

GSMA
Ministerial
Programme

BARCELONA
3 - 5 MARCH 2025

Welcome and Introduction

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Affordable spectrum prices as a driver for equality

Longer
licences

Lower
prices

Cashless
payments

Enhanced
renewals

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GSMAi Global Pricing Study

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MWC Barcelona 2025 Round Table Discussion

Global Spectrum Pricing

DATE

4th of March
2025

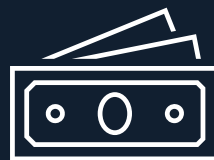
AUTHOR

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What motivated our study



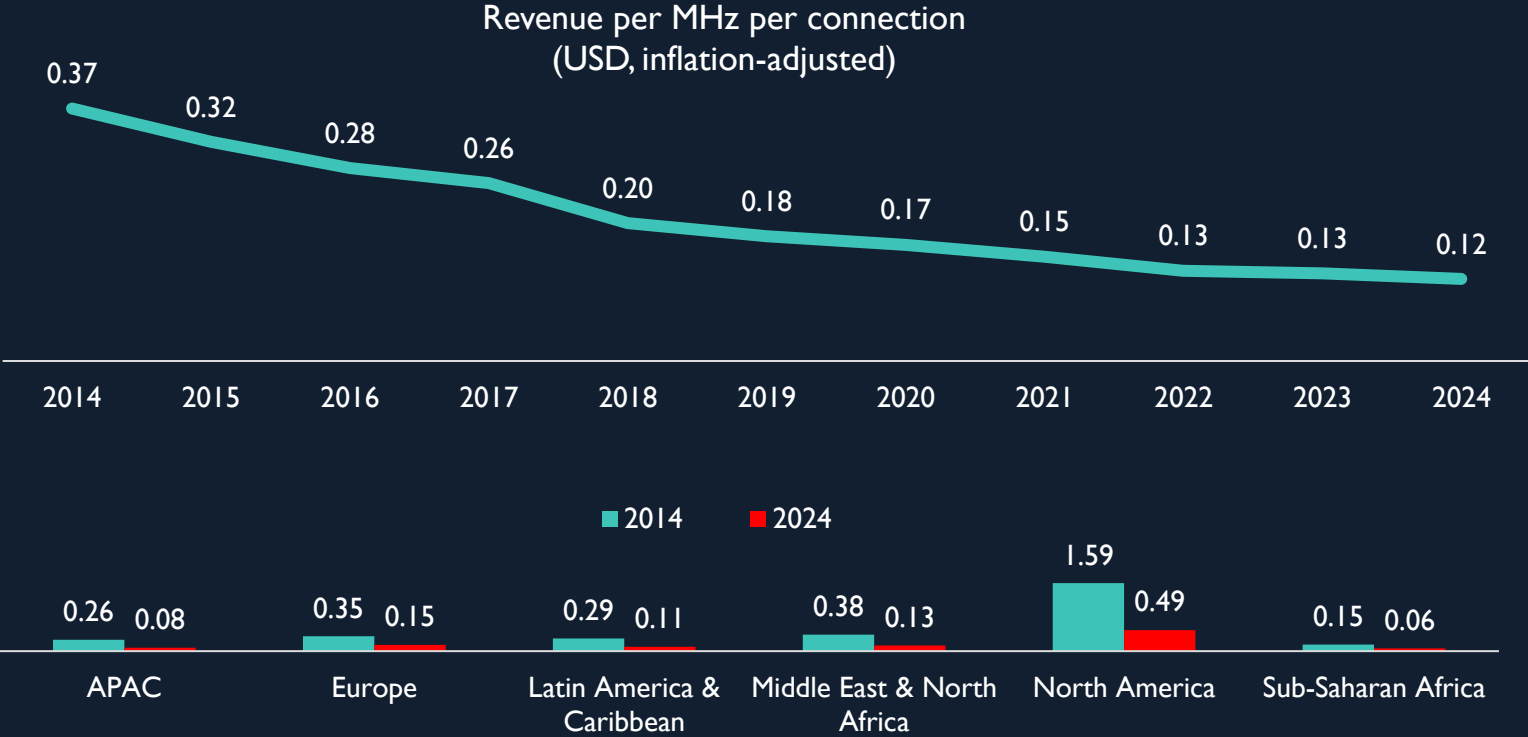
**In the past decade,
operators increased their
spectrum holdings by 80%
Bringing 4G and 5G
networks to consumers**



**In the same period,
revenue per connection
has declined by 40%
Changes the reality of the
economics of spectrum**

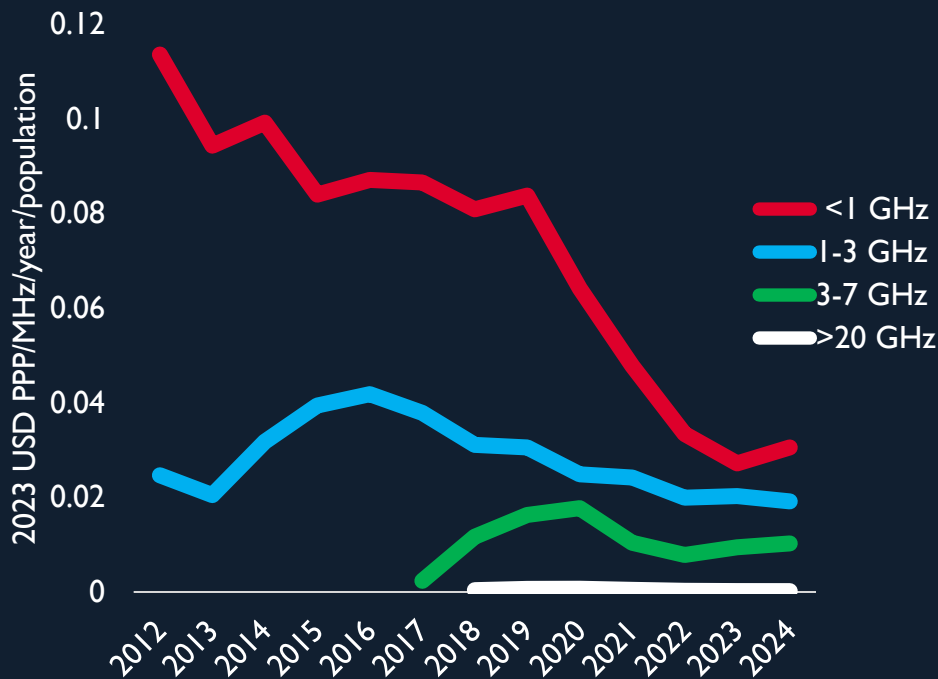
- Did the value of spectrum decrease, and if so, do prices reflect that?
- Did the total cost burden increase?
- Does spectrum cost affect deployment of networks?

Revenue generated per each MHz has decreased by 60%

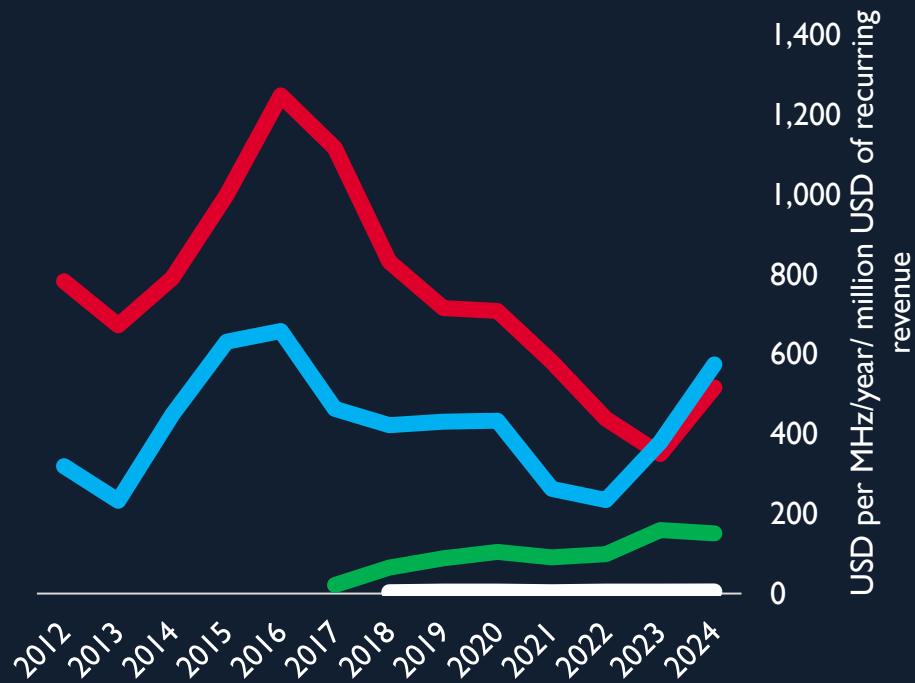


Spectrum prices have declined, but not as fast as its value to operators

Per MHz per population, inflation adjusted



Per \$m of revenue

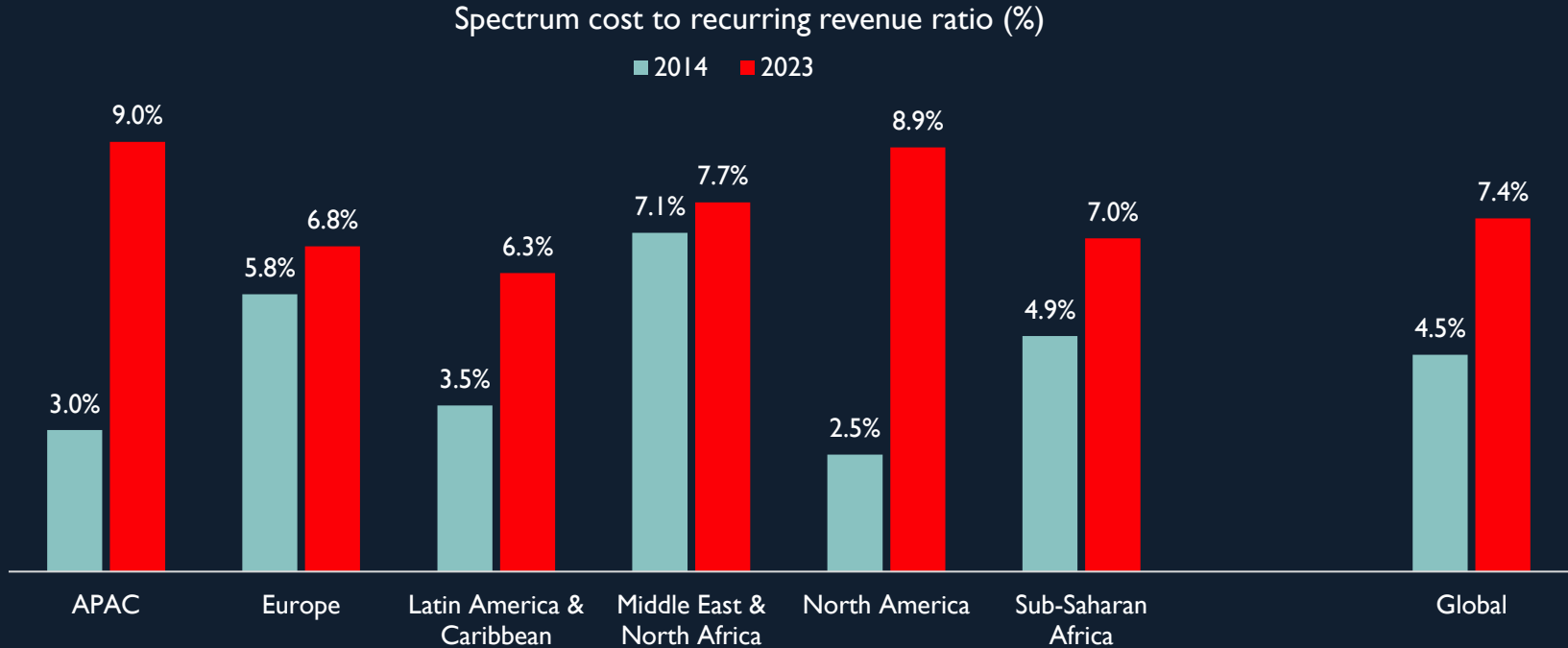


We measure cost accumulation using the spectrum cost to revenue ratio

$$\text{Spectrum cost to revenue ratio} = \frac{\text{Upfront fees amortised over duration of active licences} + \text{Annual fees}}{\text{Recurring revenue}}$$



Globally, spectrum cost to revenue ratio increased by 63%



Large disparities in spectrum cost to revenue ratio

Canada

Rapid increase in cost due to acquisition of new spectrum and annual fees.

2014: 2%
2023: 7%

US

Operators acquired further spectrum, but many licences were renewed at no further cost.

2014: 7%
2023: 10%

Colombia

Spectrum additions and costly annual fees charged on renewed licences.

2014: 2%
2023: 10%

Argentina

Spectrum cost tripled in the past decade.

2014: 2%
2023: 8%

Czechia

Operators acquired further spectrum via auctions.

2014: 3%
2023: 4%

Italy

Expensive 3G-era licences expired but operators still face high burden.

2014: 12%
2023: 15%

Nigeria

Total spectrum assigned to operators reaches over 800 MHz, cost doubles.

2014: 2%
2023: 5%

Egypt

Depreciation of local currency drives USD-denominated spectrum fees.

2014: 11%
2023: 22%

South Africa

Spectrum is primarily auctioned, total cost remains low.

2014: 1%
2023: 2%

Pakistan

Depreciation of local currency drives USD-denominated spectrum fees.

2014: 10%
2023: 23%

India

Build up of spectrum cost, mobile sector consolidates.

2014: 14%
2023: 26%

Japan

Total spectrum cost remains low.

2014: 1%
2023: 1%

China

Operators pay only annual fees, the cost remains low.

2014: 1%
2023: 1%

Thailand

Build up of spectrum cost as concessions expire.

2014: 2%
2023: 16%

High cost negatively impacts coverage and speeds



10 percentage point higher spectrum cost to recurring revenue ratio **decreased 4G and 5G coverage by up to 5 percentage points**



10 percentage point higher spectrum cost to recurring revenue ratio **decreased average speeds by up to 8%**

Rational pricing will bring benefits to consumers



Lower spectrum cost will increase the availability of 4G and 5G

Bringing quality service to additional populations



This will help close the digital divide

Expanded coverage drives adoption

94% Global 4G coverage

52% Global 5G coverage

65% Global 4G penetration

27% Global 5G penetration

How policy drives prices



Pricing and design aspects

We find no material difference in prices between auctions and administrative assignments.

Specific design aspects and objectives of the regulator are more influential.



Reserve prices

Reserve prices were binding in case of 37% of assignments we examined.

Effectively, prices were set by regulators, rather than the market. Can worsen the winner's curse,



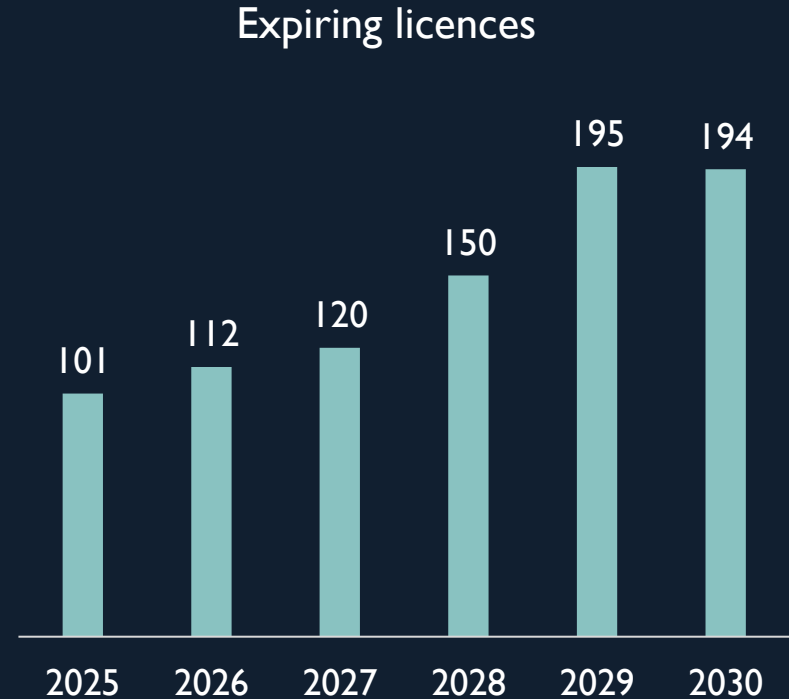
Scarcity of spectrum

Operators who own 10% less spectrum than the average paid 10% higher price for additional spectrum.

Making sufficient spectrum available is an essential part of rational spectrum policy.

Increased number of renewals offers an opportunity to rationalise cost

- Renewal fees can ensure spectrum is retained by efficient user but should not be linked to historical prices.
- Spectrum trading framework can provide the same incentive without imposing additional costs.
- Regulators can consider renewals in exchange for commitment to quality of service.



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