



Spectrum for the Digital Economy

A. Background

JFCCT with EABC have devised a [schematic and definition](#) of the Digital Economy and how it works. This shows that telecoms networks are the engine room of the Digital Economy. The rise of mobile devices (smartphone, tablets and connected laptops and other devices) as the primary personal and business communication tools, means that mobile broadband has assumed new dimensions of importance and criticality. As with all systems serving public and national goals, the overall system must make sense economically (it must be affordable for all participants), support continual innovation and be sustainable.

Mobile broadband is not currently affordable and scarcity impacts speeds. Why and what can be done about this?

Summary of Recommendations

- SOE / industry structural reform
- Unlocking availability to overcome scarcity – changing the law as necessary; a credible national spectrum plan to support this.
- A policy targeted at underpinning acceptable speeds for the Digital Economy.
- Economic re-basing of starting price for next auction; changing law or regulation as necessary
- Remove N-1 rule

B. State-Owned Enterprise (SOE) and Industry reform

JFCCT and EABC have a long-standing recommendation for industry reform (wholesale market using a suitable pricing methodology) and SOE reform. There are two main SOEs in the telecoms sector. All operators should be licensed directly by the NBTC on equitable terms, moving away from concessions. SOEs should not be pursuing activities which the private sector does well; trying to do retail mobile for example is not a good strategy but the SOEs should focus on basic fixed line services and infrastructure and bandwidth services. SOEs should not be given special privileges and treated as the instruments of policy, just because they are state-owned. Thailand is now almost unique in the world in still having these former Post-Telegraph-Telephone (PTT's) 100% state-owned and unreformed. Compared with the overwhelming global practice which such firms, which have been reformed and restructured, they have not exploited opportunities for international expansion and continue to lock up value. Importantly, for the last two spectrum auctions, SOEs have sought to challenge government plans, resulting in distortions whereby they have

special privileges. Thus the model whereby all operators would be directly licensed has not been achieved.

(1) Problems are:

- (i) An industry structure which has not evolved to a single, empowered licensor (NBTC). Now it locks in value, has an unfair and unlevel playing field and see two entities striving to survive under their existing structure. Even minor changes to pool certain assets (a step in the right direction agreed in 2015), has been legally challenged even as late as early March 2018.
- (ii) Market distortions and upsets to a fair process for allocation of spectrum (before and after auctions, not during) where special deals are done
- (iii) A two-speed industry: direct licensing as promised and an extended concession-era. (The expected full transition to direct licensing has not materialized.
- (iv) A poor basis for 5G which relies most importantly on an appropriately structured sector.
- (v) Loss of international earnings and missing huge opportunities for competitiveness of the local industry overall (for more - see [here](#)).

(2) What to do about these problems

Many restructuring models have been proposed. The SOEs should focus on strengths as fixed line backbone providers, with a supported plan for rationalisation and strategic re-focus. We believe that, all plans and ideas notwithstanding, no real plan backed by political will from the very top, and from all parties, has ever been tried. For example it would be much most cost effective and value creating, (with whatever re-skilling is needed, and there should be a serious investment in retraining and reskilling) under a restructured model, than to continue with the loss-making activity and activity which stymies innovation and prevents the unlocking of the sector, as is the case today.

C. Spectrum

Spectrum is a national asset and scarce national resource. It needs to be managed to optimise returns to the treasury against valuable use to the economy as a whole, not just to maximize returns to treasury. JFCCT and EABC call for a national spectrum plan which shows sufficient spectrum. Urgent action is needed to undo the political and other roadblocks to free up this spectrum. For 2018, relying on re-farmed spectrum only is not enough. The plan also needs to harmonise with regional spectrum planning and management.

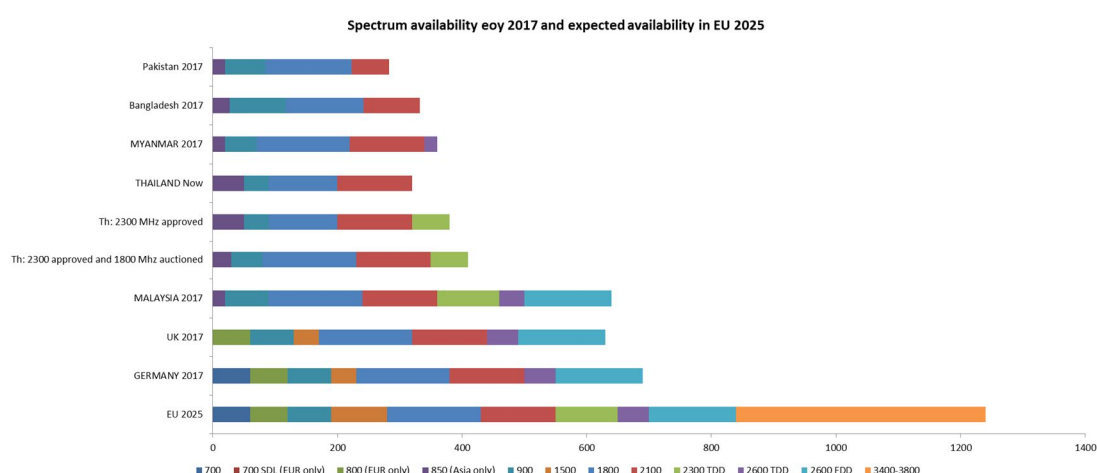
1. Scarcity

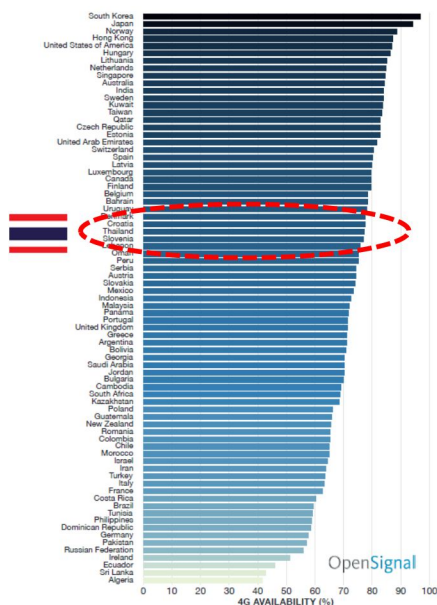
There is a scarcity of spectrum availability in Thailand (eg: wireless industry in Thailand uses only 320 MHz today of spectrum). It is comparable to Bangladesh and Pakistan. Thailand's use amounts to roughly 50 % of the spectrum used in a typical EU country and most developed economies, including Malaysia and Singapore, putting Thailand at a disadvantage.

To support further digitalization, the EU for example plans to double the amount of spectrum available to its mobile industry by 2025, in line with the plans of many developed economies. The EU achieves this by imposing legal obligations on its Member Countries aimed at improving the EU’s digital infrastructure. Conversely, Thailand has not released “fresh” spectrum into the market since the 3G auction, and is gradually lagging further behind. Merely to prevent the current gap from widening, Thailand would need to double the amount of spectrum by 2025, which should support the spectrum required to deliver on the Thailand 4.0 vision.

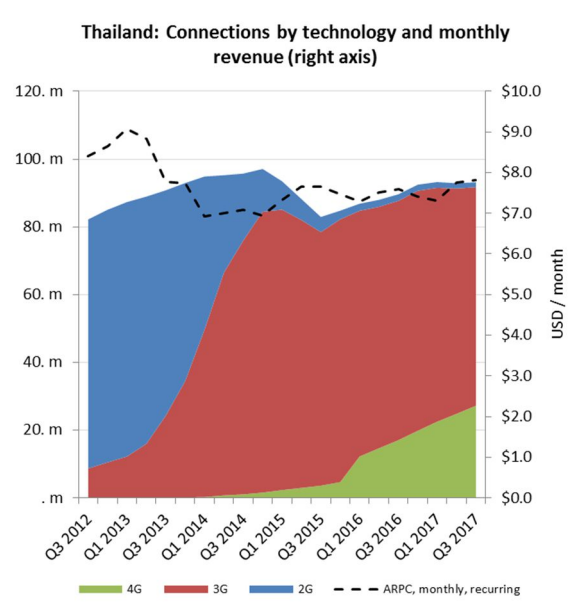
Achieving the Thailand 4.0 vision will generate an immense amount of benefit for government, consumers, and businesses alike. Concrete actions are needed on a number of fronts to achieve it. Affordable mobile broadband is one essential factor.

If the 900 MHz spectrum and currently unused 1800 MHz spectrum were to be awarded, then the total amount of spectrum would rise to 410 MHz. This would be equivalent to approximately two thirds of allocated spectrum in a typical EU country and what is presently available in Malaysia. Much like unused farmland or natural resources, the loss to society from unused spectrum accrues continuously and can never be recovered, although it is never too late to arrest future, on-going decline.





Thailand ranking well on 4G service availability

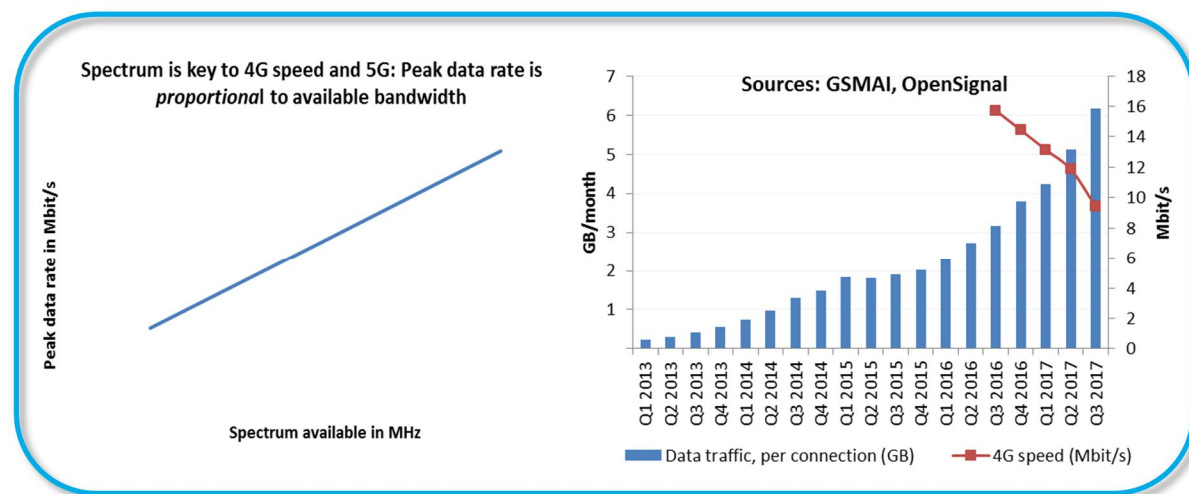


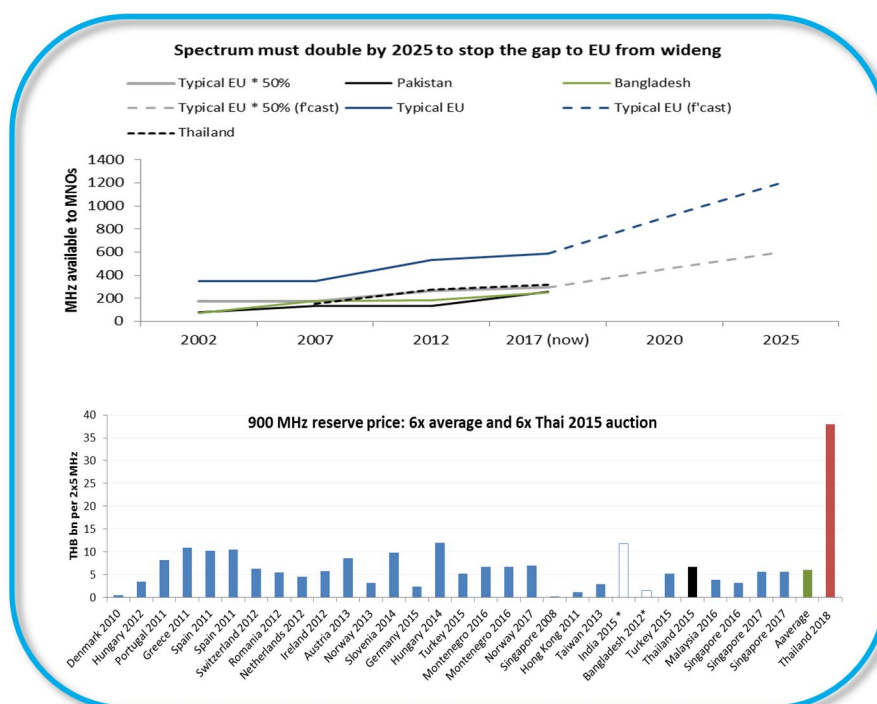
3G and 4G usage soaring

JFCTT and EABC call on the Royal Thai government to tackle the spectrum scarcity issue by re-allocating necessary spectrum using world best practice sufficiency benchmarks, undoing whatever political and other roadblocks which may exist and if necessary, changing law and regulation.

2. Awful impact on speed

Speeds continue to decline due to spectrum scarcity. This cannot be fixed by operator investments alone. While multiplexing technologies continually improve, Thailand is not alone in being bandwidth hungry.



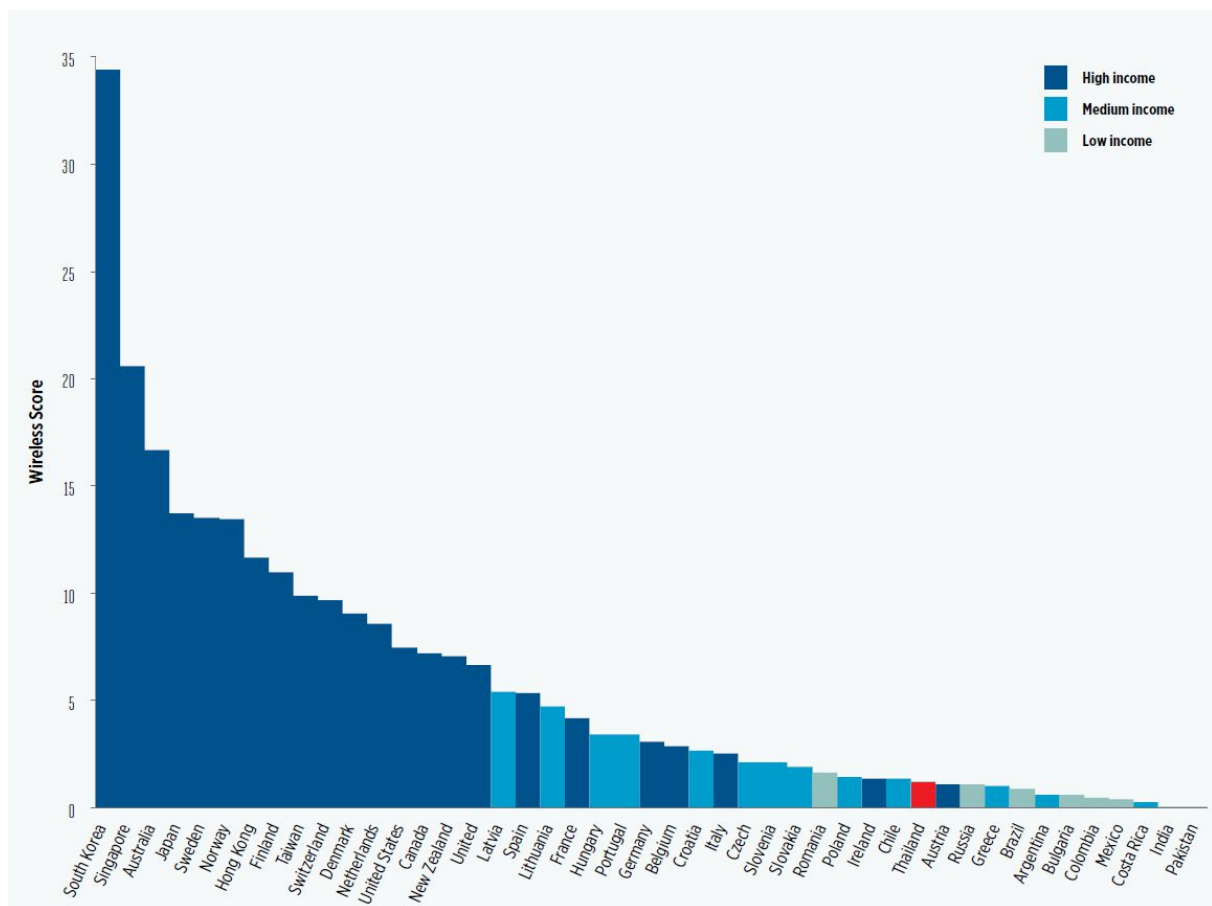


If not revised, the planned 2018 spectrum auction would most likely reduce spectrum availability by at least 10 MHz due to high reserve prices and N-1 rule.

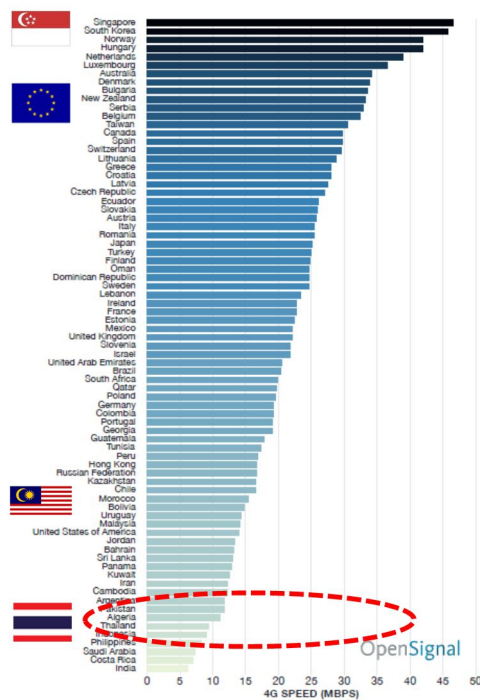
Using EU as a reference, a net increase to 2025 must be 300 MHz just to maintain gap to EU, and 900 MHz to close the gap. The gap with leading regional economies is also stark.

Improving 4G speeds and introducing 5G will not be possible unless more spectrum is released at more reasonable prices.

Digitalization has significant knock-on effects across the economy. To try and keep Thailand within reach of its neighbours, mobile network operators have made significant investments in 4G network. In the chart below, which looks at total broadband network coverage, 4G subscribers as a percentage of overall subscribership, and broadband speed (Mbps), Thailand has still managed to maintain a position that enables the country to move forward.

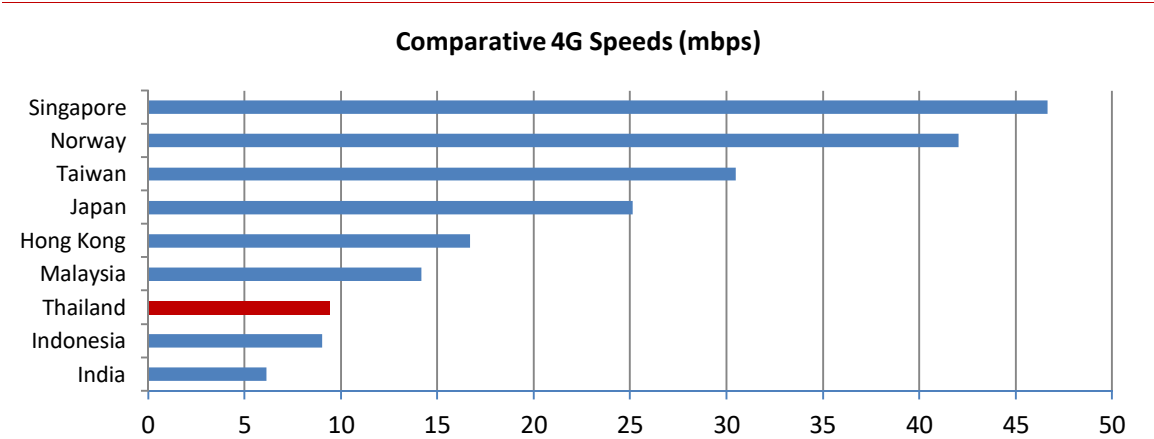


However, network infrastructure investment alone will not achieve the objective. It requires the necessary spectrum resources to ensure that, particularly on speed, Thai consumers are not disadvantaged and can unlock the full potential of mobile broadband connectivity.



This is evident in OpenSignal’s (an independent industry spectrum information source) November report which demonstrates that while 4G availability is on-par with many developed countries, 4G speeds are poorer than Pakistan and closer to India (see chart above). Infrastructure investments alone will not prevent Thailand from lagging behind its neighbours on speed and capacity – more spectrum is needed.

A similar comparative assessment of speeds appears below.



Effective mobile broadband for the Digital Economy unavoidably requires acceptable effective speeds. Thailand cannot claim to be a Digital Economy leader with poor effective speeds.

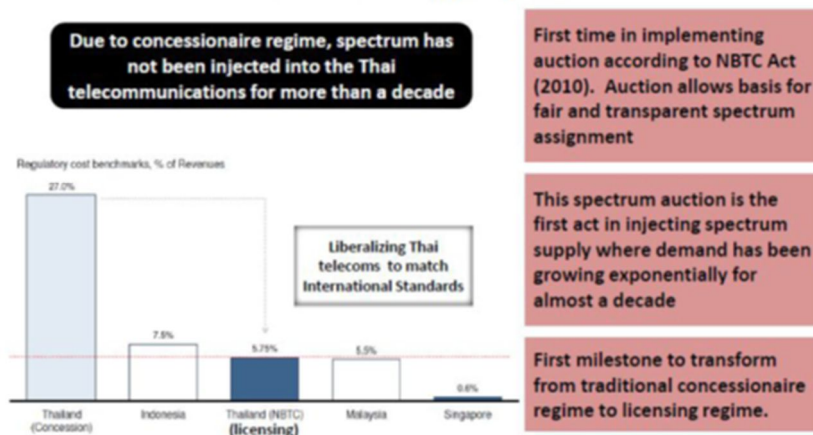
JFCCT and EABC call on policy makers to be committed to ensuring effective speeds.

3. Cost of spectrum

The high cost of spectrum from the LTE auctions (2016) is well known; on a PPP adjusted basis, these were world’s most expensive for these bands. The more spent on licensing fees, the less on network and service improvements an innovation. Competition is certainly in play in Thailand but it is more on price and less on service and innovation dimensions than it could and should be.

The move to direct licensing away from concessions was supposed to result in a reduced cost. This 2013 presentation, made in good faith by NBTC, shows the intention:

Transcend from Traditional Concessionaire Regime to Licensing Regime

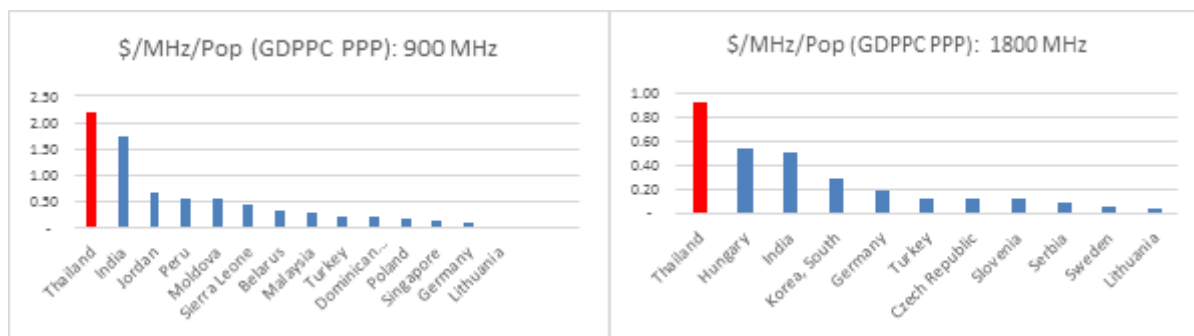


Going into the next spectrum auction under current rules of using the last price paid will be throwing good money after bad. JFCCT/EABC call on the Royal Thai Government to do an economic re-assessment. If this involves a change to the law or regulation, that should be done.

The deferral of spectrum auctions until later in 2018 allows time for this.

In market economics, the price of spectrum should reflect a balance between supply and demand. In Thailand there has been a growth in spectrum availability, so it would follow that these rising spectrum prices suggest that demand is outpacing supply. Even though there has been a growth in wireless traffic, it has not been matched by a growth in revenues. In many markets, the average revenue per user (ARPU) has declined.

In 2016, auction reserve prices for 4G spectrum were set at a level that was lower than the independent assessment of the market value, in keeping with best practices. This still yielded a 'market discovered price' well in excess of the reasonably set reserve pricing, though there were obvious issues with that process given that the winning bidder was unable to meet its obligations. The ultimate goal of spectrum allocation policy should be to achieve the most efficient use of the scarce natural resource and ensure the maximum benefit to society and the economy. This is achieved through the comprehensive deployment of the spectrum to increase network capacity and improve the quality of service for consumers. Problematically, the chart below classifies Thailand as an extreme outlier in spectrum prices in both the 900MHz and 1800MHz bands.

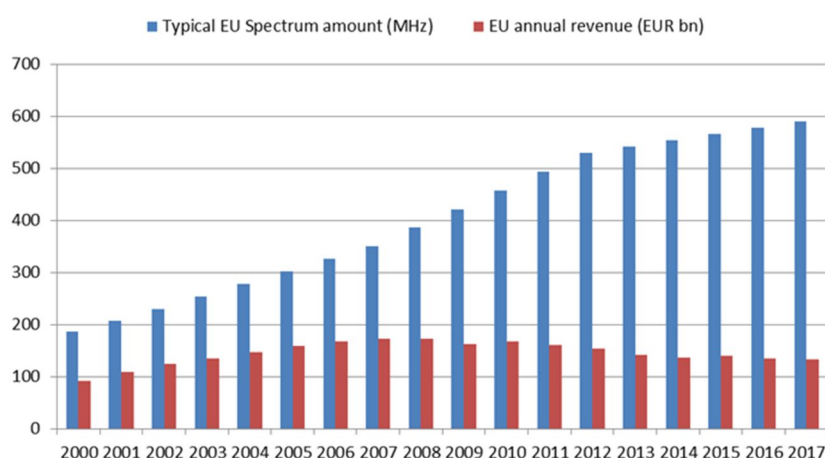


Source: GSMAi

Damage to the economy and consumers from such high prices does not primarily result from the passing on of spectrum costs to consumers via more expensive services. As noted, the real harm to society and the economy is lower quality of service and lower capacity in wireless networks caused by artificial spectrum scarcity and lower speeds

It is important to consider that the damage to the economy and consumers does not primarily result from the passing on of spectrum costs to consumers via more expensive services; for which there is a limit – Thailand’s ranking in the Networked Readiness Index 2016 relies on affordability of services. This positive element has lessened over time .

What harms a country and its people most is lower quality of service and lower capacity in wireless networks caused by artificial spectrum scarcity. Data suggests that almost all the benefits of more spectrum is passed on to consumers since network capacity and quality rises whilst subscription prices decline. The figure below shows how revenues have declined even though there are significant increases in spectrum availability in the EU. To put it in perspective, spectrum availability in Thailand is at EU levels from approximately 10 years ago. Retail bandwidth-related services should be expected to decline over time. The decline in retail price of basic local and international phone calls over recent decades is a similar phenomenon. It would be unrealistic to think that releasing more spectrum will result in higher retail prices. Sufficient spectrum at the right piece is simply good economics.



JFCCT and EABC call on the Royal Thai Government to re-base the starting, using a fresh economic assessment and review the auction rules and surrounding circumstances to ensure that the overall result is economically justifiable using a fully transparent end-to-end process and actions.

4. N-1 Rule: an artificial inflator

The rule that the number of licences available is one less than the number of bidders is artificial and not in line with best world practice. The n-1 rule had not been applied in previous auctions. It creates artificial scarcity when spectrum is most needed. This is particularly worrying since the 2018 auction will not result in a net increase of spectrum. The N-1 rule, combined with excessive reserve prices, creates a high risk that spectrum is unsold, resulting in less revenue to the government and continued decline in 4G service quality in Thailand

JFCCT and EABC call for the removal of the N-1 rule.

D.Summary of Recommendations

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JFCCT and EABC
April 2018