



An Australian Government Initiative


Public Disclosure Summary

Virgin Australia

1 July 2017 – 30 June 2018

Declaration

To the best of my knowledge, the information provided in this Public Disclosure Summary is true and correct and meets the requirements of the National Carbon Offset Standard Carbon Neutral Program.

Robert Wood 
General Manager, Group Sustainability

Type of carbon neutral certification: *Virgin Australia Fly Carbon Neutral Program and Tiger Air Fly Carbon Neutral Program*

Verification

Date of most recent external verification/audit: 15 November 2016

Auditor: Ernst & Young

Auditor assurance statement link: *attached*



1. Carbon neutral information

Introduction

Virgin Australia and Tiger Air’s Fly Carbon Neutral Program allows guests flying with Virgin Australia or Tiger Air to offset the emissions attributable to their seat when booking their flight.

The greenhouse gas emissions are calculated per city pair flown in the previous twelve months (the 2017/18 financial year) within the network, which is then divided by the number of persons that travelled on these city pairs during that time, adjusted to account for freight. The number of persons that travelled on these city pairs during that time includes paying guests and staff on airline business (duty travel).

Adopting the previous twelve months of data enables emissions to be calculated at the time of passenger purchase and normalises any variations in operational parameters occurring.

Virgin Australia purchases offsets in advance so that the correct price is used in calculating the cost to passengers purchasing them. Offsets are then surrendered by Virgin Australia after the fact. This process is monitored by the Virgin Australia Finance Department to ensure there are always sufficient offsets available for purchase by passengers.

Figure 1, below illustrates the general Fly Carbon Neutral Program operated by Virgin Australia. Noting that prior to the point of a passenger making a flight, the emissions per seat for each city pair are known (based on the previous year), and the cost per tonne CO₂-e is known as carbon units are purchased in advance.



Figure 1 Illustration of the general Fly Carbon Neutral Program steps.

Figure 2, below, illustrates the interrelationship between the service (Carbon Offset Program), the function of the service, the relevant function for the Life Cycle Assessment ('LCA'), the functional unit (kg CO₂-e/passenger/city pair), and the reference flow.

Note:

ISO 14044 requires a critical review of the greenhouse gas LCA when the LCA is going to be publicly available and used for the purposes of comparing one product/service with another. The Virgin Australia LCA has been prepared as part of the requirements in the application for NCOS-CN certification only. As such, the data and the conclusions presented in the LCA are intended for use by Virgin Australia and the Department of Environment only. They will not be used for comparison with any other similar service or product. As a result, this LCA does not require a critical review and one has not been undertaken.

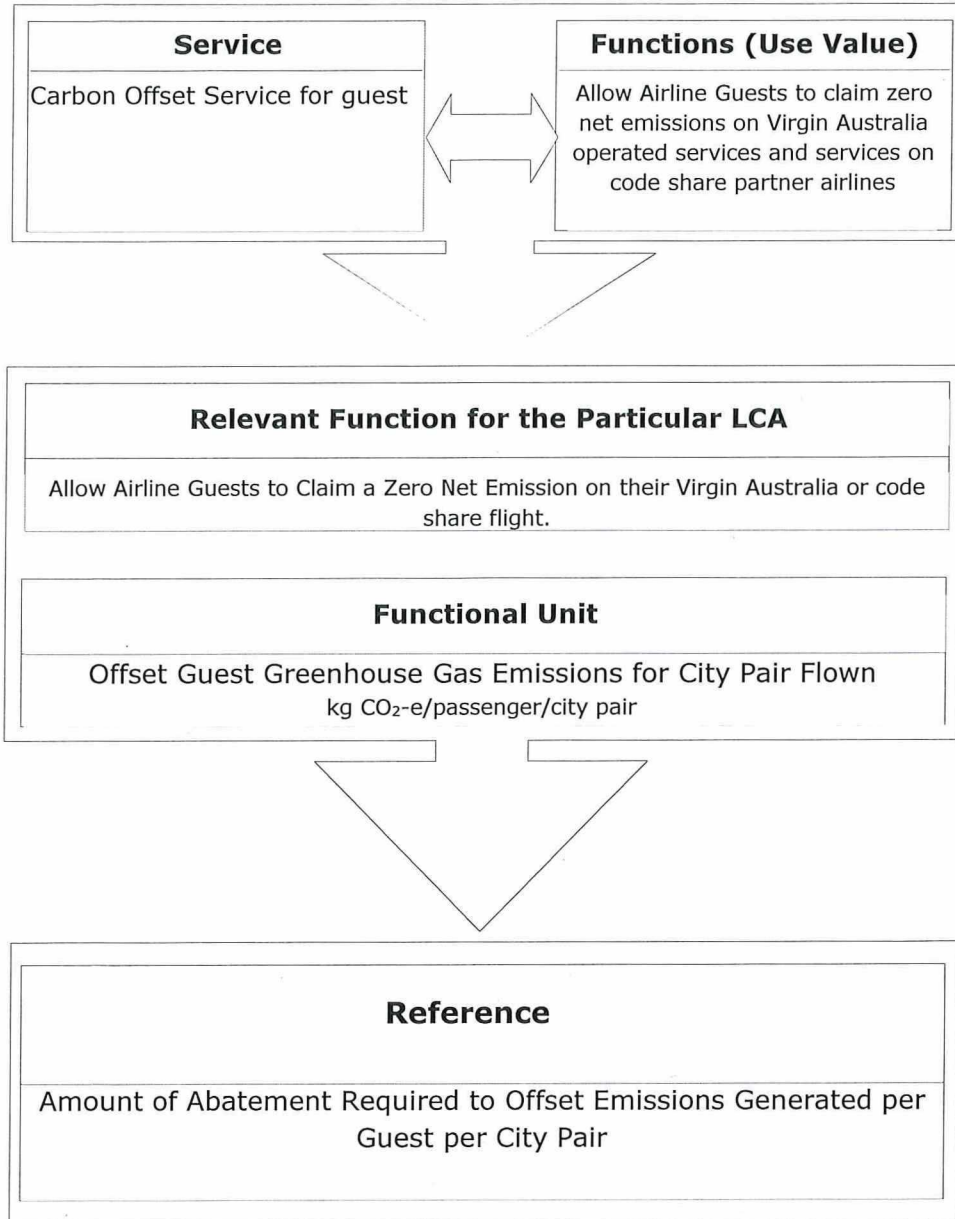


Figure 2 Program Function Overview

Emission sources within certification boundary

Quantified sources

The LCA applies to the operation of aircraft operated by Virgin Australia (domestic and international) including Virgin Australia Regional Airlines and Virgin Samoa regardless of location. In the 2015/16 reporting year we expanded our methodology to include code share flights relating to our airline partners e.g. Delta, Air New Zealand, Etihad and Singapore Airlines, which will commence in the 2018/19 reporting year. TigerAir Australia has been included in the



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methodology offering customers the option to offset, which commenced in the 2017/18 reporting year with city pair emissions calculated using 2016/17 data, consistent with Virgin Australia's historical approach.

There are three main areas of Virgin Australia and TigerAir's operations that are assessed for inclusion in the Life Cycle Assessment and where greenhouse gas emissions are tallied for allocation to a particular flight. These areas are:

- Aircraft Operations: This area relates mainly to fuel uplift and fuel extraction and distribution losses.
- Aircraft Operations Support: This area includes provision of support to aircraft operations; and
- Airline Operations Support: Administration and logistics support required for the day to day operation of the airline.

Non-quantified sources

The following emission sources have not been quantified in line with the provisions in the NCOS. The impact of excluding these sources is not expected to materially affect the overall total emissions.

- Staff travel to/from work has not been included as emissions from commuting to the work will be minimal compared to the effort to gather this information and likely accuracy of the information.
- In-flight and terminal waste has not been included as the emissions from waste will be minimal compared to the effort to gather this information.
- Magazine production and waste has not been included as emissions from the production and waste (when not recycled) will be minimal compared to the effort to gather this information.
- Head office paper has not been included as emissions from the use of paper will be minimal compared to the effort to gather this information.
- Fuel used by external catering contractors has not been included as the emissions relating to diesel fuel use will be minimal compared to the effort to gather this information.

Excluded Sources

The following emission sources have not been quantified in line with the provisions in the NCOS. These sources are outside of the control of Virgin Australia to influence products used or processes followed, which is the primary reason for their exclusion.

Aircraft manufacture – This is outside of the scope of our business practices and expertise. Data collection and allocation to specific aircraft would be complex and time consuming as we have both leased and owned aircraft. And we do not have access to any of the data related to their production.



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Regulation providers – This is outside of the scope of our business practices and expertise. Details of the operation of the regulatory body and the proportion that would apply to Virgin Australia would be difficult to determine.

Air traffic management – This is outside of the scope of our business practices and expertise. Processes and procedures relating to the management of operations at air traffic management organisations are out of Virgin Australia’s control or influence to develop or change. Data relating to these operations are not available to Virgin Australia and would be complex to allocate to the aircraft.

Passenger travel to/from airport – similar to staff travel above, it is even more difficult to know how a particular passenger travelled to/ from the airport and the distance they travelled to/from the airport to allow for an accurate estimate of emissions.

Jet fuel production – This is outside of the scope of our business practices and expertise. Processes and procedures relating to the production of jet fuel are out of Virgin Australia’s control or influence to develop or change. Data relating to these operations are not available to Virgin Australia and would be complex to allocate to the aircraft.

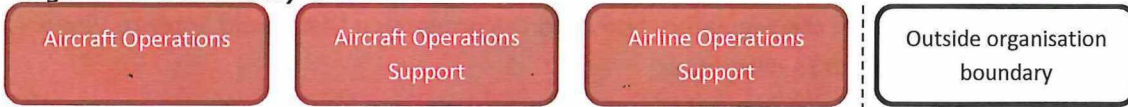
Figure 3, below, illustrates the emissions that are within our boundary and indicate whether they are quantified or non-quantified sources.



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Organisation Boundary



Emission sources

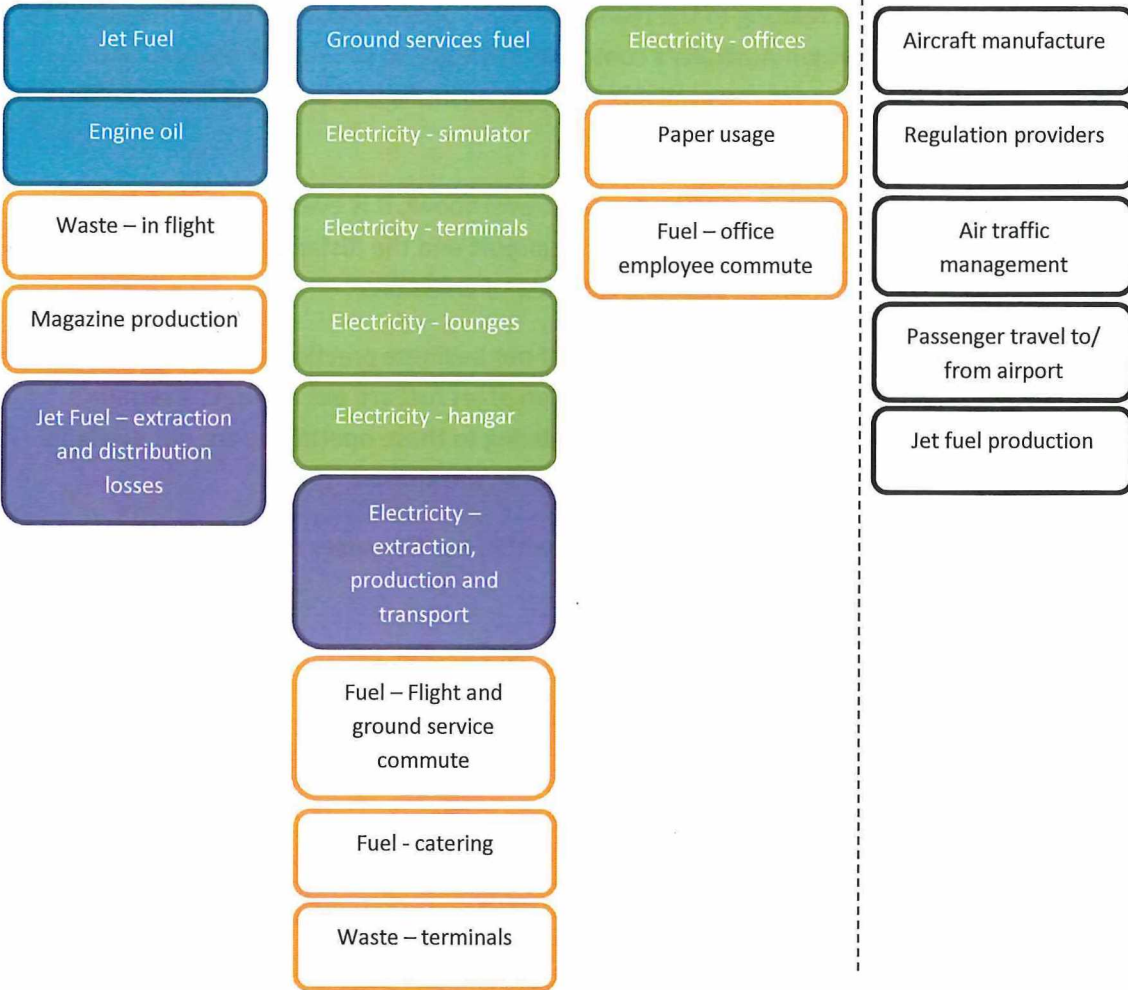




Figure 3 Emissions overview

2. Emissions reduction measures

Part A. Emissions over time

Over time, total emissions for Virgin Australia have been

Table 1. Virgin Australia emissions since base year					
	Base Year (2010/11)	2014/15	2015/16	2016/17	2017/18
Scope 1	2,976,751	3,302,763	3,342,041	3,392,211	3,479,712
Scope 2	14,735	17,222	17,893	18,908	19,410
Scope 3		284,545	171,388	173,972	178,726
Total	2,991,486 tCO ₂ -e	3,604,530 tCO ₂ -e	3,531,322 tCO ₂ -e	3,585,091 tCO ₂ -e	3,677,847 tCO ₂ -e

Table 2. TigerAir emissions since base year			
		2016/17	2017/18
Scope 1		462,516	461,682
Scope 2		79	79
Scope 3		23,214	23,673
Total		485,809 tCO ₂ -e	485,434 tCO ₂ -e

Emissions for Virgin Australia's opt-in product: Carbon neutral flight services

Table 3. Carbon offsets purchased	
Year	Carbon Offset (t)
2011/12	65,971
2012/13	49,644
2013/14	38,653



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2014/15	32,747
2015/16	29,949
2016/17	29,110
2017/18	27,406

Emissions for TigerAir’s opt-in product: Carbon neutral flight services

Table 4. Carbon offsets purchased	
Year	Carbon Offset (t)
2017/18	5,771

Part B. Emissions reduction strategy

Virgin Australia is committed to addressing our climate change impacts through a combination of fuel efficiency programs, energy reduction programs, sustainable alternative fuels and carbon offsetting.

The combustion of jet fuel contributes to the majority of our emissions and is the focus of our fuel efficiency program. Virgin Australia have a dedicated Fuel Efficiency team comprising of pilots and data analysts, whose role it is to continually investigate and implement fuel efficiency improvements. This has been focussed on process and procedural improvements to eliminate unnecessary fuel burn. There has also been focus on reducing the weight of the cabin by removing unnecessary items.

Virgin Australia is also working toward incorporating sustainable aviation fuels into fuel purchasing from 2020, in line with our aspirational target to use 5% biofuels by 2020. Sustainable aviation fuels not only have a smaller carbon footprint but also burn more efficiently than regular jet fuel, which will further reduce our emissions.

Complementing the two initiatives above, we use carbon offsets to cover those emissions from guests who choose to offset the emissions generated through their travel. In the coming year we plan to grow our offsets program to reach a larger portion of those flying with Virgin Australia.

Part C. Emissions reduction actions

Measures include:

- **Fleet renewal:** We continue to focus managing the age of our fleet, which allows us to benefit from technological advancements made by manufacturers in improving the fleet efficiency. Our fleet plan continues to keep this as a key focus for the airline.



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- Fuel Efficiency: Virgin Australia's fuel efficiency team have implemented a range of initiatives throughout the year resulting in over 11 million litres of fuel saved.
- Sustainable Aviation Fuel. In partnership with Air New Zealand in March 2016 Virgin Australia issued an RFI to procure 200 million litres of sustainable aviation fuel each year for a period of 10 years, starting in 2020. In October 2017 Virgin Australia commenced a project in partnership with the Queensland Government, Brisbane Airport Corporation and a sustainable fuel supplier to test the logistics of getting these fuels into the fuel infrastructure at Brisbane Airport. We continue to be an active member of the Sustainable Aviation Fuel User Group and participate in international discussions with ICAO on analysing the methodology for assessing the lifecycle carbon reduction of different alternative fuel production processes.



3. Emissions summary

Virgin Australia

Table 5. Emissions Summary		
Scope	Emission source	t CO ₂ -e
1	Aviation Fuel	1,346,779,362
1	ULP	99
1	Diesel	2,574
1	Kerosene	216
1	Engine oil	77
1	Kerosene – maintenance	6,139
1	Kerosene – charter flights	9,406
1	Kerosene – repositioning flights	468
2	Electricity – terminals (including lounges)	11,879
2	Electricity – offices	3,824
2	Electricity – Hangars	2,413
2	Electricity – Simulator operation	1,295
3	Aviation fuel – extraction and production	178,421
3	ULP – extraction and production	5
3	Diesel – extraction and production	132
3	Kerosene – extraction	11
3	Engine oil – extraction and production	20
3	Kerosene – maintenance – extraction and production	315
3	Kerosene – charter flights – extraction and production	482
3	Kerosene – repositioning flights – extraction and production	24
3	Electricity – terminals (including lounges)	13
3	Electricity – offices	4
3	Electricity – Hangars	96
3	Electricity – Simulator operation	1
Total Gross Emissions		3,677,847
GreenPower or retired LGCs		0
Total Net Emissions		3,677,847

Tiger Air

Table 6. Emissions Summary		
Scope	Emission source	t CO ₂ -e
1	Aviation Fuel	457,171
1	ULP	4
1	Diesel	0
1	Kerosene	0
1	Engine oil	2



Scope	Emission source	t CO ₂ -e
1	Kerosene – maintenance	1,693
1	Kerosene – charter flights	698
1	Kerosene – repositioning flights	2,113
2	Electricity – terminals	79
2	Electricity – offices	0
3	Aviation fuel – extraction and production	23,441
3	ULP – extraction and production	0.22
3	Diesel – extraction and production	0
3	Kerosene – extraction	0
3	Engine oil – extraction and production	0.51
3	Kerosene – maintenance – extraction and production	87
3	Kerosene – charter flights – extraction and production	36
3	Kerosene – repositioning flights – extraction and production	108
3	Electricity – terminals	0.09
3	Electricity – offices	0
Total Gross Emissions		485,434 tCO₂-e
GreenPower or retired LGCs		0
Total Net Emissions		485,434 tCO₂-e



4. Carbon offsets

Part A. Offsets summary

Virgin Australia

Overall passenger participation in the Fly Carbon Neutral program has been relatively steady year on year. In FY18 Virgin Australia has been working on a number of initiatives to increase uptake of the program, and impact of these should be seen in FY19.

In FY18, the most popular routes offset were charter routes to/from regional areas with Port Macquarie to Brisbane at 44.4% and 43.9% from Brisbane to Port Macquarie. Other popular charters were Bundaberg to Brisbane at 23.1% and 20.1% from Brisbane to Bundaberg. Geraldton to Brisbane was also high at 20.5% and 19.2% Brisbane to Geraldton. Overall volumes continue to be seen in the major routes between Brisbane, Sydney and Melbourne with 28% of the volume of offsets purchased.

As noted in Table 5 above, the total net emissions for Virgin Australia in FY18 were 3,677,847 tCO₂-e. In FY18, as Table 7 indicates, our customers offset total emissions of 27,406 tCO₂-e. Also listed below in Table 7 are the specific tCO₂-e that were surrendered as required to meet the 27,406 tCO₂-e.

Table 7. Offsets Summary – Virgin Australia			
Offset type and registry	Year retired	Quantity	Serial numbers
KACCU, ANREU	2018	5,524	3,741,480,755 – 3,741,486,278
KACCU, ANREU	2018	13,875	3,759,726,114 – 3,759,739,988
KACCU, ANREU	2018	8,007	3,759,739,989 – 3,759,747,996
Total offsets retired			27,406
Emissions from carbon offset product			27,406
Net emissions			0
Total offsets held in surplus for future years:		ANREU Account	
		5,868 KACCU	3,759,747,996 – 3,759,753,863
		1,720 KACCU	3,773,286,199 – 3,773,287,419

Tiger Air

Overall participation in the Fly Carbon Neutral program had a successful first year of operations.



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In FY18 the most popular routes to offset were the triangle of Brisbane, Melbourne and Sydney with MELSYD/ SYDMEL being the most popular route for both percentage and volume with a 50% uptake and 15,000 seats offset. SYDOOL/ OOL SYD also had a strong uptake of over 22%.

As noted in Table 6 above, the total net emissions for TigerAir in FY18 were 485, 434 tCO₂-e. In FY18, as Table 8 indicates, our customers offset total emissions of 5,771 tCO₂-e. Also listed below in Table 8 are the specific tCO₂-e that were surrendered as required to meet the 5,771 tCO₂-e.

Table 8. Offsets Summary			
Offset type and registry	Year retired	Quantity	Serial numbers
KACCU, ANREU	2018	2,500	3,752,456,508 – 3,752,459,007
KACCU, ANREU	2018	2,500	3,752,459,008 – 3,752,461,507
KACCU, ANREU	2018	771	3,752,461,508 – 3,752,462,279
Total offsets retired			5,771
Emissions from carbon offset product			5,771
Net emissions			0
Total offsets held in surplus for future years:			ANREU Account (KACCU): 4,228 3,752,462,279 – 3,752,466,507 2,500 3,768,457,721 – 3,768,460,220 5,000 3,770,370,495 – 3,770,375,494 Total 11,728

Part B. Offsets purchasing and retirement strategy

Offsets are purchased throughout the year as required. They are retired upon completion of NCOS reporting to ensure the accuracy of offsets surrendered.

Part C. Offset projects (Co-benefits)

100% of our offsets purchased in the 2017/18 financial year are from the Tasmanian Land Conservancy – New Leaf Carbon Project.

From the Virgin Australia website – Virgin Australia guests offsetting their flights are directly supporting the preservation of Tasmania’s native forests while also contributing to the protection of important species and ecosystems.



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The Tasmanian Land Conservancy (TLC) is a science-based environmental organisation that protects land for biodiversity, applying business principles to achieving conservation outcomes. The TLC manages over 30,000 hectares of habitat for rare and threatened species, including the iconic Tasmanian devil and the magnificent Tasmanian wedge-tailed eagle. In partnership with the Save the Tasmanian Devil Program, the TLC has identified a special management zone where it will conduct intensive monitoring for Tasmanian devils in the wild.

The Tasmanian Land Conservancy's New Leaf Carbon Project directly reduces carbon dioxide entering the atmosphere by protecting approximately 12,000 hectares of native Tasmanian forest. Contiguous with the Tasmanian Wilderness World Heritage Area, it contains entire watersheds of pristine ecosystems and habitats.

When a forest is intact, the trees fix carbon dioxide from the air into their wood, and retain it for centuries. However, when forests are logged, most wood is processed into short-lived products like paper that end up in landfill, rotting and generating carbon dioxide.

This New Leaf Carbon Project was established under the international Verified Carbon Standard to generate carbon credits using the VM10 methodology. TLC credits are also verified under the Climate, Community and Biodiversity standards and are recognised at the highest 'Gold Level', meaning that benefits flow to the community as well as wildlife, plants and their habitat.

The TLC are leading the way in establishing a comprehensive monitoring program that will see hundreds of permanent photo-monitoring sites strategically linked to a network of fauna monitoring stations that track our wildlife over time. Their vision is for the monitoring stations to be capable of sending real time information to scientists to interpret. Hundreds of acoustic sensors will remotely detect and identify birds, bats and frogs from their calls, providing vital information about the species that survive and thrive in these remote landscapes.

With the introduction of TigerAir's Fly Carbon Neutral product, we also support the South East Arnhem Land Fire Abatement (SEALFA) project in Northern Australia, which uses strategic fire management activities to reduce the fire-generated emissions of greenhouse gas.

The area SEALFA operate in (called SEAL IPA), is managed by the Northern Land Council (NLC) which also manages the Numbulwar Numburindi and Yugul Mangi Rangers. These two Indigenous ranger groups, consisting of Traditional custodians and their families, annually implement a coordinated program of strategic early dry season burning throughout the project area.

In 2016, 15 Indigenous rangers were employed to undertake fire management within the South East Arnhem Land Indigenous Protected Area (IPA). The SEAL IPA encompasses more than 19,000 km² of Aboriginal freehold land within the Arnhem Land and Urapunga Aboriginal Land Trusts, and is dedicated by its Traditional Aboriginal Owners as an IUCN Category VI Managed Resource Protected Area.

Their fire management plan comprised a combination of aerial prescribed burning (incendiary pellets dropped from helicopters) and finer-scale ground burning to establish a mosaic of cool burns around and within the project area. In 2016, the first year fully operating their fire



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project, the Numbulwar Numburindi and Yugul Mangi Rangers achieved an outstanding abatement result, reducing their baseline emissions by more than 80%.

Wildfires account for 3-4% of Australia's greenhouse gas emissions, and your contribution will help Indigenous fire managers minimise this by reinstating traditional burning practices.

5. Have you done more?

Virgin Australia has continued to improve communications around carbon offsetting and the projects we support. In the reporting year we developed an animation which notes key milestones over the 10 years we have been part of the NCOS program. We have also continued to improve communications on our website and directly to those choosing to offset their flights. We have also implemented compulsory offsetting on some of our staff travel and continue to offset the business' duty travel.