Consumer affordability of **nbn™** services

September 2021

Commissioned by

nbn™

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NBN Co is a wholesaler only and provides wholesale services to phone and internet providers. To order a plan, end customers should contact their preferred phone and internet provider.

Contents

How

affordable

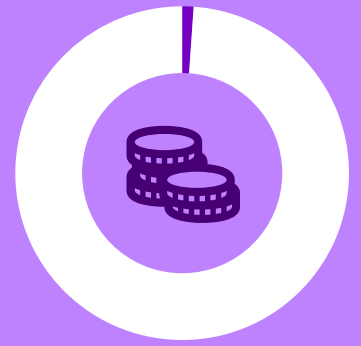
are **nbn™** services?

$16.80

Weekly spend on the nbn™ by the average Australian household

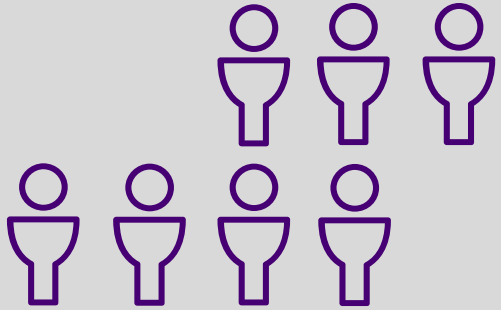
1.1%

Cost of nbn™ services as a portion of average household income



7 in 8

nbn™ users surveyed reported no concerns with the affordability of their nbn™ service

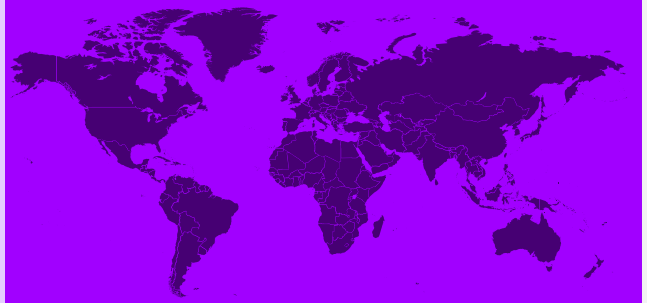


Electricity (1.6% of income)

Water (1.3% of income)

nbn™ (1.1% of income)

Australians spend less on nbn™ services than on electricity and water



6th

Most affordable broadband amongst 13 OECD countries

2019-20

2017-18

Australia saw the

largest

improvement in relative affordability across 13 OECD countries, between FY18 and FY20

SOURCE: Accenture analysis. Detailed notes and references provided in the main body of the report

01 Executive Summary

Executive Summary

Introduction

The national broadband access network ("**nbn™**") was created to foster productivity, drive innovation and lift Australia's digital capability in order to deliver economic and social benefits for Australians.

NBN Co continues to expand and upgrade the wholesale broadband access network to enable communities across Australia to access fast broadband from their phone and internet provider. As the network evolves, a debate has emerged about the affordability of broadband in Australia.

This report brings together insights from a range of data sources including nbn™ plan information, international broadband prices, Australian household characteristics and income information and the results from a bespoke consumer survey to answer the question; **how affordable are nbn™ services[1]?**

What does affordability really mean?

A product or service is affordable if a given consumer has sufficient money to purchase it.

Affordability is challenging to assess; it varies from one person to the next and views of affordability will vary with time in line with both changes in price, an individual's financial situation and society's expectations of reasonable costs. To capture this complexity, this report brings together the results of five different affordability approaches.

Key Results

This report considers various metrics to assess the affordability of nbn™ retail plans. Table 1 below summarises the four assessment approaches and the headline results.

Table 1: Summary of affordability metrics and key results

What does the average Australian pay for the nbn™?	The average price of an nbn™ retail plan is $16.8/week, which is ~$73/month ($16.8 x 4.34 weeks).
What is this cost as a proportion of average household income?	The average cost of nbn™ services is only 1.1% of average weekly household income (post tax).
How does this compare to other household essentials like electricity, gas and water?	Australians spend a greater proportion of their income on other household essentials; electricity (1.6%) and water (1.3%) compared to nbn™ (1.1%).
Do consumers consider this cost affordable?	7 of 8 Australians surveyed had no concerns with the current affordability of their nbn™ service, and these respondents were more concerned with the affordability of other essentials such as electricity.
Is Australian broadband affordable when compared to broadband prices in other countries?	Australia has the 6th most affordable broadband of 13 OECD countries available in the OMDIA Broadband Pricing Tracker. Amongst slower speed tiers NBN12 and NBN25 Australia ranks 5th, while for NBN50, which accounts for its largest consumer base, Australia ranks 4th.

NOTE: [1]NBN Co is the wholesale provider of nbn™ services and does not set retail prices. The prices paid by consumers for access to the nbn™ are determined by Retail Service Providers (RSPs). Unless specified otherwise, reference to the *affordability of nbn™ services* refers to the affordability of retail prices. Note that all currency figures are $AUD unless stated otherwise.

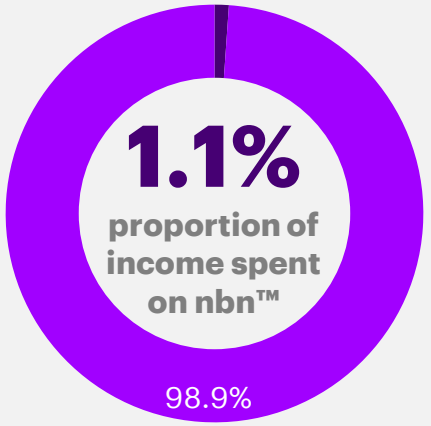
02 nbn™ retail plan costs represent a small percentage of average household income and compare favourably to other household essentials

Today the average Australian household spends less than $17 a week on nbn™ services, which represents only 1.1% of their income

What does the average Australian pay for nbn™ retail services?

$16.80
weekly spend on the nbn™ by the avg AU household

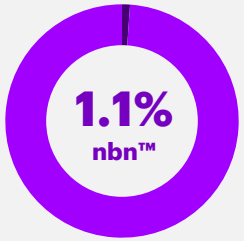
$1,600
weekly income of the avg AU household



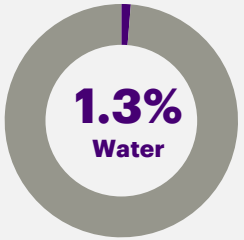
The average Australian spends $16.80 a week on the nbn™. This equates to $73 per month ($16.80 x 4.34 weeks).

Relative to the average weekly household income of $1,600 (post tax), the spend on nbn™ services is only 1.1%. The following page details difference by plan and income.

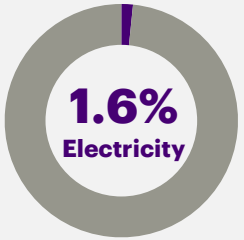
How does this compare to other household essentials?



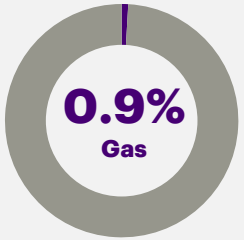
$16.80 per week



$21 per week



$25 per week



$14 per week

Australian households spend a greater proportion of average income on other essentials like water ($21 per week, 1.3%) and electricity ($25 per week, 1.6%) and slightly more than gas ($14 per week, 0.9%).

NOTE: 1. NBN Co is the wholesale provider of nbn™ services and does not set retail prices. The prices paid by consumers for access to the nbn™ are determined by Retail Service Providers (RSPs). Unless specified otherwise, reference to the *affordability of nbn™ services* in this report refers to the affordability of retail prices.; 2. The average monthly nbn™ cost is $16.8 * 4.34 weeks = $73; 3. Weekly average household income is rounded to the nearest 100.; 4. Weekly income is post tax and calculated using the five AU income tax bracket rates across the ABS income quintile groups; 5. Only non-bundled fixed line nbn™ plans are used to calculate the average price of plans. SOURCE: ABS Household Financial Resources 2020, Canstar Blue, AEMC Residential Electricity Price Reports December 2020, NBN co internal data, Accenture analysis

For low income households, entry level nbn™ plans represent only 1-2% of their income, while faster nbn™ products cost up to 3%

Spend on nbn™ services as share of income across nbn™ speed tiers and household income groups

share of average weekly household income%

Entry level **nbn™** retail products cost **up to 2.1**% of income for the lowest income generating households

Faster **nbn™** retail products (standard plus and fast) cost **up to 3.1%** of income for the lowest income generating households

	Very low income (~$700 p.w.)	Low income (~$1,200 p.w.)	Medium income (~$1,400 p.w.)	High income (~$1,800 p.w.)	Very high income (~$2,900 p.w.)
NBN12	**1.8%**	**1.1%**	0.9%	0.7%	0.4%
NBN25	**2.1%**	**1.3%**	1.1%	0.9%	0.5%
NBN50	**2.4%**	**1.5%**	1.2%	1.0%	0.6%
NBN100	**3.1%**	**1.9%**	1.6%	1.3%	0.8%

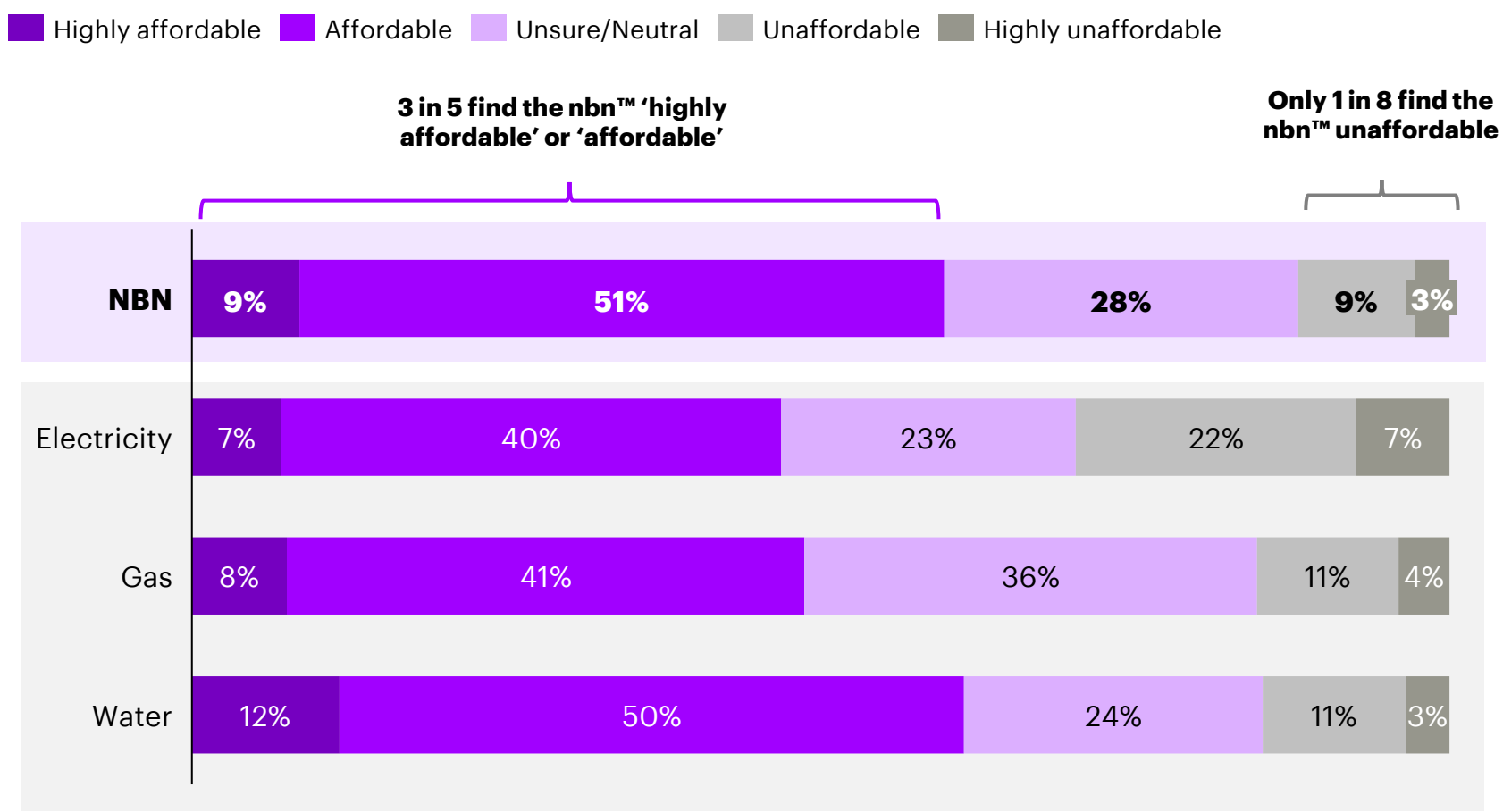
NOTE: 1. Weekly average household income is rounded to nearest 100; 2. Weekly income is post tax and calculated using the five AU income tax bracket rates across the ABS income quintile groups; 3. NBN Co is the wholesale provider of nbn™ services and does not set retail prices. The prices paid by consumers for access to the nbn™ are determined by Retail Service Providers (RSPs). Unless specified otherwise, reference to the *affordability of nbn™ services* in this report refers to the affordability of retail prices. Only non-bundled nbn™ plans are used to calculate the average price of plans
SOURCE: ABS Household Financial Resources 2020, NBN Co. internal data, Accenture analysis

03 The majority of Australians are not concerned about the relative affordability of their nbn™ service

7 of 8 nbn™ users surveyed had no concerns with the affordability of their service, and were more concerned with the cost of other household essentials

Consumer views of the affordability of key utilities

% of respondents; Survey question: How would you rate the following in terms of affordability?



NOTE: 1. Alphabeta (now part of Accenture) Household Survey (2019)
SOURCE: Consumer sentiment survey of 2,420 respondents in March 2021, Accenture

Most Australians believe nbn™ services are affordable and do not consider plan costs to be any less affordable than other essential utilities such as electricity, gas and water.

Accenture's survey of nbn™ users found that 60% of users rate the nbn™ as 'highly affordable' or 'affordable'. Compared with electricity and gas, an additional 11-13 ppt of consumers found the nbn™ to be affordable. Only water saw a greater share of users (2ppt more) rating it as affordable.

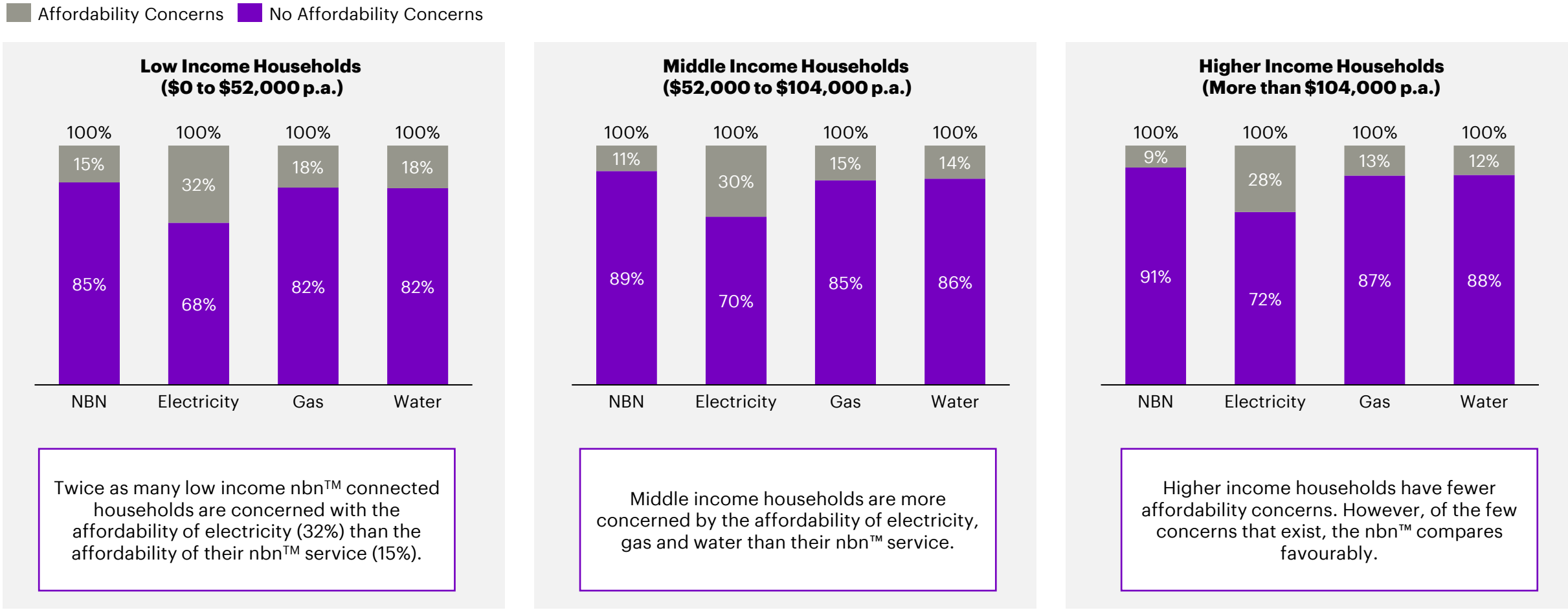
Conversely, only 12% of users found the nbn™ to be unaffordable. This compares favourably to the other utilities; especially electricity which 29% consumers rate as being unaffordable.

Previous surveys have shown that only 20% of households not connected to nbn™ cite price as their main concern with the nbn™ network[1].

Perceptions of nbn™ affordability vary by household income, however most nbn™ users are more concerned about the cost of other household essentials

Affordability concerns by household utility across household income groups

% of respondents



Twice as many low income nbn™ connected households are concerned with the affordability of electricity (32%) than the affordability of their nbn™ service (15%).

Middle income households are more concerned by the affordability of electricity, gas and water than their nbn™ service.

Higher income households have fewer affordability concerns. However, of the few concerns that exist, the nbn™ compares favourably.

SOURCE: Consumer sentiment survey of 2,420 respondents in March 2021, Accenture. Results are based on the survey question 'How would you rate the following in terms of affordability? nbn™, Electricity, Gas, Water'. An affordably concern was considered rating the utility as 'unaffordable' or 'highly unaffordable'.

04 Australia has the 6th most affordable broadband across 13 OECD countries

The affordability of Australian broadband has been compared to 12 OECD countries

Australian broadband affordability was compared to 12 other OECD countries

OECD countries in the OMDIA Broadband Pricing Tracker[7]

OECD Country	Average Income per Capita ($USD)[1]	Connections per 100ppl[2]	Major Providers of Broadband[3]	Top 2 Technologies[4] (used for comparison)		
				Fibre	DSL	Cable
USA	62,800	33	AT&T, Comcast, Verizon, Time Warner	✓		✓
Germany	55,900	40	Vodaphone, Deutsche Telecom, Unity		✓	✓
Australia	50,300	32	Telstra, Optus, TPG, iiNet	✓	✓	
Canada	48,900	38	Rogers, Shaw, Telus, BCE Canada	✓		✓
France	48,200	44	Orange, Free, Numericable/SFR	✓	✓	
UK	46,000	39	Virgin, BT, BSkyB, Sky	✓	✓	
New Zealand	43,900	34	Vodafone, Spark, Orcon, 2degrees	✓	✓	
Japan	43,700	32	NTT (East & West), JCOM, KDDI	✓	✓	
Italy	43,000	27	Telecom Italia, Wind/Infostrada, Fastweb	✓	✓	
South Korea	42,500	41	SK Broadband, LG U+, Korea Telecom	✓		
Spain	41,200	31	Orange, Telefonica, Vodafone	✓	✓	
Turkey	27,500	15	TTNet, Turksat, Superonline	✓		✓
Mexico	19,500	14	Telmax, Axtel, Cablemas	✓	✓	

NOTE: 1 Measured as 'Gross National Income' per capita, World Bank; 2; Fixed broadband subscriptions (per 100 people), 2019, World Bank; 3 This is not an exhaustive list and order is not reflective of market share. 4 Indicative only, showing the major two technologies in the OMDIA dataset. 'Fibre' includes: FTTB, FTTH, FTTx; 'DSL' includes DSL, ADSL, xDSL, VDSL. 5. The latest available data from 2016 to 2020 is used for each country from the OMDIA dataset; 6. For Australia, the OMDIA dataset includes a mix of nbn™ and non-nbn™ retail plans and does not contain any plans from 2016. 7. The OMDIA dataset does not include data for New Zealand. To ensure consistency, NZ Data was collected in a manner aligned to data collection methodology for other countries in the OMDIA data. A larger sample of NZ plans was use (~350) to reduce sampling bias and the mix of plans was reviewed to ensure it was broadly representative of the NZ broadband market. NZ broadband plans were sourced using broadbandcompare.co.nz, Wayback Machine (Internet Archive), Desktop Research.

Australia's broadband prices were compared with a selection of peer countries with similar broadband products and average incomes per capita. This approach was informed by the OMDIA Broadband Pricing Tracker, which captures broadband prices across countries and over time. The dataset[5,6,7] includes 2,843 plans across 13 OECD countries.

Several important adjustments were made to further ensure fair comparisons across countries:

- The quoted prices were adjusted by extracting the value of additional features and inclusions and isolating the value of the broadband alone (i.e. the 'naked' broadband price) using a regression model.
- To fairly compare naked prices and factor in capacity to pay across countries, prices are converted to a single currency ($USD), adjusted for purchasing power ('Purchasing Power Parity') and divided by average income per capita.

Across the four key speed tiers, the affordability of Australia's broadband ranks in the top half of 13 OECD countries

Australia ranks in the top half of OECD countries in terms of affordability when taking into account relative purchasing power and income levels. Affordability has been assessed separately across download speed category (12, 25, 50 and 100 Mpbs).

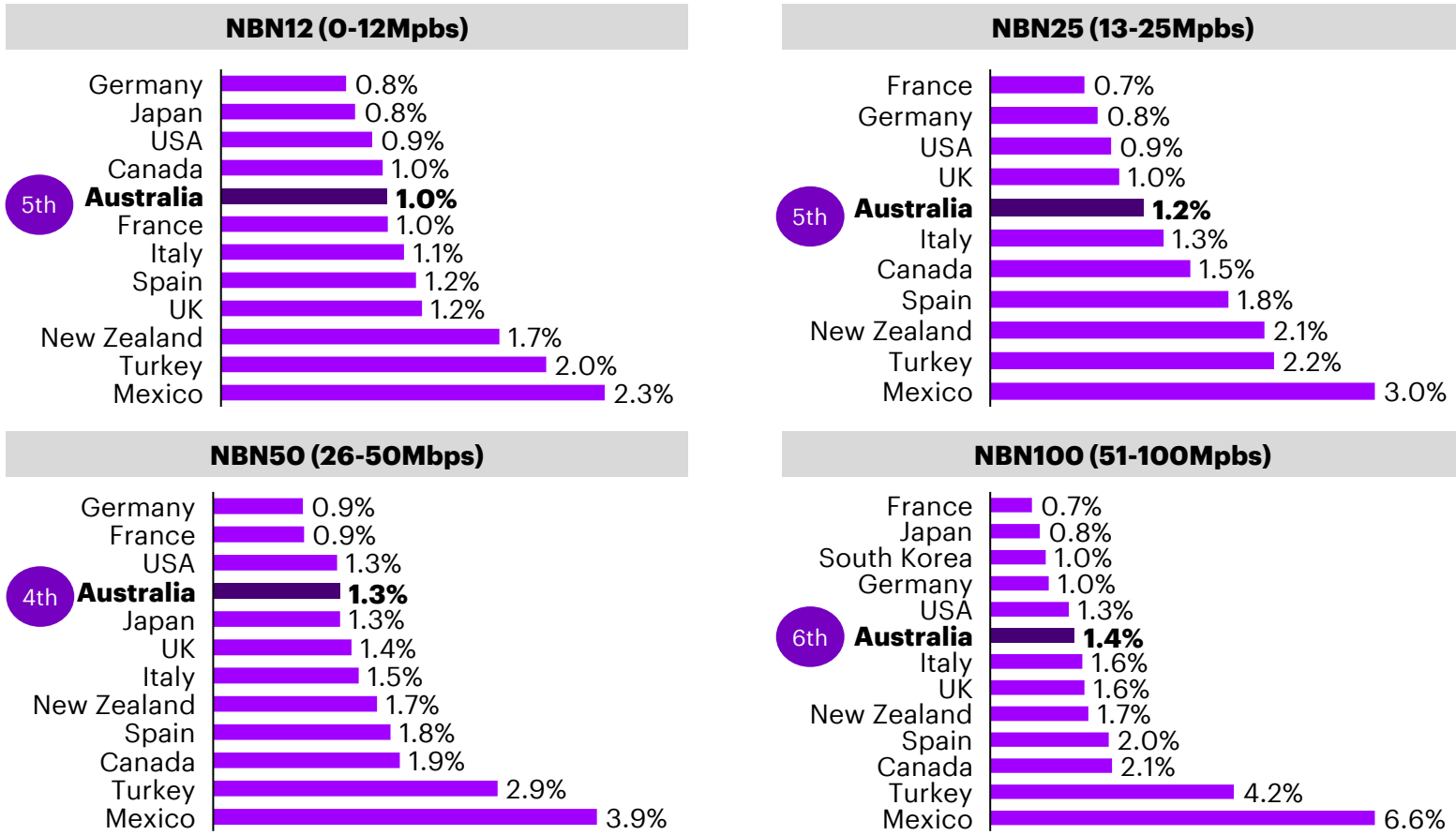
Moreover, Australia ranks highest in the NBN50 speed tier which represents its largest customer base (60%).

Affordability appears to be consistent across various speed tiers with Australia consistently placing between 4th and 6th amongst its OECD peers.

It is also interesting to note that New Zealand, which represents a similar geographic, cultural and economic comparison, consistently ranks behind Australia.

Broadband affordability (measured as a share of income) across speed tiers for 13 OECD countries[1,2,3]

Median broadband price (excluding bundles & inclusions) as a share of per capita income, %



SOURCE: OMDIA Broadband Pricing Interactive Tracker; World Bank; Accenture analysis; NZ broadband plans data - broadbandcompare.co.nz, Wayback Machine (Internet Archive), Desktop Research;
NOTE: 1. Data for New Zealand broadband plans is from 2018 Q1 and 2021 Q1 and is not sourced from the OMDIA dataset (see above) 2. Countries that have less than 5 broadband plans within a speed tier are excluded from the rankings for that tier 3. The latest available data from 2016 to 2020 is used for each country from the OMDIA dataset 4. For Australia, the OMDIA dataset includes a mix of nbn™ and non-nbn™ plans and does not contain any plans from 2016.; METHOD: Use a multivariate regression model to calculate the 'naked' price of broadband by subtracting the value of inclusions like TV channels, mobile data etc. The 'naked' price is then converted to $US using PPP, and then divided by the GNI per capita, PPP ($US) for each country. More detail on the methodology can be found in the Appendix.

Overall, Australia has the 6th most affordable broadband of 13 OECD countries

Broadband affordability ranking across 13 OECD countries

Ranking based on broadband price as a share of per capita income

	Country	Average rank	Speed tier based rank			
			0-12 Mbps	13-25 Mbps	26-50 Mbps	51-100 Mbps
1	Germany	2.0	1	2	1	4
2	France	2.5	6	1	2	1
3	South Korea	3.0	N/A	N/A	N/A	3
4	Japan	3.0	2	N/A	5	2
5	USA	3.5	3	3	3	5
6	**Australia**	5.0	5	5	4	6
7	Italy	6.8	7	6	7	7
8	UK	6.8	9	4	6	8
9	Canada	8.0	4	7	10	11
10	Spain	8.8	8	8	9	10
11	New Zealand[1]	9.0	10	9	8	9
12	Turkey	11.0	11	10	11	12
13	Mexico	12.0	12	11	12	13

SOURCE: OMDIA Broadband Pricing Interactive Tracker; World Bank; Accenture analysis; NZ broadband plans data - broadbandcompare.co.nz, Wayback Machine (Internet Archive), Desktop Research;
NOTE: 1. Data for New Zealand broadband plans is from 2018 Q1 and 2021 Q1 and is not sourced from the OMDIA dataset (see above) 2. Countries that have less than 5 broadband plans within a speed tier are excluded from the rankings for that tier 3. The latest available data from 2016 to 2020 is used for each country from the OMDIA dataset. 4. For Australia, the OMDIA dataset includes a mix of nbn™ and non-nbn™ plans and does not contain any plans from 2016; METHOD: Used a multivariate regression model to calculate the 'naked' price of broadband by subtracting the value of inclusions like TV channels, mobile data etc. The 'naked' price is then converted to $US using PPP, and then divided by the GNI per capita, PPP ($US) for each country. Overall ranking calculated by averaging ranks across speed tier categories.

After equating the cost of broadband across each country using Purchasing Power Parity and taking into account each countries relative capacity to pay for broadband, Australia ranks 6th amongst 13 comparable OECD countries.

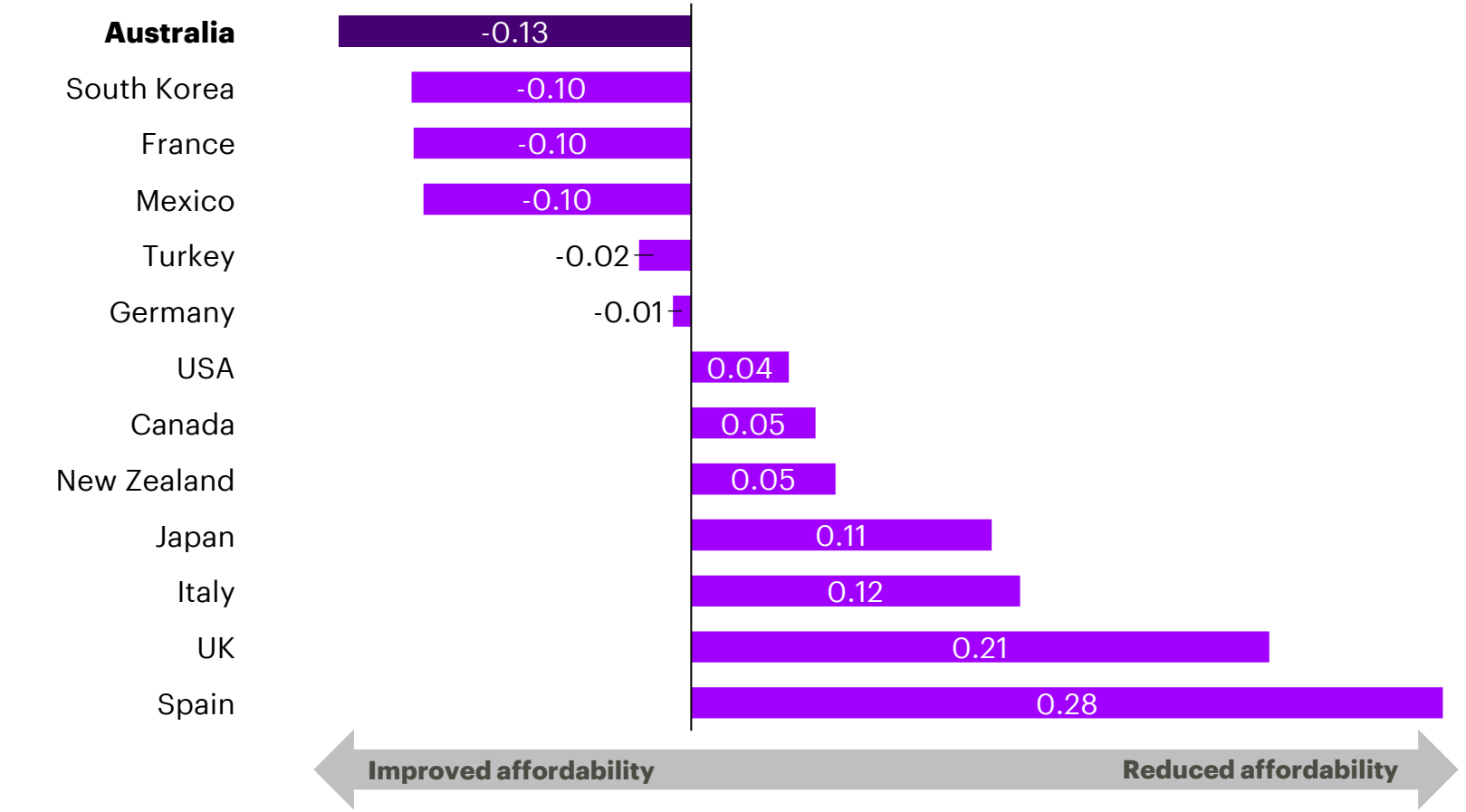
This overall rank is based on the average rank across the four key speed tiers. Measures of affordability are consistent across four speed tiers, ranking between 4th and 6th.

New Zealand, a similar country in terms of geography, culture and economy ranks 11th out of these 13 OECD countries.

Australia's broadband has also become more affordable over time, with prices as a share of income falling the most of the 13 OCED countries

Change in median broadband price as a share of income between 2017-18 and 2019-20

Percentage point change



Australia has shown the largest improvement in affordability amongst its OECD peers.

From 2017-18 to 2019-20, Australia saw a 0.13ppt decrease in broadband prices as a share of income. This was the largest drop seen across all 13 OECD countries in the study.

During the same time period, both the UK and Spain saw an increase of 0.21ppt and 0.28ppt respectively in their broadband prices measured as a share of income.

New Zealand saw a 0.05ppt increase in broadband prices as a share of income during this same period, revealing that the decrease experienced by Australia was not experienced across neighbouring economies.

SOURCE: OMDIA Broadband Pricing Interactive Tracker, World Bank, Accenture analysis; NZ broadband plans data - broadbandcompare.co.nz, Wayback Machine (Internet Archive), Desktop Research NOTE: 1. New Zealand broadband plans from 2018 Q1 and 2021 Q1 are used for 2017-18 and 2019-20 respectively. These are not sourced from the OMDIA dataset (see above).
METHOD: Use a multivariate regression model to calculate the 'naked' price of broadband by subtracting the value of inclusions like TV channels, mobile data etc. The 'naked' price is then converted to $US using PPP, and then divided by the GNI per capita, PPP ($US) for each country. The change in median price as share of income is then measured between the two time periods.

05 Appendix: Methodology and assumptions

Methodology: Data sources used for this report

Source:
OMDIA International Broadband Price Tracker

Information:

- Features and price of broadband plans over time across different countries
- Note: NZ broadband plans were sourced separately using secondary research (see 'secondary research' section to the right).
- Sample size: 12 countries, 2,497 broadband plans (exc. NZ)

Source:
NBN Co

Information:

- nbn™ customer share and retail prices across different speed tiers
- Wholesale price of broadband per GB
- nbn™ activations over time

Source:
Survey of nbn™ consumers

Information:

- Consumer sentiment towards affordability of nbn™
- Survey size: 2420
- Date: March 2021

Source:
Public data sources and reports

Information:

- Average weekly household income
- NZ broadband plan data: To ensure consistency, NZ Data was collected in a manner closely aligned to data collection methodology used for the OMDIA data. A larger sample of NZ plans was used (~350) to reduce sampling bias and the mix of plans was reviewed to ensure it was broadly representative of the NZ broadband market.
- Average expenditure on essential utilities

Methodology: Overview of the affordability assessment approaches used in this report

The value of multiple approaches

Affordability is challenging to define because it depends on price, consumers' financial situations and society's expectation of 'reasonable' costs. To account for this, price comparisons have considered household income, expenditure and 'purchasing power' (which captures the relative prices of goods and services in Australia). Additionally, prices have been compared to peer OECD countries. The combination of these four methods enables a broad assessment of affordability.

Table 2: Summary of affordability metrics methodologies

Approach	What does the average Australian pay for the nbn™?			Is Australian broadband affordable when compared to broadband prices in other countries?
	What is the cost of the nbn™ as a proportion of average household income?	How does this cost compare to other household essentials like electricity, gas and water?	Do consumers consider this cost affordable?	
Method	**The most common method of assessing affordability is to consider price relative to income.** Retail prices of currently sold nbn™ plans has been collected and compared to average income data sourced from the ABS. Results have been considered by income quintiles.	**Another lens to consider affordability is by comparing the cost of the nbn™ to other essential goods and services in the home.** nbn™ costs as a percentage of income have been compared to the average cost of electricity, gas and water.	**An important means of determining affordability is to measure consumer sentiment directly.** A survey of 2,420 nbn™ plan users was undertaken, asking various questions about perceived affordability. Respondents were selected from a cross section of Australian households; demographics and nbn™ plan details were reviewed to ensure sufficient representation.	**Affordability was assessed by comparing broadband prices to those in comparable OECD countries, relative to incomes in those countries.** We considered broadband data from over 2,800[1] plans in the OMDIA Broadband Pricing Tracker. To accurately compare plans, we adjusted the quoted price by removing the value of additional features and inclusions and isolating the value of broadband through a regression technique. Naked prices were compared across countries, allowing for varying purchasing power and incomes.

NOTE: 1. Data for New Zealand broadband plans was not sourced from the OMDIA dataset. Around 350 NZ broadband plans were sourced from the following - broadbandcompare.co.nz, Wayback Machine (Internet Archive), Desktop Research

Methodology: Comparing affordability of Australian broadband to other countries

Method overview

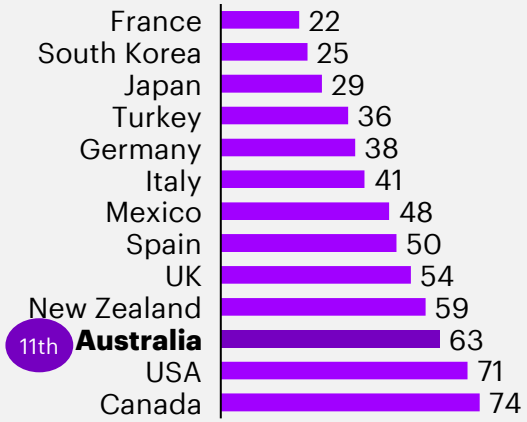
1. **Train multivariate regression model using OMDIA broadband plan data.** The model considers features including download speed, data caps, mobile data included, etc to predict the price of broadband plans.
2. **Calculate the 'naked' broadband price** by subtracting the value of additional plan inclusions (e.g TV channels included, mobile data included etc) from the quoted price.
3. **Convert** local currency, 'naked' broadband prices **into an 'affordability' metric** in two steps –
   a. Convert into $USD using PPP (purchasing power parity)
   b. Divide by Gross National Income per capita (available in PPP, $US) for each country.
4. **Compare the median** 'naked' prices as a share of income **for each country across different download speed tiers.**
5. Obtain **final rankings** for affordability for each country by aggregating the speed-tier specific rankings.

The fairest approach to compare affordability of broadband across countries is measuring price as a share of income

International comparisons across different metrics for NBN100 (51-100Mbps) broadband plans

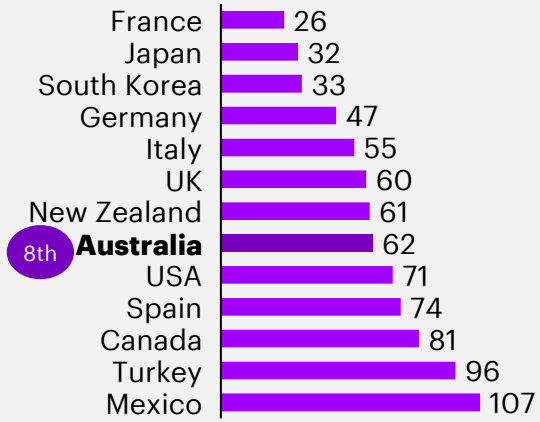
Price comparison
$US converted at market exchange rates

- The simplest option to compare broadband prices across countries is to convert all of them into a single currency such as $US.
- However the problem with this approach is that it leads to the trivial conclusion that the price of broadband is higher in richer countries (Balassa-Samuelson effect).



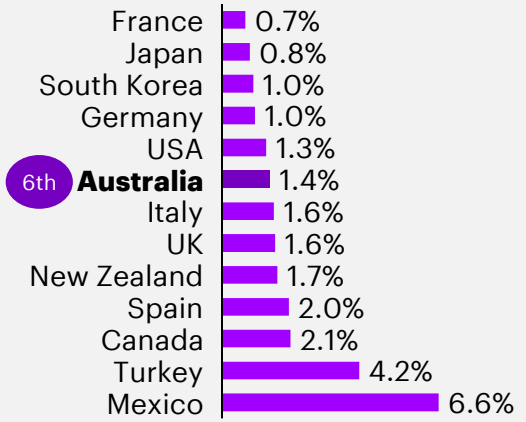
Purchasing power comparison
$US converted at purchasing power parity

- An alternate approach is to convert prices into $US at purchasing power parity (PPP). Comparing broadband in PPP terms effectively compares the ratio of broadband prices in each country with the price of other goods and services.
- While PPP is useful in comparing prices across countries, it doesn't shed light on how 'affordable' goods & services are, since it does not factor in the capacity to pay across countries.



Affordability comparison
Prices as share of income

- Our approach is to compare prices in each country relative to the average income in that country (e.g. in Australia the median broadband price for NBN100 (51-100 Mbps) plans is 1.4% of income per capita, while in Canada it is 2.1%)
- This approach accounts for differences in income across countries and presents a true measure of affordability.



NOTE: 1. Data for New Zealand broadband plans is from 2018 Q1 and 2021 Q1 and is not sourced from the OMDIA dataset (see below) 2. Countries that have less than 5 broadband plans within a speed tier are excluded from the rankings for that tier 3. The latest available data from 2016 to 2020 is used for each country from the OMDIA dataset
SOURCE: OMDIA Broadband Pricing Interactive Tracker, World Bank, Accenture analysis; NZ broadband plans data - broadbandcompare.co.nz, Wayback Machine (Internet Archive), Desktop Research

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