

**Findings of the Consultancy Study
Commissioned by the Government on Any
Impact on Service Quality and Customers of
Adopting the Hybrid Option**

**Telecommunications Regulatory Affairs Advisory Committee
29 November 2013**

Background

- Following the issue of the Second Consultation Paper on 3G Spectrum re-assignment arrangements in December 2012, various interested parties had specifically raised the issue of impact on service quality
- In May 2013, the Government commissioned an independent consultant (“Consultant”) to provide an objective quantitative assessment on the impact on service quality if the proposed hybrid option were to be adopted in re-assigning the 3G Spectrum (“Study”)
- The public version of the report is now available on OFCA’s and CA’s websites.

The Six Re-assignment Scenarios under the Hybrid Option Considered in the Study

- Status quo:
 - The four incumbent 3G operators are re-assigned with all their existing 3G Spectrum
- The four scenarios which the Consultant considers as the most likely under the hybrid option:
 - One incumbent 3G operator fails to acquire any Re-auctioned Spectrum and it is taken up by another incumbent 3G operator
 - Two incumbent 3G operators fail to acquire any Re-auctioned Spectrum and it is taken up by the other two incumbent 3G operators
 - One incumbent 3G operator fails to acquire any Re-auctioned Spectrum and it is taken up by China Mobile Hong Kong (“CMHK”)
 - Two incumbent 3G operators fail to acquire any Re-auctioned Spectrum and it is taken up by CMHK
- The scenario which the Consultant considers as very unlikely under the hybrid option is also included in the Study for reference:
 - CMHK acquires all Re-auctioned Spectrum

The Findings of the Study (1)

- If all mobile network operators (“MNOs”) are considered as a whole:
 - Even under the status quo, the design capacity of 3G hotspots* are already insufficient to accommodate the demand during the modelling period
 - Compared with the status quo, the hybrid option would not be expected to have an adverse impact on the service quality of the Hong Kong entire mobile network (2G, 3G and 4G) and the 3G network, either on a territory-wide basis or focusing on hotspots only
- If individual incumbent 3G operators are considered:
 - While there may be impact on service quality for the incumbent 3G operator that is unable or chooses not to acquire the Re-auctioned Spectrum, the impact can be effectively mitigated by adopting appropriate mitigation measure (i.e. spectrum refarming**)

* Hotspots are defined as the busiest cell sites (generally 15% - 20% of the total sites) which carry 40% of the entire network traffic

** Some 2G spectrum originally planned for refarming to 4G would be refarmed to 3G, and the amount of spectrum deployed for 3G services that are planned for refarming to 4G would be reduced

The Findings of the Study (2)

- There is ample capacity available in the 4G networks. If the incumbent 3G operators implement strategies to migrate more 3G customers to their 4G networks (e.g. offering integrated 3G/4G mobile data plans, promoting 4G handsets), the service impact on their 3G networks can be further reduced
- In commercial reality, the MNOs would employ various strategies to maximise customer retention, and therefore no customer churning is expected among the MNOs arising from the 3G Spectrum re-assignment

The CA's Independent Assessment of the Study

- The CA agrees that a more objective assessment of service impact should take into account the entire mobile network (2G, 3G and 4G), instead of restricting the assessment to 3G network only
- There is an immediate and continuous need for MNOs to upgrade their networks and make full use of their 4G network capacity, in order to improve their 3G service quality at high traffic areas
- If the incumbent 3G operators which are unable or choose not to acquire any Re-auctioned Spectrum implement appropriate measures, e.g.
 - implement spectrum refarming;
 - accelerate the migration of 3G customers to the 4G networks; and
 - review/consider the arrangements of leasing 3G capacity to/from other MNOsin the two years between spectrum re-auction and the actual spectrum re-assignment, any service degradation that may ensue from a reduction in the spectrum holding can be effectively mitigated
- The CA is satisfied that service continuity and quality can be maintained under both the status quo and the hybrid option

Thank you