles on climate change. These principles are drawn from SSE's Climate Change Policy and are aligned to the Paris Agreement. SSE discloses the results of this review annually on sse.com alongside any action taken as a result of the review.



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