



**ASIAN PAY TELEVISION TRUST** 

31 MARCH 2022

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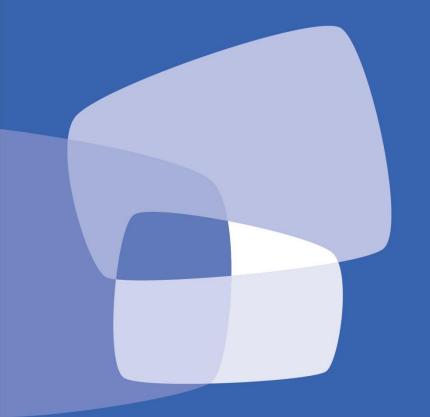
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# AGENDA

- 1. 31 MARCH 2022 RESULTS
- 2. OUTLOOK & STRATEGY
- 3. BUSINESS OVERVIEW
- 4. BUSINESS DRIVERS





# 31 MARCH 2022 RESULTS

# **HIGHLIGHTS**



Broadband performance improved in Q1 2022; hedged almost 80% of outstanding onshore facilities to mitigate risk of rising interest rates



### Lower Q1 2022 EBITDA and EBITDA margin on higher operating expenses

- Revenue and EBITDA at S\$73.6 million and S\$43.2 million; EBITDA margin stood at 58.7%
- Decline in EBITDA was due to higher staff costs, pole rental expenses and marketing and selling expenses



### **Growing total subscriber base**

- Premium digital cable TV and Broadband subscribers have been steadily increasing over the past 16 quarters
- Added c.8,000 Premium digital cable TV and c.7,000 Broadband subscribers in the quarter, which more than offset Basic cable TV churn; total subscriber base increased to c.1,258,000



### **Continued Broadband growth momentum**

 Growth in Broadband subscribers and higher ARPU led to higher revenue in S\$ and NT\$ for seven consecutive quarters compared to the pcp



### Lower capital expenditure

- Capital expenditure decreased by 9.7% for the quarter compared to pcp
- Aim to use excess cash generated from operations to make debt repayments, subject to operating conditions



### **Debt management**

- Entered into new TAIBOR interest rate swaps to hedge almost 80% of the outstanding onshore facilities through to 30 June 2025; average fixed rate on these swaps was 0.89%
- Lowered gearing to 49.4%



### **Distribution**

- Distribution of 0.25 cents per unit declared for Q1 2022
- Re-affirmed distribution guidance of 1.0 cent per unit for 2022, to be paid in quarterly instalments of 0.25 cents per unit, subject to no material changes in planning assumptions
- There may be some flexibility with respect to distributions after 2022, subject to operating conditions

# **KEY OPERATING METRICS**



Broadband ARPU improved by NT\$4 per month alongside c.7,000 more subscribers, reflecting the success of TBC's marketing outreach to target Broadband only segment and offer higher speed plans at competitive prices

	RGUs <sup>1</sup> ('000)		ARPU <sup>2</sup> (NT\$ per month)			
	As at		Quarter ended			
	31 Mar 2022	31 Dec 2021		31 Mar 2022	31 Dec 2021	
Basic cable TV	688	691		472	476	•
Premium digital cable TV	281	273	<b>1</b>	73	76	•
Broadband	289	282	<b>1</b>	373	369	•

- Basic cable TV: RGUs decreased by c.3,000 in the quarter to c.688,000 as at 31 March 2022 due to (i) a saturated cable TV market, (ii) competition from aggressively priced IPTV, (iii) growing popularity of online video and (iv) expectations from consumers for discounts as they compare with the lower cable TV pricing outside of TBC's<sup>3</sup> five franchise areas, particularly in the Taipei region
- Premium digital cable TV: RGUs increased by c.8,000 in the quarter to c.281,000. ARPU was lower due to promotions and discounted bundled packages that were offered to generate new RGUs and to retain existing RGUs. Video piracy issues and aggressively priced IPTV have also impacted ARPU, which decreased by NT\$3 per month in the quarter
- **Broadband:** Despite the competitive conditions from unlimited wireless data offerings from mobile operators, TBC's focused broadband growth strategy led to RGUs increasing by c.7,000 in the quarter to c.289,000, while ARPU improved by NT\$4 per month in the quarter. Growth driven by partnership programs with mobile operators to drive fixed-line Broadband only segment, and higher speed plans at competitive prices. Broadband churn rates remained very low, averaging around 0.7% in Q1 2022

Notes: (1) RGUs refer to Revenue Generating Units, another term for subscribers or subscriptions; the terms are used interchangeably

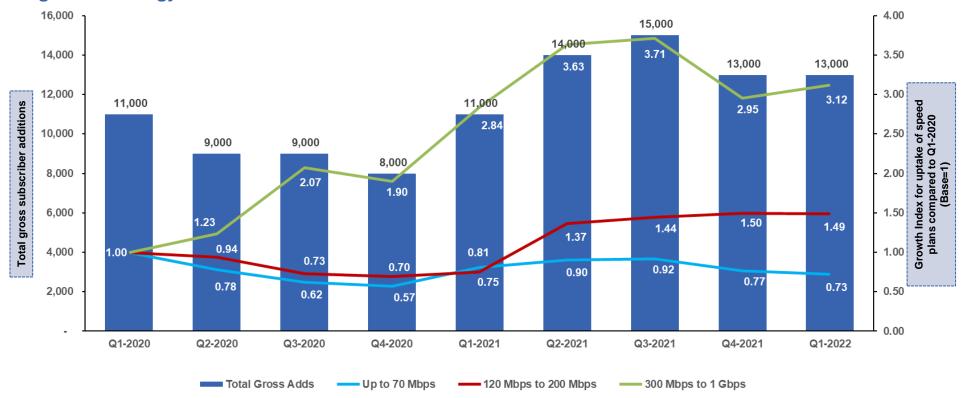
<sup>(2)</sup> Average Revenue Per User ("ARPU") is calculated by dividing the subscription revenue for Basic cable TV or Premium digital cable TV or Broadband, as applicable, by the average number of RGUs for that service during the period

<sup>(3)</sup> TBC refers to Taiwan Broadband Communications Group

# BROADBAND ARPU IMPROVEMENT: SHIFT TOWARDS HIGHER SPEED PLANS



# Increase in take-up rate of higher speed plans since Q1 2020; validates the strength of our Broadband growth strategy



### Interpretation of Growth Index from the chart above:

For e.g., in Q1-2020 if there was 1 subscriber taking up higher speed plan with speed ranging from 300 Mbps to 1 Gbps, then in Q1-2022, there were 3.12 subscribers taking up the higher speed plans.





Aim is to grow cash flows from Broadband business to a level that more than offsets the decline in Basic cable TV business

Croum1 (S¢2000)	Quarter ended 31 Mar			
Group <sup>1</sup> (S\$'000)	2022	2021	Variance <sup>2</sup> (%)	
Revenue				
Basic cable TV	54,699	57,477	(4.8)	
Premium digital cable TV	3,067	3,353	(8.5)	
Broadband	15,800	13,561	16.5	
Total revenue	73,566	74,391	(1.1)	
Total operating expenses <sup>3</sup>	(30,377)	(29,006)	(4.7)	
EBITDA	43,189	45,385	(4.8)	
EBITDA margin	58.7%	61.0%		

In constant Taiwan dollars ("NT\$"), total revenue down 2.9% for the quarter; foreign exchange contributed to a positive variance of 1.8% for the quarter compared to the pcp

- Basic cable TV: Down 6.6% for the quarter in constant NT\$
  mainly due to lower subscription revenue resulting from the
  decline in the number of subscribers and lower ARPU as well as
  lower non-subscription revenue resulting from lower revenue
  generated from channel leasing and airtime advertising sales
- Premium digital cable TV: Down 10.3% for the quarter in constant NT\$. Generated predominantly from TBC's Premium digital cable TV RGUs each contributing an ARPU of NT\$73 per month during the quarter for Premium digital cable TV packages and bundled DVR or DVR-only services
- Broadband: Up 14.7% for the quarter in constant NT\$. Generated predominantly from TBC's Broadband RGUs each contributing an ARPU of NT\$373 per month during the quarter for high-speed Broadband services

**Total operating expenses:** Higher operating expenses for the quarter mainly due to higher staff costs, pole rental expenses and marketing and selling expenses

Notes: (1) Group refers to APTT and its subsidiaries taken as a whole

<sup>(2)</sup> A positive variance is favourable to the Group and a negative variance is unfavourable to the Group

<sup>(3)</sup> Total operating expenses exclude depreciation and amortisation expense, net foreign exchange gain/loss and mark to market movements on foreign exchange contracts, in order to arrive at EBITDA and EBITDA margin

# **NET PROFIT**



Net profit includes non-cash items such as depreciation and amortisation expense, foreign exchange, mark to market movements and deferred taxes

C==::=1 (S\$2000)		Quarter ended 31 Mar		
Group <sup>1</sup> (S\$'000)	2022	2021	Variance² (%)	
Total revenue	73,566	74,391	(1.1)	
Operating expenses				
Broadcast and production costs	(14,286)	(14,117)	(1.2)	
Staff costs	(6,968)	(6,321)	(10.2)	
Trustee-Manager fees	(1,814)	(1,814)	-	
Other operating expenses	(7,309)	(6,754)	(8.2)	
Total operating expenses	(30,377)	(29,006)	(4.7)	
EBITDA	43,189	45,385	(4.8)	
Other expenses				
Depreciation and amortisation expense	(18,777)	(23,382)	19.7	
Net foreign exchange gain	164	928	(82.3)	
Mark to market gain on derivative financial instruments	2,441	482	>100	
Amortisation of deferred arrangement fees	(844)	(1,137)	25.8	
Interest and other finance costs	(9,615)	(11,101)	13.4	
Income tax expense	(4,322)	(3,813)	(13.3)	
Total other expenses	(30,953)	(38,023)	18.6	
Profit after income tax	12,236	7,362	66.2	

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# SELECTED FINANCIAL INFORMATION

## Selected financial information<sup>1</sup> are key financial metrics of APTT's business

Group <sup>2</sup> (S\$'000)	Quarter ended 31 Mar		
Group- (3\$ 000)	2022	2021	Variance <sup>3</sup> (%)
Revenue			
Basic cable TV	54,699	57,477	(4.8)
Premium digital cable TV	3,067	3,353	(8.5)
Broadband	15,800	13,561	16.5
Total revenue	73,566	74,391	(1.1)
Total operating expenses <sup>4</sup>	(30,377)	(29,006)	(4.7)
EBITDA	43,189	45,385	(4.8)
EBITDA margin <sup>5</sup>	58.7%	61.0%	
Capital expenditure			
Maintenance	3,501	4,997	29.9
Network, broadband and other	3,134	2,353	(33.2)
Total capital expenditure	6,635	7,350	9.7
Income tax paid, net of refunds	(1,453)	(1,250)	(16.2)
Interest and other finance costs paid	(9,775)	(11,058)	11.6

Notes: (1) Some of the selected financial information includes non-IFRS measures

- (2) Group refers to APTT and its subsidiaries taken as a whole
- (3) A positive variance is favourable to the Group and a negative variance is unfavourable to the Group
- (4) Total operating expenses exclude depreciation and amortisation expense, net foreign exchange gain/loss and mark to market movements on foreign exchange contracts, in order to arrive at EBITDA and EBITDA margin
- (5) EBITDA margin is a non-IFRS financial measure and is calculated by dividing EBITDA by total revenue

# FINANCIAL POSITION



## Strengthening balance sheet and managing debt levels remain a key focus

Curry (00:000)	As at		
Group (S\$'000)	31 Mar 2022	31 Dec 2021	
Assets			
Current assets			
Cash and cash equivalents	127,575	124,664	
Trade and other receivables	13,408	16,089	
Other assets	5,823	2,591	
	146,806	143,344	
Non-current assets			
Property, plant and equipment	273,438	292,493	
Intangible assets	2,509,216	2,584,991	
Other assets	18,226	1,744	
	2,800,880	2,879,228	
Total assets	2,947,686	3,022,572	
Liabilities			
Current liabilities			
Borrowings from financial institutions	64,829	58,395	
Trade and other payables	61,683	53,510	
Income tax payable	7,150	5,970	
Other liabilities	56,726	63,076	
	190,388	180,951	
Non-current liabilities			
Borrowings from financial institutions	1,390,366	1,455,097	
Deferred tax liabilities	109,334	107,194	
Other liabilities	34,901	36,528	
	1,534,601	1,598,819	
Total liabilities	1,724,989	1,779,770	
Net assets	1,222,697	1,242,802	

- Cash and cash equivalents: Cash balance of S\$127.6 million; approx. S\$60 million needed for onshore and offshore debt repayments in 2022
- Intangible assets: Comprise mainly cable TV licences and includes value of goodwill, franchise rights and customer relationships
- Borrowings: Decrease is mostly attributable to repayments of Onshore and Offshore Facilities and exchange rate movement. Refer to the next slide for additional details on borrowings
- Depreciation/amortisation: Depreciation is computed on a straight-line basis over the estimated useful lives of the assets as follows:

- Buildings: 3-50 years

Leasehold improvements: 3-10 years

Network equipment: 2-10 years

Transport equipment: 5 years

Plant and equipment: 2-5 years

Right-of-use assets: 2-30 years

# **BORROWINGS**



Lowered gearing to 49.4%; to focus on accelerated debt repayment, with approx. S\$60 million earmarked in 2022 to repay onshore and offshore debts

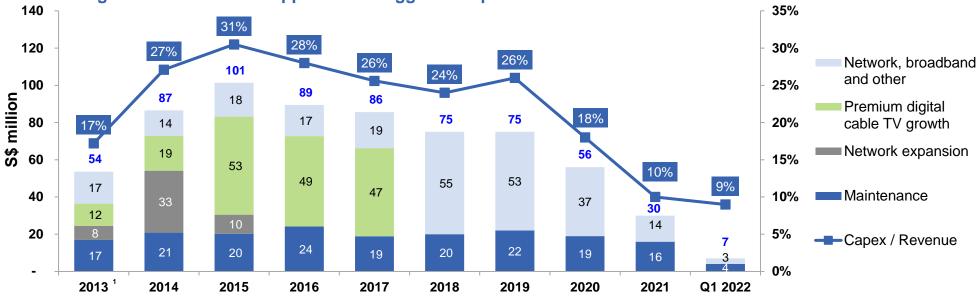
Croup dobt		As at	
Group debt		31 Mar 2022	31 Dec 2021
Total size available	S\$ million	1,558	1,619
Total outstanding	S\$ million	1,475	1,535
Effective interest rate - constant dollar	% p.a.	Q1 - 2.2	Full year - 2.7
Effective interest rate - SGD	% p.a.	Q1 - 2.6	Full year - 3.0
Net debt / EBITDA <sup>1</sup>	Multiple	7.4	7.7
Interest cover <sup>2</sup>	Multiple	4.0	3.9
Gearing <sup>3</sup>	%	49.4	50.1

- Borrowings comprised NT\$ and S\$ denominated loans NT\$27.8 billion (2021: NT\$28.0 billion) and S\$159.4 million (2021: S\$171.9 million)
- Extended maturity date of Offshore Facilities by two years to Jul 2023 and Onshore Facilities by three years to Nov 2028, on the same major terms; pared down NT\$0.8 billion (approx. S\$40 million) as part of Onshore Facilities' extension, using cash on the balance sheet
- To commence discussion with lenders in 2022 to further extend Offshore Facilities to at least 2025
- New TAIBOR swaps were entered into in Q1 to hedge approx. 80% of the outstanding onshore facilities through to 30 June 2025, at an average fixed rate of 0.89%; aim to enter into more interest rate swaps to hedge a further 10% to 15% of outstanding Onshore Facilities
- Effective interest rate in constant dollar terms of 2.2% p.a. for the quarter compared to 2.7% p.a. for 2021. Actual effective interest rate in SGD was 2.6% p.a. for the quarter compared to 3.0% p.a. for 2021
- Approx. S\$82 million of revolving facilities are available to fund working capital and future initiatives, if required



# CAPITAL EXPENDITURE

TBC's dense fibre network can now comfortably deliver higher speed plans and support mobile operators in the build out of their 5G networks; network investments projected to be lower compared to the last three years, focusing on areas that can support TBC's aggressive push for the Broadband business



- Capital expenditure was higher from 2015 to 2017 due to the regulatory requirement to switch-off analogue broadcasting and complete the digitisation of TBC's subscriber base by 2017
- Network investments remain key to future-proof TBC's network; continue increasing fibre density by bringing down the number of homes served per fibre node, beyond the current level of less than 250 homes, to (i) meet the growing demand for data and high-speed broadband services; and (ii) support mobile operators in their 5G network rollouts multi-year investments that present opportunities for the Trust
- Aggressive targets have been set to tighten capital expenditure; to invest within industry norms
- With lower capital expenditure, the Trustee-Manager aims to use excess cash generated from operations to gradually pay down debt

### Capital expenditure in 2022 comprised the following:

- Maintenance capital expenditure to support TBC's existing infrastructure and business
- Network, broadband and other capital expenditure include items related to expanding the fibre network such as cabling, additional equipment to upgrade the headends, backbone and fibre nodes, DOCSIS and GPON deployments for higher speed customers, high-speed broadband modems and cable line extensions for new buildings



# **OUTLOOK & STRATEGY**



# POSITIONED FOR THE MID TO LONG-TERM

Initiatives to strengthen operations and drive growth, against an increasingly challenging and competitive environment

## **Broadband Growth Strategy**

- Be data-backhaul ready; the contribution from data backhaul is growing and expected to add a meaningful income stream to the Broadband business within the next few years; multi-year investments for mobile operators
- Step up partnership programs with mobile operators to drive fixedline Broadband only segment
- Develop new market segments and increase value-added solutions that leverage Android gateway

## **Strengthen Balance Sheet**

- Cash generated from operations to continue funding capital expenditure; and not to use bank borrowings
- With network investments past the peak, capital expenditure to be lower than the last three years; aim to use excess cash generated from operations to make debt repayments, subject to operating conditions
- Monitor capital expenditure to focus on areas that can generate Broadband growth and sustainability for long-term

## **Capital Management**

- Interest rate swaps covering ~80% of outstanding Onshore Facilities hedged through to 30 June 2025
- Average fixed rate on TAIBOR swaps is ~0.89%
- Gearing stood at 49.4% as at 31 Mar 2022 (2021: 50.1%)
- In 2021, successfully extended the maturity date of Offshore Facilities to 2023, on the same major terms; aim to further extend maturity date to at least 2025
- In 2021, successfully extended the maturity date of Onshore Facilities to 2028, on the same major terms
- Aim to eliminate offshore debt and bring debt back to onshore to save on interest costs over the long term

### **Key Investments**

- Investments to focus on:
  - increasing network capacity and driving higher speed plans
  - positioning APTT to benefit from Taiwan's 5G rollout and drive data backhaul business

# **IMPACT OF COVID-19**



# Impact of the COVID-19 pandemic on TBC has been limited to date due to the subscription-based nature of its business

- While the COVID-19 outbreak in Taiwan is relatively contained as compared to other countries, Taiwan's outlook remains uncertain as the expected downturn in other countries will invariably have an impact on Taiwan's export-driven economy and GDP growth. A significant and prolonged deterioration in the national GDP, disposable income or overall economic conditions could in turn adversely affect TBC's ability to grow or maintain revenues, and its financial position.
- The Trustee-Manager will continue to:
  - Monitor developments of COVID-19 and their related impact on operations; and
  - Exercise prudence by managing operational and capital expenditure and strengthening APTT's debt management programme. A stronger balance sheet will provide APTT with the flexibility to navigate and compete more effectively in today's uncertain economic climate.
- TBC and the Trustee-Manager have activated their respective Business Continuity Plans that adhere to all regulations and guidelines in their respective jurisdictions.

# OUTLOOK



## APTT is positioned to grow in a measured way

### **GROWTH DRIVERS**



## **UP-SELL & CROSS-SELL**

- Continue to build on the up-sell & crosssell initiatives across TBC's subscriber base to drive growth in future cash flows
- Leverage TBC's product offerings and strong subscriber base for growth



# **SCALABLE & EFFICIENT COST**

- Headroom in network capacity that allows provision of additional services at limited incremental cost
- Support inorganic growth in future

# plans due to rapidly growing demand for data

prices

### **PREMIUM DIGITAL TV**

Continue to ride on the growth momentum for Premium digital TV RGUs by stepping up marketing efforts to attract new RGUs

**BROADBAND RGU GROWTH** 

partnership programs with mobile operators to

by offering higher speed plans at competitive

High fixed broadband penetration in Taiwan;

Rising demand for higher-speed broadband

opportunity to gain more market share

focus on fixed-line Broadband only segment, and

Intensify marketing efforts by stepping up

- Consumer preference for better quality video and interactive services
- Growing number of HD television sets in Taiwan

### **OPERATING ENVIRONMENT**



## **CHALLENGING ENVIRONMENT**

- ARPUs continue to remain under pressure due to growing popularity of online TV, challenges from video piracy issues, aggressively priced IPTV and competition from mobile operators offering unlimited wireless data
- Decline in demand for home shopping and stronger competition from internet retailing to continue impacting channel leasing revenue for cable industry

- Basic cable TV rates for 2022 across all five franchise areas were maintained at the same rates as 2021
- All five licences that were due for renewal in 2020 and 2021 have been successfully renewed until 2029 and 2030

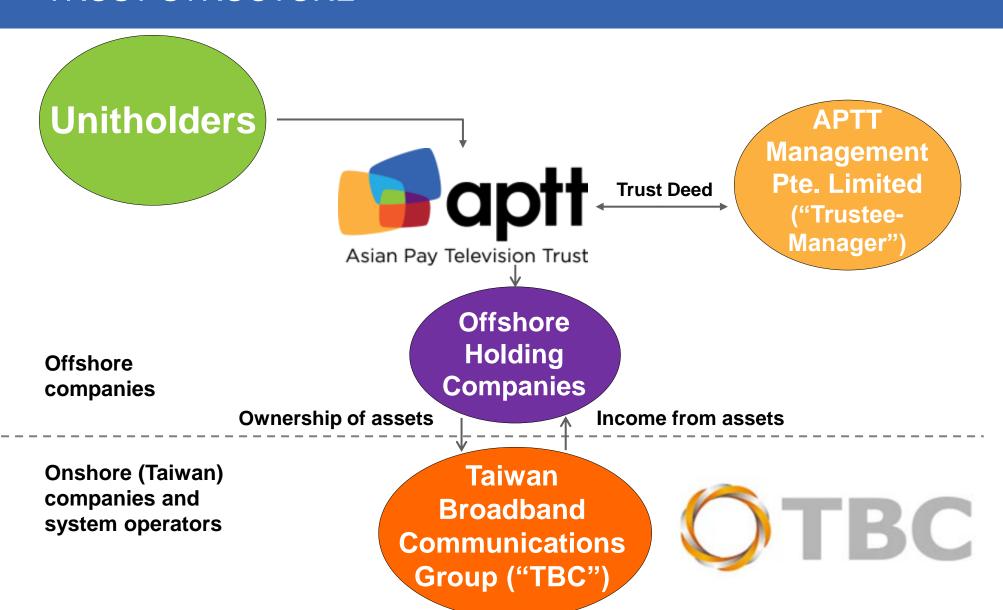
Broadband and Premium digital cable TV RGUs to continue increasing in 2022; total revenue will be influenced by the ability to manage ARPUs which will remain under pressure; total operating expenses in 2022 expected to be higher than 2021 due to the benefit in 2021 from the reversal of pole rental provisions



# **BUSINESS OVERVIEW**

# TRUST STRUCTURE





# **OVERVIEW**





APTT is a business trust with a mandate to own & operate pay-TV & broadband businesses in Taiwan, Hong Kong, Japan & Singapore

- Independent Directors comprise majority of the Board of Directors (4 out of 7)
- Sole investment in Taiwan Broadband Communications ("TBC") Taiwan's third largest cable TV operator

# Cable TV operator in five franchise areas in Taiwan, with network coverage of more than 1.3 million homes

- Owns 100% of the advanced hybrid fibre coaxial cable network in the five franchise areas
- Resilient business with high barriers of entry due to high network roll out requirements
- Large customer base makes TBC attractive to local content providers
- Long standing relationship with subscribers; deep understanding of Taiwanese subscribers' viewing preferences

### **PRODUCT OFFERINGS**

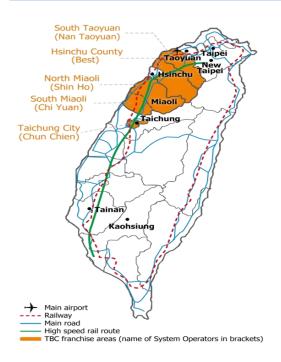
Approx. 89% of revenue is subscription-based from the three product offerings1

BASIC CABLE IV	PREMION DIGITAL CABLE IV	ы
Over 100 channels on Basic cable TV, majority of the popular channels are only available on cable TV	Up to 68 additional channels including 67 HD channels, through MPEG4 platform. 41% <sup>1</sup> of TBC's Basic cable TV subscribers are also Premium digital cable TV subscribers; opportunity to upsell to the remaining 59%	Growing m ability to cre customers enabled HF current spe Gbps

### BROADBAND

Growing market share, with ability to cross-sell to noncustomers on DOCSIS 3.1 enabled HFC network and current speed offerings up to 1 Gbps

# FRANCHISE AREAS IN NORTHERN & CENTRAL TAIWAN



- Low churn rate of 0.5%¹ for Basic cable TV (688K¹ Revenue Generating Units)
- Up-sell Premium digital cable TV and cross-sell Broadband to large Basic cable TV subscriber base

Note: (1) As at 31 March 2022



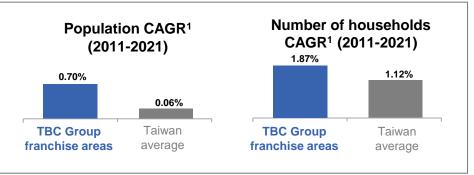
# **BUSINESS DRIVERS**

# TBC'S FRANCHISE AREAS



### Network coverage of more than 1.3 million households across five franchise areas in four counties of Taiwan

- Well connected via major railways, road transportation and/or international airports
- Increasing population due to workforce seeking employment in TBC Group's franchise areas
- Population growth in the five franchise areas (0.70%) outstrips national average (0.06%); Growing number of new households as more young Taiwanese set up families





- Home to Taiwan Taoyuan International Airport and close proximity to Taipei
- Service area covers 918 square km and constitutes over 75% of the total area in Taoyuan County
- Approx. 439K households and population of close to 1.2 million



- Hsinchu Science Park is home to high tech companies, the city has one of the highest income levels in Taiwan
- Approx. 211K households and population of 576K

## Miaoli (North & South)



- Suburban mountainous region geographically located between Hsinchu and Taichung
- Well connected via major railway and road transportation systems
- Approx. 196K households and population of 537K

# **Taichung City**



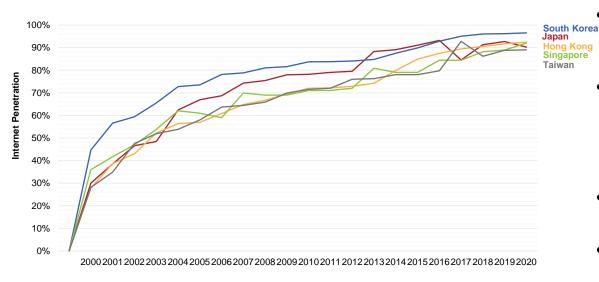
- One of the most populous cities in Taiwan; home to Taichung International Airport
- Vibrant, diverse economy: large industrial areas and a thriving commercial sector that incorporates traditional businesses, small familyrun shops & factories
- Approx. 466K households and population of 1.2 million

Note: (1) National Statistics, R.O.C. (Taiwan) 2021

# TAIWAN MARKET – POTENTIAL IN BROADBAND



## Relatively lower internet penetration and speed compared to other developed APAC markets



International Telecommunications Union

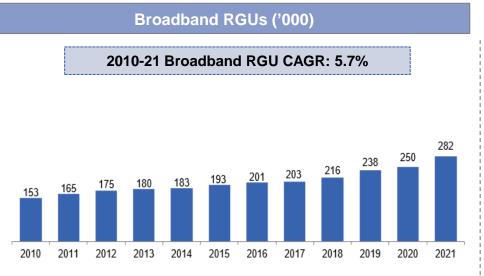
- Internet penetration is lowest in Taiwan at 91.0% at the start of 2022, compared to South Korea, Japan, Singapore and Hong Kong
- Taiwan's average download speed of fixed internet connections is ranked second last among the five developed APAC markets at approx. 94.63 Mbps; there is room for Taiwan subscribers to further increase internet speed
- TBC's Broadband market share in its five franchise areas is increasing year-on-year
- Opportunity for TBC to gain more market share and meet rising demand for higher-speed broadband plans due to rapidly growing demand for data

Region	Internet penetration rate	Number of Internet users (million)	Average download speed of fixed internet connections (Mbps)	Year-on-year change in average speed of fixed internet connections
Asia-Pacific				
Taiwan	91.0%	21.72	94.63	+21.7%
South Korea	98.0%	50.29	98.86	+7.8%
Japan	94.0%	118.3	93.26	+23.9%
Singapore	92.0%	5.45	184.65	+15.2%
Hong Kong	93.0%	7.05	158.19	+31.3%

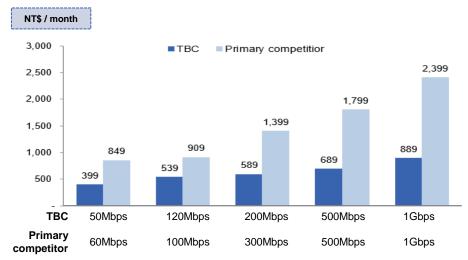


# IMPROVING BROADBAND MARKET SHARE

## TBC's broadband market share improving in its franchise areas year-on-year



### TBC Group offers competitive prices<sup>1</sup> with reliable services



- Note: (1) Primary competitor pricing based on NCC data
- DOCSIS 3.1 and GPON enabled network that meets consumer demand for high-speed internet; 1 Gbps launched since 2019
- Competitive pricing and optional bundling with digital TV
- Offering value-added services including Android OTT gateway and karaoke singing box, among others. Will continue to introduce valueadded solutions that leverage the Android gateway
- Developing new market segments, including enterprise clients
- Supporting mobile operators with their network development by leveraging TBC network for data backhaul

# HIGH BARRIERS TO ENTRY AGAINST CABLE ENTRANTS IN TAIWAN



## Cable TV continues to be the dominant TV platform

- Superior content portfolio at competitive pricing
- Affordable services
- Adoption of superior technology by operators
- Technological disadvantages of IPTV in Taiwan

## Barrier to entry against new cable entrants

- High network roll-out requirements
- Long standing relationships with subscribers; strong brand awareness
- Deep understanding of Taiwan subscribers' viewing preferences

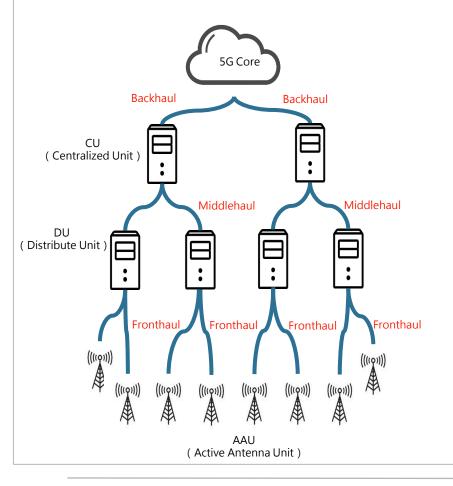
<b>Top 20</b>	channels in Taiwan (2021)
1	TVBS-News
2	Sanlih Taiwan Channel
3	EBC News
4	Sanlih E-Television News
5	Formosa TV News
6	Unique Satellite TV
7	TVBS
8	ERA News
9	Next TV News
10	YOYO TV
11	EBC Financial News
12	Star Chinese Channel
13	Sanlih City Channel
14	GTV Drama
15	Videoland Japanese
16	EBC Variety
17	Videoland On-TV
18	Star Chinese Movies
19	EBC Drama
20	Videoland Movies

# **5G DATA BACKHAUL OPPORTUNITIES**



### **HOW DATA BACKHAUL WORKS?**

For data to move from one point to another on the internet, there needs to be fibre nodes that allow these points to interface with each other.



# WHY MOBILE OPERATORS IN TBC'S FIVE FRANCHISE AREAS NEED DATA BACKHAUL SERVICES?



Demand for higher speed continues to increase

Spectrum is expensive, while wireless competition is intense. CAPEX and OPEX for 5G infrastructure are costly for a mobile operator

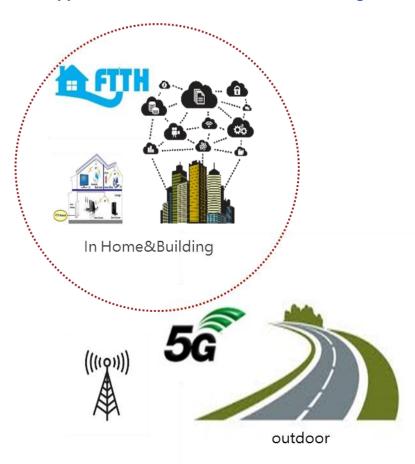
- TBC is one of two players in its five franchise areas that owns a dense and distributed underground fibre network; TBC does not compete in the wireless space
- More efficient for 5G mobile operators to work with a 5G data backhaul partner (via 10GPON or DOCSIS3.1) to deliver higher speed/lower loss and lower interference end-to-end 5G network transmission
- TBC has been increasing fibre density from an average of over 750 endhomes per fibre node three years ago to less than 250 end-homes per fibre node on average today; Broadband speeds ranging up to 1 Gbps
- TBC's increased fibre density can adequately support mobile operators, removing network congestion and allowing data to be transmitted at high speed; allows 5G mobile operators who are building their small cell stations to tap into TBC's high speed fibre data backhaul
- As a proof-of-concept, TBC has been providing data backhaul for 4G networks to a few mobile operators; although its contribution is still not significant, revenue from data backhaul over the last three years has been gradually increasing
- TBC is positioned to benefit from mobile operators' multi-year investments in the build out of their 5G networks





### OPPORTUNITIES FOR TBC AS 5G DATA BACKHAUL PROVIDER

TBC's advanced hybrid fibre coaxial network supports both indoor and outdoor coverage



- Taiwan government's push for faster build up of 5G networks
  - National Communications Commissions is providing substantial subsidies to telco operators with a goal of building 39,000 5G base stations in 2.5 years
- 5G network investment is a multi-year investment for mobile operators;
   flexibility to add fibre circuits from TBC as their wireless networks expand over time
- Explore partnerships with mobile operators to tender for government projects
  - 10GPON and DOCSIS3.1 are used as heterogeneous network backup in private 5G networks
- Explore a packaged suite of hybrid network environment and office applications to target the business community



# END