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Office of the Communications Authority
29/F., Wu Chung House
213 Queen's Road East
Wan Chai
Hong Kong
(Attention: Head, Regulatory 2)

24 May 2017

RE: GSMA's comments to the second consultation paper to the Arrangements for the Frequency Spectrum in the 900 MHz and 1800 MHz Bands upon Expiry of the Existing Assignments for Public Mobile Telecommunications Services and the Spectrum Utilisation Fee

Dear Sir or Madam:

The GSMA, which represents the interests of mobile operators worldwide, would like to thank the Hong Kong Communications Authority (CA) for the opportunity to comment on the second consultation paper to the Arrangements for the Frequency Spectrum in the 900 MHz and 1800 MHz Bands upon Expiry of the Existing Assignments for Public Mobile Telecommunications Services and the Spectrum Utilisation Fee. Our comments related to common industry concerns are expressed below for your kind consideration.

Mobile Network Evolution and Future Outlook

In the Asia Pacific region, the GSMA has witnessed the increased availability of 4G in the last few years in both developing and developed countries. Hong Kong was one of the early adopters of 4G, and its mobile operators have shown great examples of expanding 4G coverage and help achieve the greater socio-economic impact that better mobile broadband connectivity brings to the society and across industry sectors.

As more consumers enjoy the benefits of mobile broadband, especially in developed economies such as Hong Kong, more mobile operators are considering refarming 2G spectrum to more efficiently expand their 3G & 4G capacity and set out plans to ultimately shut down 2G services. For example, in Australia Telstra already shut down its 2G services at end of 2016, and Optus is starting its shut-down from April 2017 while Vodafone Hutchison is starting in September 2017. Singapore, which is similar in size to Hong Kong, is shutting down its 2G services nationwide from April 2017.

The GSMA is pleased to see the CA removing the previously proposed three-year mandatory transitional period for 2G services. However, we are concerned about the proposed inclusion of a new special condition SC 10.4 in the Unified Carrier Licences (UCLs) for the provision of service. In light of the much faster evolution of technologies and mobile services, implementing this special condition in UCLs may create additional impediment to further innovation in mobile services, especially in the context of future 5G services and applications. In fact, CA's concern for the provision of service is already addressed in the UCLs under GC 5 which states that the licensees shall "*…at all times during the validity period of this licence operate, maintain and provide a good, efficient and continuous service in a manner satisfactory to the Authority*". The GSMA believes that GC 5 in the UCLs already sufficiently addresses the CA's concerns related to provision of service, and asks the CA to remove the proposed inclusion of a new special condition SC 10.4 in the UCLs.

Considering the ever-evolving complexity of various technologies that the mobile operators have to maintain and deploy in Hong Kong, it is critical to recognise that the mobile operators' decisions to invest in this renewal and auction of 900 MHz and 1800 MHz bands will not be made in isolation, but are subject to many factors including the medium- to long-term availability of spectrum, especially as the industry prepares tirelessly for 5G.

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Spectrum is a critical resource for the mobile industry. Its availability, and at what frequency bands, will help determine the business case for 5G. Significant new, widely harmonised mobile spectrum is needed (in both low- and high-frequency bands) to ensure timely rollout of 5G networks, maximise network investment and deliver the full range of 5G's potential capabilities. The GSMA is encouraged by the CA's recent announcement[1] to start planning the 700 MHz, 3.4-3.7 GHz, 26 GHz and 28 GHz bands for 5G in Hong Kong. This is a great indication of spectrum availability in Hong Kong, but the GSMA would urge the CA in taking steps further in making available a more detailed and formal spectrum roadmap as soon as possible to lay out the actual work plans and timelines. A comprehensive spectrum roadmap in an official instrument will provide much greater certainty to the industry and help mobile operators plan their investments in the coming years.

Rationale and Evolution of Spectrum Utilisation Fees

The main rationale for charging a price for spectrum, whether through upfront or annual fees (or both), is to promote its efficient use. Price is an objective tool for regulators to distinguish between the business cases of potential users. Of course, pricing also generates revenues for the government and – in some countries – raising revenue is identified as an additional objective in spectrum auctions. A regulator engaged in best practice should set auction reserve prices that are below a conservative estimate of true market value to enable price discovery and facilitate efficient allocations.

Both theoretical and empirical work from academia informs us that, in industries with natural limits on the number of viable operators, high input costs depress incentives for investment and price competition. Although upfront fees paid for spectrum are sunk, they continue to weigh on the business decisions made by operators and their owners throughout the licence term, and affect their approach to future spectrum awards.

To explore the link between spectrum prices and investment and competition in mobile services, the GSMA conducted a research[2], using data covering 325 spectrum releases across 60 countries from 2000-2016. We observe that, over the last eight years, both reserve prices and price outcomes have trended upwards. While price outcomes for many awards remain moderate, the upward trend appears to be driven by a growth in the number of high price auctions, including many where reserve prices were set well above the global mean.

In the following figure, it is obvious that past Hong Kong spectrum auctions, both in terms of reserve and final prices, stand out as some of the highest on a global scale.

[1] Communications Authority's press release, http://www.coms-auth.hk/en/media_focus/press_releases/index_id_1423.html, 21 March, 2017

[2] Effective Spectrum Pricing: Supporting Better Quality and More Affordable Mobile Services, http://www.gsma.com/spectrum/wp-content/uploads/2017/02/Effective-Spectrum-Pricing-Full-Web.pdf, February 2017

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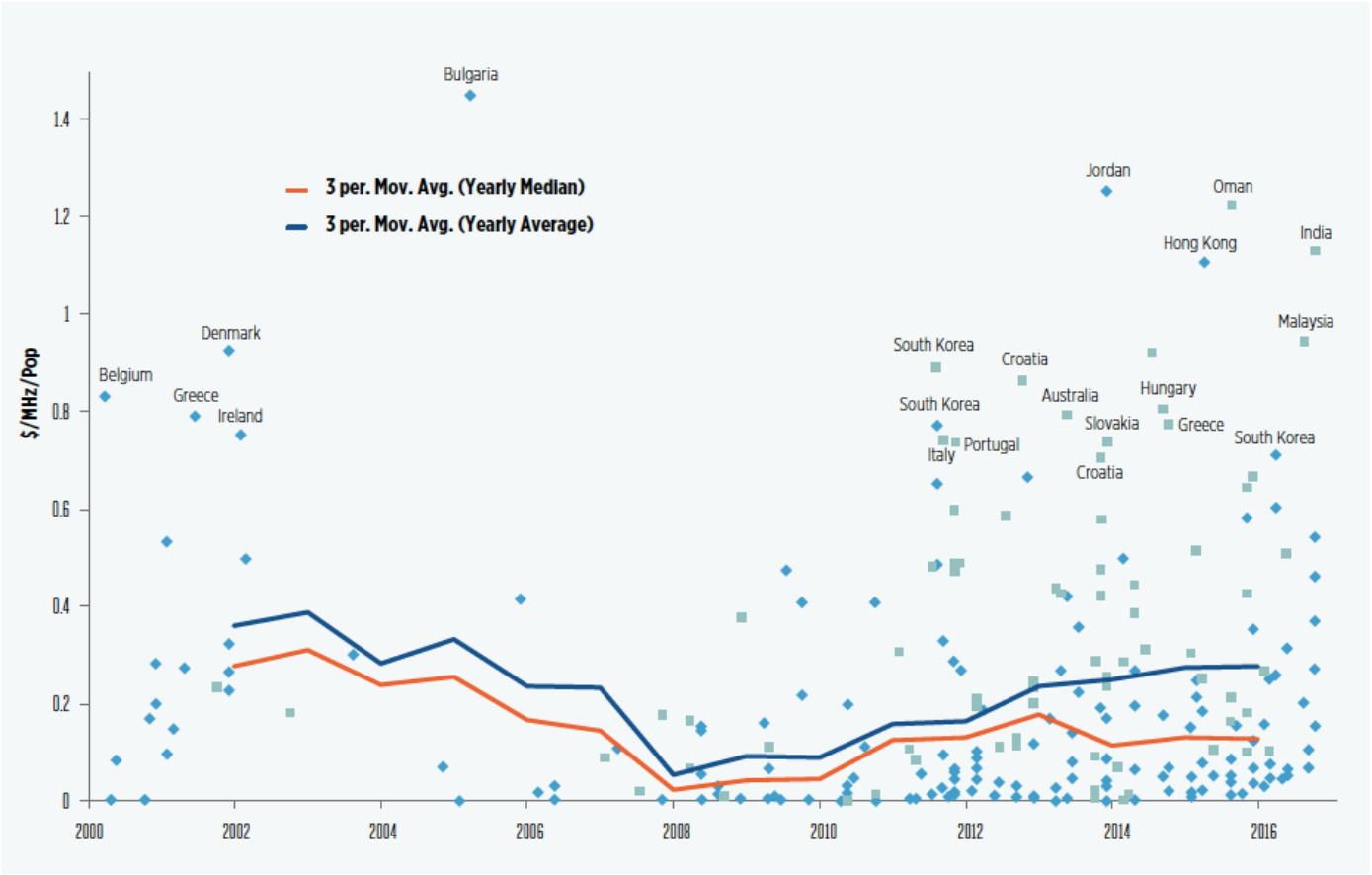

Notes: Green = Reserve prices for coverage bands below 1 GHz (700 MHz, 800 MHz, 850 MHz and 900 MHz); Blue = Reserve prices for capacity bands above 1 GHz (PCS, AWS, 1800 MHz, 2.1 GHz and 2.6 GHz).

Figure 1: GLOBAL TRENDS IN SPECTRUM RESERVE PRICES, BY BAND AND AUCTION, 2000-2016, GSMA report Effective Spectrum Pricing: Supporting Better Quality and More Affordable Mobile Services

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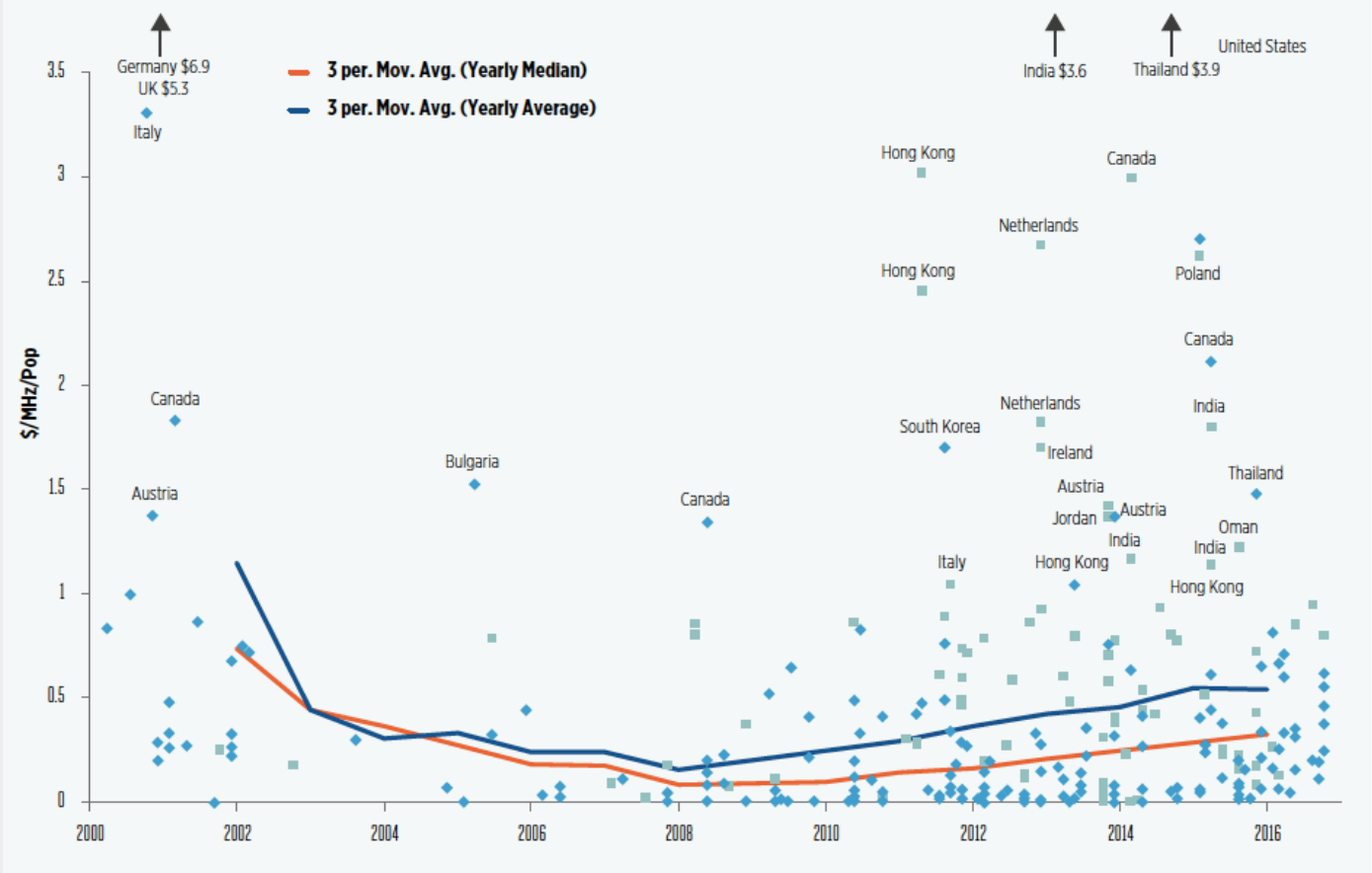

Notes: Green = Prices for coverage bands below 1 GHz) (700 MHz, 800 MHz, 850 MHz and 900 MHz); Blue = Prices for capacity bands above 1 GHz (PCS, AWS, 1800 MHz, 2.1 GHz and 2.6 GHz).

Figure 2: GLOBAL TRENDS IN SPECTRUM PRICES, BY BAND AND AUCTION, 2000-2016, GSMA report Effective Spectrum Pricing: Supporting Better Quality and More Affordable Mobile Services

Even the two reserve price benchmark targets of the 2.5/2.6 GHz and 2.1GHz auctions that the CA specifically referred to in the second consultation paper, come out again at the higher end in comparison to other auctions for capacity spectrum on a global scale as depicted in the figure below.

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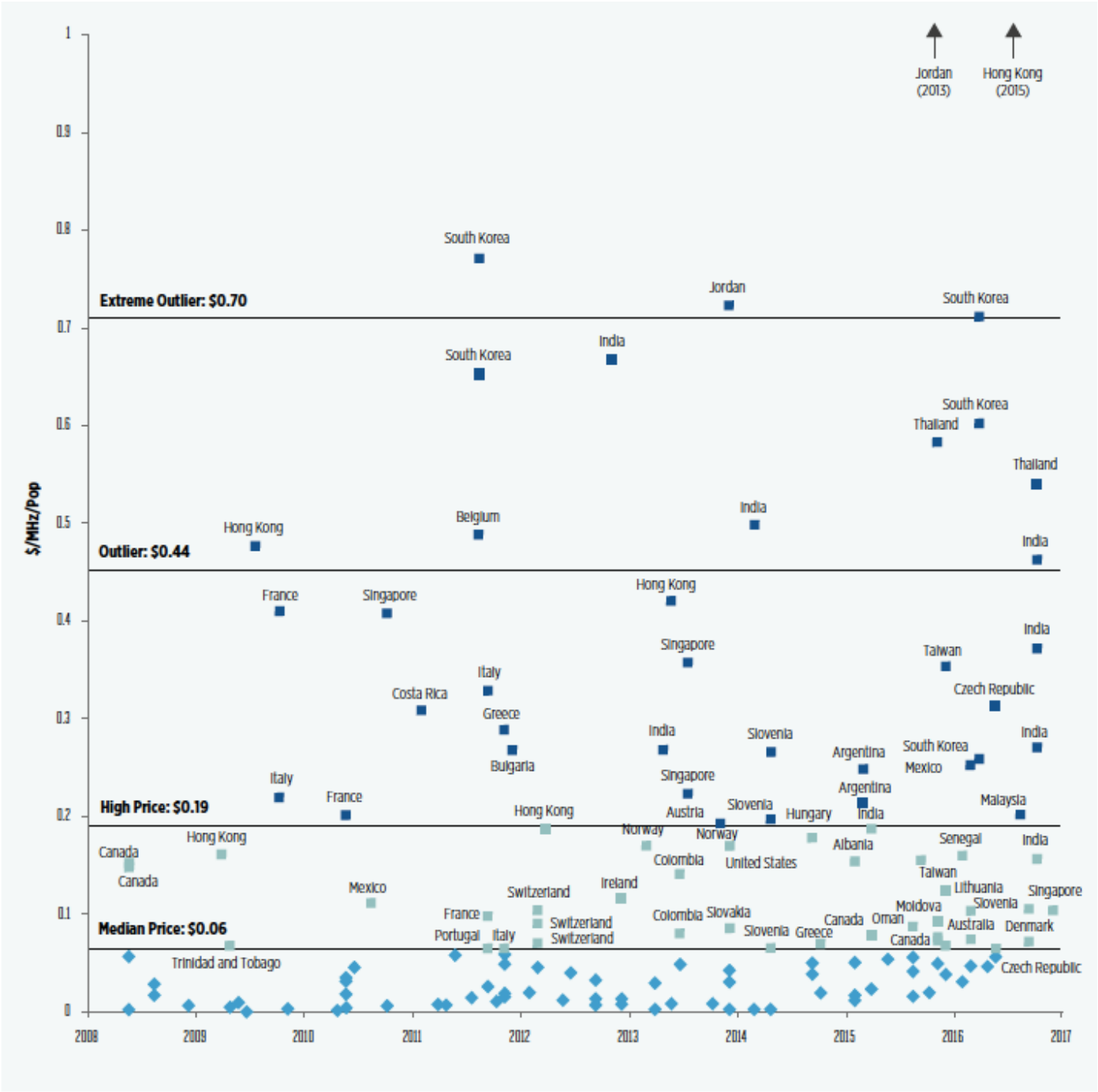

Notes: Capacity bands include AWS, PCS, 1800 MHz, 2100 MHz and 2600 MHz; prices are adjusted for PPP exchange rates, inflation and licence duration, and include annual fees. Colour key same as Figure 6.

Figure 3: CAPACITY SPECTRUM RESERVE PRICES BY CATEGORY (2008-2016), GSMA report Effective Spectrum Pricing: Supporting Better Quality and More Affordable Mobile Services

The GSMA is therefore very concerned about the CA's proposed plan to use only benchmarking and to only benchmark against past Hong Kong auctions without meaningful adjustments. Benchmarking is a delicate process and is prone to misleading representation if the samples are not chosen carefully nor adjusted for current market situation. Even in the same market, auction outcomes tend to be influenced by the specific conditions at the time and to also fluctuate over time, due to changes in market dynamics, overall economic environment and outlook, technological forecasts, and rollout obligations just to name a few. In addition, mobile operators' views on spectrum bands might also vary from time to time subject to changes in consumer behaviour and business cases.

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It is in the right direction that the CA considers the local factors, but referring to only past auctions as a way to compensate for local factors will risk ignoring today's context and market situation, such as mobile operator's ongoing investment in 4G and heavy investment in preparing for 5G.

Setting the right and appropriate spectrum utilisation fees not only benefits the mobile operators' ongoing investment and their sustainable growth, but also benefits the Hong Kong consumers. As depicted in the figure below, in high income economies such as Hong Kong, consumer surplus is expected to gain from lower spectrum fees.

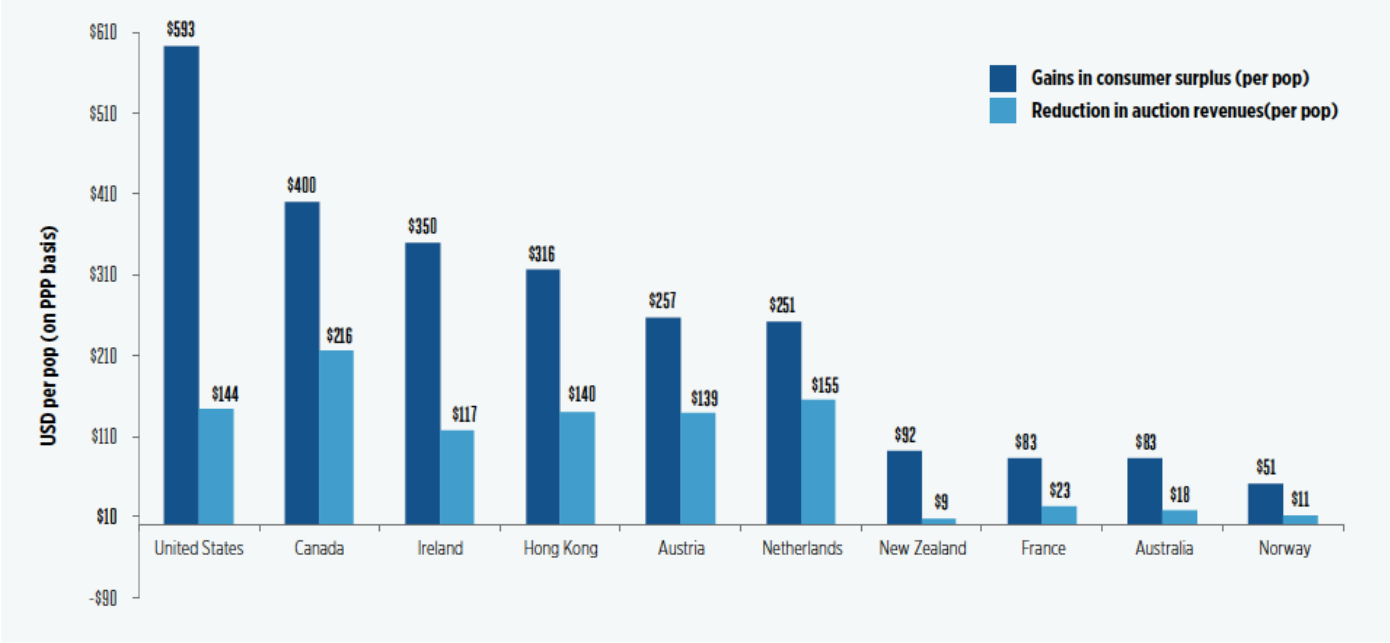

Figure 4: IMPLIED SCOPE FOR NET GAINS IN CONSUMER SURPLUS FROM LOWER SPECTRUM COSTS FOR SELECTED HIGH INCOME COUNTRIES, GSMA report Effective Spectrum Pricing: Supporting Better Quality and More Affordable Mobile Services

The price of mobile spectrum over time should reflect the evolving equilibrium between its supply and demand. Supply is driven by the release of new spectrum bands, and constrained by the availability of equipment to use those bands. Demand is driven by growth in consumer demand for mobile data, and constrained by the ability of mobile operators to monetise that value. Looking forward, it is apparent that the supply of spectrum is set to increase rapidly, especially as the industry considers much larger bandwidth for 5G. However, unless operators can find new sources of revenue, the price they can afford to pay for spectrum must decline on a per MHz basis to remain viable and sustainable.

The GSMA will therefore urge the CA to reconsider the samples to be used in the benchmark and more importantly to balance it with a careful evaluation of the current market situation, including but not limited to mobile operators' cash flow and affordability, existing obligations, and ongoing revenue/investment forecasts.

The GSMA is keen to continue the close dialogue with the CA on the above matters, and would be more than happy to answer any questions.

Yours sincerely,

Joe Guan
Head of Policy, Greater China
GSMA