Energy and emissions

Approach

Our Environment Strategy commits us to mitigating our climate change impacts and helping our customers and communities to do the same. Our efforts to improve energy and emissions performance covers our operations and broader value chain.

Energy efficiency and climate resilience are also factored into our Networks for the Future program. We are considering future climate forecasts, as well as energy efficiency requirements, when making decisions on asset location, design and network equipment. While we anticipate a modest increase in our GHG emissions as we maintain our existing network during the Networks for the Future roll out, we aim to continue reducing our emissions intensity over the longer term.

This year we continued to support the Australian renewable energy market with two projects where we have Power Purchase Agreements (PPAs) commencing generation. When fully operational, their production will be around one quarter of Telstra's annual energy consumption. This allows Telstra to reduce and stabilise its energy costs, whilst meeting federal Government targets for large scale renewable energy. We continue to look to invest in renewables through developing additional PPAs.

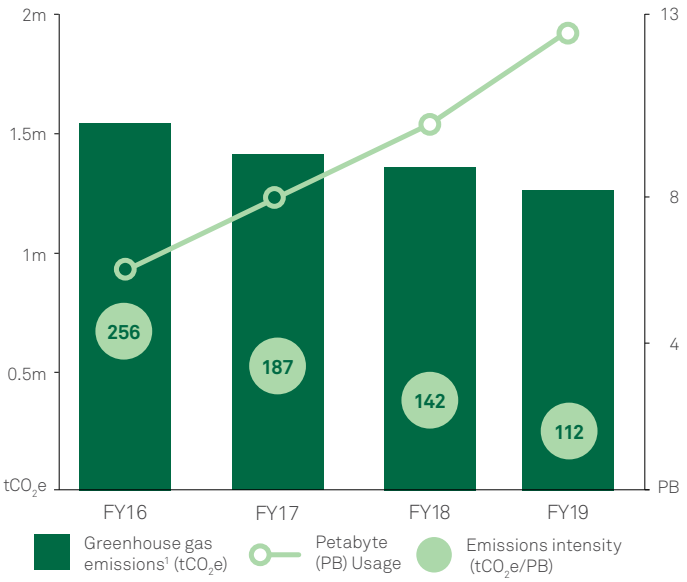
Progress
Managing our energy and emissions

We have committed to reducing our GHG emissions intensity[1] (tCO_2e per petabyte) by 50 per cent by 2020, from a baseline year of FY17. From our base year, we reduced our emissions intensity by 40 per cent, meaning we are on track to achieve our 2020 target.

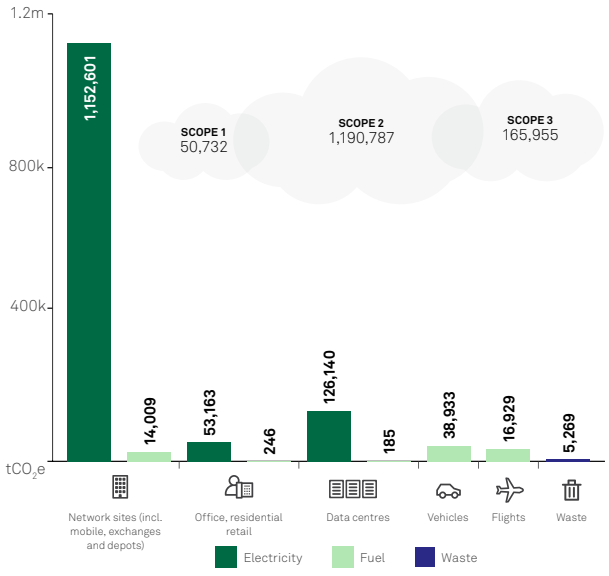
Customer data use continues to grow, however, the rate of growth is slowing. This is primarily due to no new major advancements in technology-driven data consumption (e.g. on-demand streaming).

Overall our emissions have decreased by 2.6 per cent from last year. Drivers of our emissions intensity performance include the increased transition of operational control of infrastructure to nbn co throughout the year, a reduction in our electricity consumption from energy savings derived from project initiatives (energy efficiency and decommissioning), changes to state-based emission factors for electricity published by the Australian Government as well as a reduction in transport fuel consumption.

Greenhouse gas emissions, petabyte usage and emissions intensity[1]



FY19 greenhouse gas emissions (scope 1, 2 and 3) by category (tCO_2e)



[1] GHG emissions are calculated using the latest emission factors at the time of reporting. Our emissions intensity target includes scope 1,2 and the following scope 3 emissions; waste, air travel, electricity transmission losses and fuel extraction and refining.

[2] Emissions intensity information has previously been reported on a terabyte (TB) basis. From FY18 it is presented on a per petabyte (PB) basis to reflect our new 2020 target.

[3] We have re-stated our FY18 total GHG emissions due to the identification of additional contractor fuel data from a review of our operational boundary. This increased our scope 1 and 3 GHG emissions by 5,352 tCO_2e (9.2% change in scope 1, 0.1% change in scope 3 and 0.4% change in total GHG emissions from previously reported).

Energy efficiency

Electricity consumption accounts for around 95 per cent of our total GHG emissions (scope 1, 2 and 3). We strive to reduce energy consumption across every aspect of our business through a careful program of planning, equipment monitoring and energy productivity optimisation.

Our network sites, including exchanges and data centres, are our largest consumers of electricity. This year, we continued to enhance the efficiency of these sites, installing new lighting and air-conditioning controls, retiring inefficient cooling systems, improving our approach to fault detection and repair, and optimising facility design.

Since 2011 we have invested $61.2 million in improving the energy efficiency of our facilities. This year we invested $4.7 million in energy reduction projects that delivered a collective saving of 13,747 tCO_2e and more than 13,500 MWh of electricity per annum.

We continue to deploy and use smart electricity meters to improve our measurement capabilities and help us identify consumption patterns. We are also using Internet of Things (IoT) power monitoring systems to better understand where energy is used in our facilities, rapidly identify issues that adversely impact energy efficiency or are not compliant with Telstra's operational standards, and to validate energy reduction initiatives.

This year, as part of our network facility energy reduction program, we have been implementing a new LED based lighting system at our network sites which consumes less energy and provides lighting levels that are double the existing system, leading to brighter and safer working environments for our technicians.

We have also focused on optimising our top 10 network energy usage sites by conducting site energy audits. A range of activities to enhance heating, ventilation and cooling (HVAC) efficiency including improved economy cycle, chilled water and fan control strategies will be implemented throughout FY20.

FY19 energy reduction initiatives (MWh)

Initiative	Description	Annual savings
HVAC optimisation	We conduct physical inspections of our network sites to identify faults affecting power consumption and review equipment performance to identify optimisation opportunities.	7,563
Building services energy efficiency upgrades	Our capital works program includes the installation of fresh air cooling systems, high efficiency chillers, electronically commutated fans and lighting upgrades.	5,587
Upgrading rectifiers	Rectifiers convert electricity from AC mains power to DC power, which is required to run our telecommunications equipment. We continue to upgrade older inefficient units to more modern, high efficiency rectifiers. These are now achieving efficiency levels of 96 – 98 per cent.	399
Total		**13,549**

We also depower and decommission redundant network infrastructure to save energy and re-use, or recycle components where practicable. This year we completed 1,282 projects which delivered a saving of 18,059 MWh per annum.

For more information on how we recycle our infrastructure components, see the environment and resource efficiency section of this report.

Managing our transport emissions

Our GHG emissions from our operational fleet reduced by thirteen per cent this year primarily as a result of reduced kilometres travelled by our fleet. We also continue to transition to more fuel-efficient vehicles, progressively removing large six cylinder wagons from our fleet and replacing them with four cylinder models.