SmarTone's Response to OFTA's Consultation Paper

issued on 23 March 2001 :

Auctioning of Spectrum for 3G

– Proposed Rules on "Connected Bidders"

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SMARTONE

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"Simultaneous ascending auctions overall have been highly successful in the US and many other countries. Recent FCC auction rules should be a starting point for any government considering spectrum auctions. Modifications to the rules should be considered carefully….Use care when modifying successful rules…An apparently innocent change can have disastrous consequences." (*Cramton P, "Spectrum Auctions", Feb 2001, p29***)[1]**

[1]Peter Cramton is Professor of Economics at the University of Maryland and has published extensively on the subject of spectrum auctions.

EXECUTIVE SUMMARY

- SmarTone welcomes the opportunity to comment on the connected bidder rules, but these issues cannot be considered in isolation from the broader auction framework proposed by OFTA's advisers. SmarTone encourages OFTA to seek industry input on the auction design. International experience shows that the fine detail of the auction rules is critical and that design defects which cause disastrous auction outcomes can be easily overlooked. In particular, specific comments on OFTA's draft "Connected Bidders" rules are detailed in Appendix A.

- For the process to be seen as successful, price-based allocation of licences should be open; transparent; robust to challenge; produce viable, economically efficient results; and establish a sound basis for the future 3G industry in Hong Kong. The open auction model, rejected by OFTA's advisers, is regarded as world's best practice in meeting these criteria. It has been continuously tested and improved over the last 15 years in more than a dozen countries.

- Hong Kong's goal to ensure that consumers have access to reasonably priced, leading edge 3G services could be put at risk by the experimental, untested model proposed by OFTA's advisers. The use of a royalty payment could be seen as a positive development to solve the "winner's curse" problem seen in Europe. However, the problem is that almost every key element of OFTA's advisers' model is both novel and the opposite of the prevailing international approach:

  - there has **never** been an auction which conceals from bidders all information about the bidders, identities, bid levels and bid volumes (which we have called a 'Dark Room')[2];

  - **no** multi-round auction has involved licence allocation by random factors;

  - **no** multi-round auction has required bidding to continue beyond the point where all the provisional winners are identified;

  - **no** multi-round auction has involved up to two further cash stages;

  - **most** multi-round auctions conducted have been in respect of specific auction lots – this is a fundamental design feature of the US FCC auction design; and

[2] It was stated at the industry briefing on March 23, 2001 that the number and identity of bidders is to be suppressed. Although some indication of a bidding threshold will be necessary, it will not be possible to reveal all bid amounts without disclosing the number of bidders. For this reason, we assume that bid information will be minimal or suppressed and hence the description Dark Room.

- **no** bidding case has ever had to include revenue royalty calculations, or deal with a mandatory requirement for MVNOs – this complexity increases the critical need for market information which would not be disclosed under the model proposed by OFTA's advisers.

- By contrast, open auctions produce efficient, fair outcomes because bidders can test their business case assumptions against the price views of other bidders and adjust their views on value as the auction progresses. This dynamic of price discovery, which is found in any "real world" market, is particularly important in setting the value of 3G spectrum given its technical and service uncertainties and the widely different prices paid overseas.

- A feature of the Dark Room is that it lets the designers wait until any stage that they choose before closing the auction. In this case they have said it will close when the 4th last bidder leaves. This '4th leaver rule' allows the royalty rate to be pushed to an inefficient and unpredictably high level. The rule makes the spectrum seem artificially scarce, as if only three licences were being issued. Auctions are designed to replicate an efficient market by finding the price at which demand and supply are equalised (the exit of the 5th leaver). The justification for the 4th leaver rule is that it will extract 'the highest common price that the four winners are willing to pay'. That the 4 successful bidders continue to bid although, unknown to them, they have already won licences only shows that they have over-estimated the fair market value in the absence of market information about prices. The Dark Room denies the bidders information and the 4th leaver rule exploits this lack of information to extract an extra amount of royalty above the market price.

- This extra amount of royalty derived by constructing the auction to create artificial scarcity and exploit the lack of bidding information represents a transfer (tax) from future consumers to the government. As it is a recurring royalty, any distortion caused by the tax will exist for 10 years[3]. Consumers are likely to be adversely affected by higher prices, less innovation or lower quality. The 4th leaver mechanism devised by OFTA's advisers undermines OFTA's attempts to avoid the effects of the high cash prices paid in overseas auctions by using a royalty approach.

- The artificial requirements of the Dark Room produce consequential design problems which OFTA's advisers can only resolve by resorting to mechanisms which distort processes and add to uncertainty. Tied bids would be resolved by arbitrary processes, with the result that a licence could be allocated purely by chance. Connected Bidder issues cannot be resolved in the pre-qualification stage because this would require bidder identity and numbers to be revealed. Bidders who innocently bid without knowing a Connected Bidder was also in the Dark Room may lose their licence or have to bid more in the "Connected Bidder" auction.

[3] There will be a distortion caused by a higher minimum payment for years 1-5 and then a distortion caused by the tax from years 6-15

Bidders cannot bid on individual spectrum lots because this would reveal identities and number of bidders and the 4th leaver rule could not be applied to artificially constrain supply and increase the royalty.

- The justification for the Dark Room is that it prevents collusion, but in SmarTone's view the cure is worse than the problem. Innocent bidders are penalised by depriving them of valuable market information because of the risk that some bidders might use the information to collude. As some bidders may obtain information through other channels (such as pre-auction MVNO negotiations, or even through the process of the auction, such as with a tied bid), OFTA cannot guarantee that the auction will be uniformly dark for all bidders. International experience shows that the risks of collusion are low and that those risks are outweighed by the benefits of bidders having access to the bidding information. The best antidote to collusion also is to ensure that all conduct is out in the open where collusion can be detected as it takes place.

- The Dark Room approach is also said to promote entry. However, uncertain and unfamiliar regulatory processes themselves can be barriers to entry. Closeted processes also lead to suspicion that valuable assets are being awarded in accordance with hidden criteria. International investors may feel more comfortable entering markets which use stable, tested spectrum allocation processes with which they have experience.

- The design is unlikely to promote entry because of its uncertainties. If anything, uncertain features are more likely to dissuade entry, particularly by wavering potential new entrants. This is more so with a troubled global economy and given there are other investment opportunities. However the design may encourage entry by mere arbitragers, with no commitment to 3G in Hong Kong, who can exploit the weaknesses in the design to ludicrously overbid a committed operator who would be forced to acquire a licence after the auction.

- In conclusion, SmarTone recognises that the auction design is at an early stage and we would welcome the opportunity to discuss these issues further with OFTA and OFTA's advisers. However, SmarTone has concerns that the proposed auction model does not meet OFTA's announced policy criteria as summarized as the following table:

OFTA OBJECTIVE	DOES THE AUCTION DESIGN MEET OFTA'S CRITERIA?	COMMENT
Transparency	No	no consultation on auction rules; and bidders and the public, provided with no information about bidder identities, bid levels or bid volumes as the auction proceeds.
Efficiency	No	efficient market price requires auction to conclude when demand and supply equalise (5th bidder leaves); any excess royalty above the efficient market price represents a transfer (tax) to government from future consumers, and will mean higher prices, lower quality or slower innovation.
Fairness	No	a tied bid for a licence is resolved by arbitrary mechanisms or chance, which is not a rational or fair way to allocate such a critical asset; an innocent bidder will not know until after conclusion of auction if unknown participation of another bidder places it in breach of connected bidder rules; and as 3G is such a new and untried technology, an open auction process would help parties fairly value the spectrum based on the market information generated by the auction.

OFTA OBJECTIVE	DOES THE AUCTION DESIGN MEET OFTA'S CRITERIA?	COMMENT
Avoid problems in other countries of "winner's curse" and adverse effect to consumers' price of services	At risk	this is the purpose of using a royalty rather than cash bid, but the 4th leaver rule may result in higher cost base for operators, which may result in higher consumer price or lower quality.
Revenue not main objective	No	4th leaver rule and separate cash rounds could escalate price substantially above efficient market price; and the practical outcome could be a significant revenue transfer to government to the detriment of consumers through high prices or poorer innovation
Promotes entry	Uncertain	uncertainty arising from complexity and untried nature of the model may deter entry particularly if other investment opportunities have more familiar allocation process.

1. INTRODUCTION

This submission is made by SmarTone in response to a consultation paper released by OFTA on 23 March 2001 and an industry briefing held by OFTA and its advisers on that date. SmarTone appreciated the chance to hear from the allocation process designers.

The current round of consultation seeks responses on the specific issues of connected bidders and tied bids. However, those issues cannot be isolated from the broader auction framework outlined in Rothschild's 23 March presentation. While still high level, that presentation raised fundamental issues about the workability, fairness and economic efficiency of the model being proposed by OFTA's advisers.

In SmarTone's view, the integrity and success of the 3G allocation process in Hong Kong requires that the entire design model of OFTA's advisers should be exposed to peer review given:

- the importance to the credibility and stability of the Hong Kong market in getting the 3G allocation process right, particularly in the current highly uncertain environment for 3G;
- the number and significance of the unique and untested elements of their model; and
- OFTA's approach to date of consulting with the industry - while the matters on which OFTA has already consulted are themselves significant (eg MVNOs), the auction rules are by far the most important part of the 3G allocation process.

As one auction expert has commented[4]:

> *"the lesson [from failed allocation processes] is that the **fine print matters**. Any oversight in auction design can have harmful repercussions …".*

Consultation on the auction design would not require a delay in the auction process, particularly if OFTA's advisers were prepared to take an open, iterative approach in which the industry is consulted as major design elements are developed.

On the basis of the limited available information, SmarTone has concerns about how the model proposed by OFTA's advisers could meet the following key design criteria adopted by OFTA:

> *"Allocation of licences by spectrum auction is an allocation process that is efficient, fair and transparent,"* (press release, 3 October 2000)

[4] McMillan J "Selling Spectrum Rights", February 1995, p4 (emphasis added).

"Spectrum auctioning is a fair and efficient method to allocate spectrum to the applicants with the best business cases

The Government is designing with our 3G consultants the details of the auctioning, which will include an efficient method to allocate the frequency bands to the four successful bidders.

…in face of the fast changing global and local telecommunications markets, we have to devise an auction method which is suitable for Hong Kong we will issue the four 3G licences in a fair and efficient manner." (press release, 13 February 2001)

SmarTone understands the rationale which has been followed to get to the royalty payment feature. The royalty payment seems an innovative addition to international experience on spectrum allocation. However, the other features of the proposed model seem to conflict with OFTA's objectives, and also work against the primary objective of the royalty payment.

OFTA OBJECTIVE	DOES THE AUCTION DESIGN MEET OFTA'S CRITERIA?	COMMENT
Transparency	No	• no consultation on auction rules; and • bidders, and the public, provided with no information about bidder identities, bid levels or bid volumes as the auction proceeds.
Efficiency	No	• efficient market price requires auction to conclude when demand and supply equalise (5th bidder leaves); • any excess royalty above the efficient market price represents a transfer (tax) to government from future consumers and will mean higher prices, lower quality or slower innovation.

OFTA OBJECTIVE	DOES THE AUCTION DESIGN MEET OFTA'S CRITERIA?	COMMENT
Fairness	No	• a tied bid for a licence is resolved by arbitrary mechanisms or chance, which is not a rational or fair way to allocate such a critical asset to the operators' futures. • an innocent bidder will not know until after conclusion of auction if unknown participation of another bidder places it in breach of connected bidder rules; and • as 3G is such a new and untried technology, an open auction process would help parties fairly value the spectrum based on the market information generated by the auction.
Avoid problems in other countries of "winner's curse" and adverse effect to consumers' price of services	At risk	• this is the purpose of using a royalty rather than cash bid, but the 4th leaver rule may result in higher consumer price or lower quality.
Revenue not main objective	No	• 4th leaver rule and separate cash round could escalate price substantially above efficient market price; and • the practical outcome could be a significant revenue transfer to government to the detriment of consumers through high prices or poorer innovation
Promotes entry	Uncertain	• uncertainty arising from complexity and untried nature of the model may deter entry particularly if other investment opportunities have more familiar allocation process.

2. THE IMPORTANCE OF GETTING THE PROCESS RIGHT

SmarTone's views

- *It is important to Hong Kong's position as a leading telecommunications market that the 3G allocation process is successful and the licences are allocated at an efficient market price.*
- *Rather than running the risk of an experimental 3G spectrum auction model, Hong Kong should build on the substantial international experience of open auctions.*

It is common ground that Hong Kong needs to get its 3G allocation process right. Recent international experience shows that a country's 3G allocation process has become a litmus test of the perceived viability of its 3G regime, and the health of its telecommunications market generally.

In the current bearish climate, Hong Kong's position as a leading telecommunications market could be put at risk by using an experimental, unpredictable 3G allocation process. The goal of the allocation process should be to ensure Hong Kong consumers can benefit from the timely introduction of 3G services and ongoing sustainable competition between the 3G operators. Given the technical and service uncertainties which already surround 3G, this goal will be best achieved by using a familiar, internationally proven allocation method.

In the longer run, Hong Kong's reputation as a leading edge market will be determined by innovation in the marketplace between 3G operators and not by experiments in the regulatory process for allocation.

Constructed markets, like auctions, are complex, their dynamics are difficult to predict and their success depends on the fine details of the rules. The open, multi-round ascending model, which OFTA's advisers have rejected, has been the benefit of almost universal endorsement of experts and practical experience in more than a dozen countries over the last 15 years.

Auction		Beauty Contest
Open	**Dark Room**	
Australia	Hong Kong	Finland
USA		France
United Kingdom		Ireland
Germany		Japan
Italy		Luxembourg
Singapore[5]		
New Zealand		
Denmark		
Belgium		
The Netherlands		
Canada		
Austria		

As a leading auction expert, Cramton, has said[6]:

> *"Simultaneous ascending auctions overall have been highly successful in the US and many other countries. Recent FCC auction rules should be a starting point for any government considering spectrum auctions. Modifications to the rules should be considered carefully … use care when modifying successful rules …* ***an apparently innocent change can have disastrous consequences****"*.

SmarTone's position is not that OFTA should take another country's auction rules "off the shelf" and use it without modification for local conditions. As another auction expert has said[7]:

> "*Other governments would be foolish not to copy the US and UK in auctioning the radio spectrum, but they would be equally foolish to blindly follow past designs without attention to their local conditions."*

Bidding based on a royalty payment is an example of the useful modifications which can be made to the base open auctions model.

Nor is SmarTone suggesting that open auctions have always been as successful as anticipated. But it would be a mistake to attribute these disappointing outcomes to the open auction model itself: e.g. low prices, a limited number of bidders or a limited number of rounds do not mean that

[5] Some items of bid related information seem to be withheld in the Singapore auction model, however on balance it remains an open auction

[6] Cramton P "Spectrum Auctions" , February 2001, p29 (emphasis added).

[7] Klemperer P "What Really Matters in Auction Design", February 2001, p26

the auction rules are flawed but rather reflect the market uncertainty about the future business case for the spectrum[8].

Designing auction rules to artificially produce more acceptable outcomes risks creating enduring economic and competitive distortions in the market.

While OFTA's advisers have adopted the bare form of an ascending auction, almost every aspect of the model, and many aspects of the accompanying regulatory framework, have never been used in any other auction (see Appendix B):

- there has **never** been an auction which conceals from bidders all information about the bidders, identities, bid levels and bid volumes (which we have called a 'Dark Room')[2];

- **no** multi-round auction has involved licence allocation by random factors;

- **no** multi-round auction has required bidding to continue beyond the point where all the provisional winners are identified;

- **no** multi-round auction has involved up to two further cash stages ;

- **most** multi-round auctions conducted have been in respect of specific auction lots – this is a fundamental design feature of the US FCC auction design; and

- **no** bidding case has ever had to include revenue royalty calculations, or deal with a mandatory requirement for MVNOs – this complexity increases the critical need for market information which would not be disclosed under the model proposed by OFTA's advisers.

[8] Cramton, above

3. AUCTION DESIGN AND TRANSPARENCY

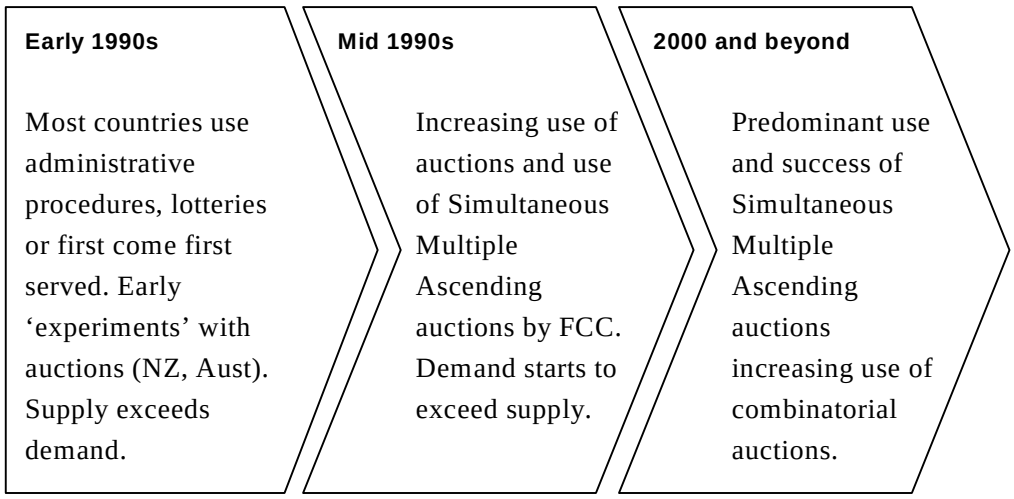
SmarTone's views:

- *While the model proposed by OFTA's advisers adopts the bare form of an ascending auction, it has lost the efficiency and information benefits for which auctions were designed in the first place.*
- *Information about bidder identity, number of bidders, bid levels and bid volumes is crucial for bidders in assessing the fair market value of spectrum, especially given the business case uncertainties surrounding 3G,and even more so with MVNOs and revenue royalties added;*
- *The arbitrary mechanism for resolving tied bids, which are likely to be prevalent, could mean one or more 3G operators is chosen by luck;and*
- *The use of the two stage bidding process is inefficient, compounds uncertainty in the royalty stage, and, as soon as cash is used as an allocator for different spectrum lots, risks escalating the total purchase price for spectrum.*

3.1 Overseas auction design experience

The shift over the last decade from closed allocation processes (e.g. sealed tenders) to auctions has been driven by the view that efficient allocation of spectrum requires a mechanism in which bidders can generate and test information about valuation.

Timeline of spectrum allocation development



Several early experiments with auctions in Australian and New Zealand failed due to poor auction design.[9] New Zealand's early auctions adopted a second price sealed bid approach which made it difficult for bidders to anticipate eventual market outcomes in order to bid at an efficient price. Australia's early auctions suffered from defaulting bidders and cascading bids which were originally lodged on a non-disclosed, sealed tender basis. These failures provided the catalyst for a fresh theoretical evaluation of auctions, and the development of new and sophisticated designs that dealt with the practical issues and failures of these early experiments.

OFTA's advisers seemed to have overlooked the lessons from these early auctions in deciding to depart from an open auction model.

The justifications given by OFTA's advisers for the Dark Room are, in SmarTone's view, faulty:

- *collusion*: as discussed in section 5, expert opinion and practical experience from other auctions shows that the risks of collusion are low, the benefits of a fair and efficient market outweigh the risks of collusion and there are effective, tested mechanisms to address collusion in an open auction environment. Conducting an auction in full public view is itself the best deterrent against collusion because bidders and interested observers "can more easily verify bids, and feel confident that the auction rules are being followed"[10]; and

- *4th leaver rule:* as discussed in section 4, the purpose of an auction is to replicate efficient "real world" markets in which price is set when demand equals supply. As the OFTA's advisers' model involves the 4 successful bidders continuing to bid after, unknown to them, they have already become provisional winners, the final royalty could be substantially above the efficient market price. This excess royalty represents a transfer (tax) from future consumers to the government and could result in higher prices, lower service quality or slower deployment. These are the very risks which OFTA sought to avoid in adopting the royalty approach.

Further, the constraints of the Dark Room also produce a number of design consequences which OFTA's advisers can only resolve by resorting to mechanisms which are arbitrary, bear no relationship to economically efficient outcomes and are analogous to the discredited spectrum allocation methods which auctions were designed to overcome:

- **luck necessary to decide tied bids**: as discussed in section 3.2, Dark Room approach means that ties cannot be resolved through continued bidding because the tied bidders would not have visibility of others' bids. This will mean that tied bids will be decided on the basis of luck; and

[9] Refer McMillan J "Selling Spectrum Rights", February 1995, p3-4
[10] Schwartz JA and Cramton P "Collusive Bidding: Lessons to be Leaned from the FCC Spectrum Auctions", May 2000, p15

- **need for "spectrum allocation" cash round**: as discussed in section 3.3, the Dark Room approach means it is not possible to conduct separate simultaneous auctions for each block of spectrum because a fundamental feature of a simultaneous auction is that pricing information is disclosed. This cash round is likely to produce arbitrary results and is also likely to create some pricing uncertainty in the royalty round;

- **need for "connected bidder" round**: as discussed in section 6, the Dark Room makes it impossible for OFTA to determine whether bidders are "connected" prior to the auction. This creates uncertainty for participants given that bidders do not know the identity or corporate structures of the other potential bidders. The potential consequence of this disadvantage is great as connected bidders may think that they have "won" spectrum and then be forced to bid in a cash round against a bidder with a distant connection.

These design issues were thoroughly considered in building the open auction model and the solutions have proved robust and effective in practice. SmarTone fails to see the justification for Hong Kong re-inventing the wheel, especially when the outcome is potentially less efficient, more arbitrary and riskier than the tested auction approach used everywhere else.

3.2 The Importance of Information during the Auction Process

Information about buyers and what they are prepared to pay is vital to ensuring an economically efficient outcome in any market, whether a "real world" market or a constructed market like an auction. When bidders face uncertain business prospects, the information learned about rival valuations during the course of an auction provides critical information. If one bidder sees that all rivals, or only key ones, drop out early, they may be more inclined to do the same. Similarly, if some supposedly weak bidders stay in longer than expected, a stronger bidder may reassess its business case and bid more aggressively.

> *"…the bidders get information about prices on all the licences as the auction proceeds. Bidders can switch among licences based on this information. Hence, there is less of a need to anticipate where prices are likely to go. Moreover, the auction generates market prices. Bidders do not regret having bought too early or too late."* [11]

The importance of this dynamic of **price discovery** is even greater for broadband wireless spectrum because of the wide variations in the values placed on this spectrum in other countries and the technological and service uncertainties which surround 3G. Even more so in Hong Kong given the added complexities of mandatory MVNO and revenue royalty calculations.

Practical experience from other auctions also shows that bidder identity is information that is crucial to the effective working of the auction. Consideration has been given in the past to

[11] Cramton, P "Spectrum Auctions", February 2001, at p 6.

revealing bidder numbers but not bidder names, but this approach has been rejected because it is seen to undermine the auction dynamics:

> *"we see no reason for this intermediate position [between open and anonymous auction models]. It allows most of the collusive uses of bid signalling and yet limits the information that may stimulate bidding. This rule was immediately abandoned by the FCC in favour of full transparency in all subsequent auctions."*[12]

While OFTA's advisers have adopted the bare form of the multi-round auction, it has been stripped of all of the information benefits for which the model was developed in the first place. Lacking information about rival bidding, each bidder will be forced to guess the number of bidders left in the auction process at any particular stage and the level at which such rivals are bidding.

The absence of information carries the real risk of the royalty level being set at a level that is higher than it would in an efficient market. Further, the 4th leaver rule actually exploits the absence of information to deliberately produce an outcome which is above the efficient price.

Releasing the details of the auction after it closes has little more than historic interest. Defects or misconduct may be revealed, but they will be difficult to unwind once they have occurred. The revelation of conduct which was not known to one or more bidders during the auction and which may have influenced their decisions in the auction could result in attacks on the integrity of the auction.

It has been suggested that the Dark Room auction may somehow lower barriers to market entry. However, this disregards the importance to real participants of certainty and predictability in building their business cases. International operators faced with the uncertainties of a completely untried, novel auction process may well prefer to pursue opportunities in countries which are using the standard international approach of open multi-round ascending auctions with which they are familiar.

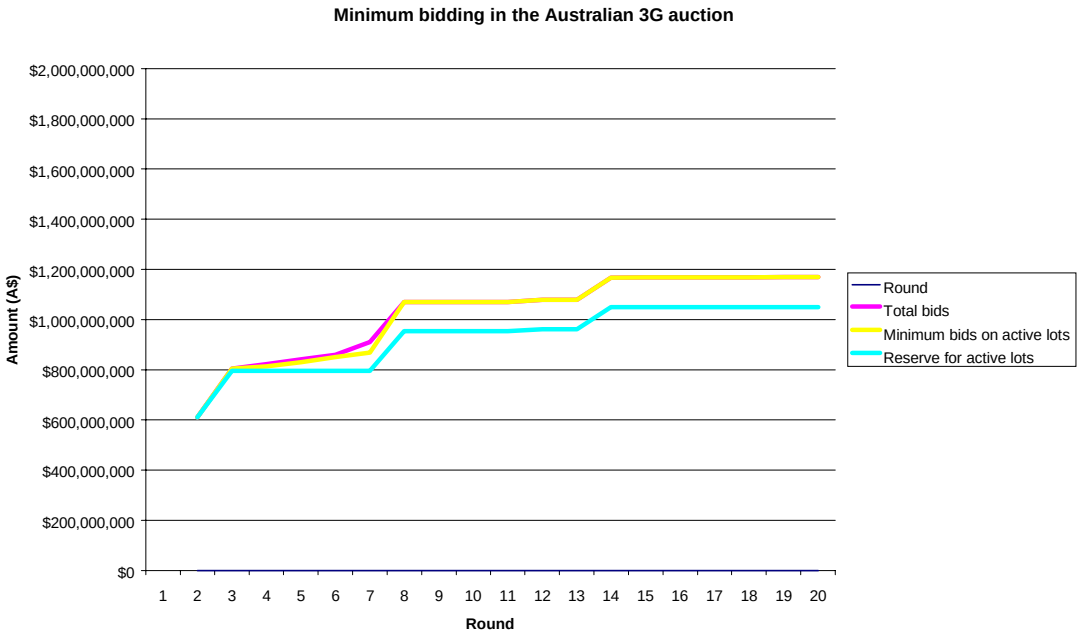
Closed allocation processes also risk the perception that a valuable resource is being allocated in accordance with some unknown criteria or unseen dynamics. As an auction expert has said, the open, multi-round ascending model "is a transparent means of assigning licences because all parties can see who won the auction and why".[13]

3.3 Resolving tied bids

[12] Schwartz JA and Cramton P, above, pp18-19
[13] Cramton P "Spectrum Auctions", February 2001, p4

The consultation paper calls for comment on the possible resolution of ties in relation to the last two persons to leave the auction. However, this issue is also relevant to the issues of whether bidders should have information about other bid levels and the opportunity to bid for individual blocks of spectrum because if such an auction structure is adopted the issues associated with tied bids would largely be resolved. With full information regarding the bids, tied bidders could solve the tie by continuing to bid against each other or by side stepping to a lower-priced lot.

Tied bids are to be expected. Even in open auctions, rational bidding will tend to be at the minimum increment. An empirical analysis of the bidding patterns in overseas (i.e. open) auctions shows that even with the open process and a high bid wins approach, the tendency is to bid together and at the minimum level.



This will be reinforced by a Dark Room approach because, not knowing other bids, bidders will tend to bid at the increment level provided at the commencement of each round.

Depending on the final rules, the issue is really tied withdrawals, or at least withdrawals leaving behind tied last bids (which is effectively the same thing, but may be crucial if the selection mechanism is built on something like timing). In one example, assume bidding is permitted in a range in each round and one bidder bids high and withdraws while another bidder bids in increments all the way to the same bid and then withdraws. There has been a 'tie' in relation to the bid, but not the withdrawal – who merits the licence?

The consultation paper assumes that this is only relevant for the 4th and 5th leavers[14]. However, a tie mechanism has at least a hypothetical role to play before that point – otherwise who gets a licence if more than one actor is excluded at the connected bidder stage? This is hypothetically true for all ties including 5/6, 6/7 and 7/8 (and earlier) although these scenarios might be considered unlikely. Even so, an auction model that does not allow for its own intricacies is not well designed.

A tie at any stage should, therefore, be resolved to determine the relative position in the leavers list.

In a multi-round auction system, the tied bid is provisionally awarded, but each tied bidder has an opportunity to get back into the bidding.

If OFTA's advisers used a similar approach as in other auctions, resolving tied withdrawals where the winner of the tiebreak becomes a licence holder establishes an opportunity for gaming. The two tied bidders both know that, whatever price they offer, the royalty will be no greater than that bid by the third placed participant. This type of distortion is likely to lead to bidders offering ridiculously high bids, safe in the knowledge that they will never be asked to deliver on those bids. This, in turn, would require further rules to cover this eventuality, adding more complexity. Or having a maximum bid which is likely to be tied again.

The overriding constraint of the Dark Room, therefore, forces OFTA's advisers into a tiebreak mechanism which involves an arbitrary, non-bidding solution. There are two available options:

- time; and

- chance.

As a practical matter, the use of time equates to chance as it has the same component of luck. Luck is not a mechanism with which to conduct an economically efficient price based allocation. The USA abandoned a lottery system in the early 1990s in favour of an open, multiple round simultaneous bid ascending auction system to eliminate the chance based selection of winners, who could turn out to be ineffective competitors. To return to a system based on chance would be a retrograde step compared with world's best practice.

The designers might suggest that having finer and finer bid increments minimises the chances of a tie bid/withdrawal situation occurring, but that does not eliminate the risk, it merely disguises it. It also increases the likely number of rounds and emphasises the process signals if there is a period of delay on the auction day.

[14] See section 4 for comments on this mechanism.

3.4 Two phase auction issues

The government's advisers claim that the cash round to allocate lots will not raise any significant amounts of money. However, if those lots are perceived by one or more bidders to have uneven value (and there are already indications as to what operators may think) then there is a risk of significant cash prices being paid over and above the royalty. As the bidders coming out of stage two are paying the same royalty (and possibly the same minimum royalty payment, although this is not clear) perversely, there may be pressure for the bidders to bid against each other to avoid the less valuable spectrum lot.

The proposed two stage bidding process bears some similarity to the bidding system known as "Anglo-Dutch", except the first stage of these auctions are always open. The design philosophy behind this two stage type of auction is that all of the players in the second round have an understanding from the open round of the bidding strategy of the other players as a frame of reference for making their sealed second round bid.

If in the design of OFTA's advisers the second stage is closed as well as the first, it will have many of the well understood disadvantages of a sealed tender. The bidders need to guess the value that other bidders are placing on the spectrum and lose the ability to raise bids to match those of the other bidders. This does not create an efficient marketplace.

The difficulties of the two rounds (including all the risk of an irrationally high cash bid) would be resolved if bidding were allowed on individual lots in a simultaneous open auction. A single stage, multiple round approach is much more likely to be perceived by not only participants, but also observers and the public at large, as being open and fair.

4. 4TH AND 5TH LEAVER POSITION

SmarTone's view:

- *The most efficient auction outcome will only be determined if the royalty rate is determined at the point at which the fifth last bidder withdraws because that achieves the market clearing price (ie. demand equals supply).*

- *The current design produces a high price by artificially constraining capacity and suppressing the information that all licences have provisional winners. This artificially high price constitutes a tax which is likely to be borne by consumers and undermines OFTA's goals in adopting a royalty based approach to the auction.*

- *If there is a concern that the economically efficient outcome from the auction process does not match the government's 'public interest' expectations, this concern should be resolved by using approaches tested in other auctions, such as a reserve price.*

4.1 Assessing OFTA's current proposal

An open mechanism which sets a market price based on the fourth last leaver (a "**fourth leaver rule**") would be appropriate for allocating three licences, but is unsound and distortionary when applied to four licences. The closed auction mechanism as proposed by OFTA's advisers seeks to allocate four licences against the three most ambitious business plans.

It is critical to return to economic fundamentals when considering this aspect of the auction design. An efficient market price for spectrum may develop in the long term, but it is not possible to determine an efficient market price for 3G spectrum in Hong Kong at this stage without a competitive allocation process. The auction must therefore be designed to:

- replicate an efficient market price by closing the auction at the point where demand and supply are equalised;

- ensure that artificially high spectrum prices are not produced since this would simply place revenue ahead of the key goal of ensuring effective rollout and competition in advanced wireless services;

- deliver OFTA's stated goal of determining the 'optimum' price for 3G licenses; and

- address any governmental revenue concerns.

This will only be achieved when the number of remaining bidders is equal to the number of spectrum lots. The auction is for four spectrum lots, should therefore end when the fifth bidder decides to leave (a "**fifth leaver rule**"). This will produce the optimum, economically efficient price.

The fourth leaver rule will produce a price higher than that produced by a fifth leaver rule[15].

Any additional increment above the price which would be paid on the exit of the 5th leaver is a tax (an indirect tax on mobile communications services). However, it is more problematic than any existing tax scheme since it represents an increment of unknown dimension. The fourth bidder rule, therefore, does not allow bidders to make economically rational decisions regarding this tax liability, and this tax liability will have a significant, but unknowable impact on bidding behaviour and therefore 3G services. This mechanism threatens to undermine OFTA's positive move to avoid the unreasonably high cash prices paid in overseas auctions by using a royalty approach. It introduces a further and unacceptable level of risk.

A market-based auction is used to determine which firms are willing to pay a higher price than others. This market information is what determines the market price, not the business plans of the firms, since these are largely theoretical, and simply guidance for bidding behaviour. The business plan is no more than a guide for a sensible determination of bidding limits and formulating bid team behaviour (for example levels at which consultation with board members or bidding partners is to be advisable or required). If only 4 bidders are willing to pay a certain price for a licence then that determines a market level of interest and hence a market rate.

Further, 3G business cases are largely theoretical and include a large measure of risk. Leaving aside the issue of spectrum prices, there are also key issues yet to be resolved regarding the functionality and availability of the necessary hardware such as handsets, and the likely pricing and take up of services. The importance of deriving market information from the behaviour (if not the identity) of other bidders and their bids provides essential feedback into the auction process. The fourth bidder rule exploits this uncertainty at the crucial final stage of the process.

OFTA's advisers justify the 4th leaver rule on the basis that it establishes the highest common royalty price which the four successful bidders would be prepared to pay. This misses the point of auctions as a mechanism to establish an efficient price for spectrum, and also glosses over the

[15] The only circumstance in which this will not be the case is where the auction has produced a tie which is resolved by luck. SmarTone has outlined in section 3.3 its serious concerns with a process that allocates scare spectrum for key future wireless services on no more than chance.

most basic economic principle of markets. In an auction, as in a "real world" market, price is not an end in itself but is the signal or moderator of when demand equals supply. Markets are in equilibrium, and therefore are efficient, at this point, and in the context of this auction, that occurs with the exit of the 5th leaver.

The fact that the 4th leaver is prepared to pay more, even though it does not know it is already a provisional winner, only demonstrates that the remaining bidders over-estimated the market value of the spectrum. They would not have done so if, as in any other market, they could observe market prices. The 4th leaver rule means the government captures the benefit of an over-estimate which only occurs in the first place because the auction made rules withholding information.

Consumers will be adversely affected to the extent that the royalty (and the cash round) exceeds the price which would be paid by an informed bidder in an open market, either because:

- Operators have to pass the excess royalty onto consumers through higher prices – as the royalty is an ongoing impost on the operator's revenue, it functions much like a services or consumption tax; or

- If operators are unable to pass on the excess royalty because of competition (including from 2G services), the resources available to operators to fund deployment and service innovations will be reduced.

These are the undesirable outcomes from the European spectrum allocation processes which OFTA has sought to avoid.

4.2 Reserve price

OFTA has sensibly sought to avoid auction designs that do no more than maximise government revenues. But, on the other hand, it has included the 4th leaver rule which is a "royalty accelerator".

SmarTone understands that OFTA is attempting to strike an appropriate balance between the need for allocation of spectrum at an economically efficient price and the desire for increased government revenues. The fourth leaver rule is not, however, the only way for OFTA to strike a balance between these divergent aims.

The fourth leaver rule has the great disadvantage of distorting the bidding process. Setting a reserve price is a much simpler, and economically sound way to resolve revenue concerns without affecting the economic fundamentals of the auction process.

Reserve prices have been successfully used in spectrum auctions in a number of countries, including Australia, Singapore, Italy, and Spain. For example:

- Australia set a reserve price for its recent auction of 3G spectrum of A$1.08 billion (US$540 million).

- The Danish government set a reserve price for the licences and it estimated the value of each licence at around 500 million crowns (US$62 million).

It is not as if OFTA can avoid setting a reserve price. If less than 4 bidders qualify, licences will apparently be issued administratively. This will involve OFTA setting a royalty at which the licences are offered. There seems to be little difference in setting a reserve where there are less than 4 bidders and setting a reserve generally, which avoids the need for the distortion of the 4th leaver rule.

5. COLLUSION ISSUES

SmarTone's view:

- *The Dark Room unfairly disadvantages innocent bidders not involved in collusion by depriving them of valuable market information.*
- *The Dark Room will not correct information asymmetries which arise because some bidders are able to obtain information through other channels.*
- *Overseas evidence confirms that the risks of collusion are low and are substantially outweighed by the benefits of access to information for an efficient and fair outcome.*

5.1 Penalises Innocent Bidders

The thesis of the Dark Room is that potentially collusive parties will be deprived of the means by which to collude because they will not know with whom to conclude and then will not be able to signal to each other. However, this approach penalises all bidders for the possible risk that some of them may collude. Bidders who do not have the incentive to collude are deprived of information which they normally would expect and need in an open auction because of the risk that bidders inclined to collude will only be able to do so if they have access to that information.

Further, the Dark Room approach can create an unlevel playing field among the bidders. This is because the proposed mechanism favours bidders who have in their possession valuable information which the other bidders do not have. This encourages bidders to attempt to obtain such information. Worse, the auction process itself may provide asymmetrical information to some bidders and not others. An inability to purge all bidders of all information means the auction will be a darker room for some than for others.

The proposed measures will not stop bidders from disclosing at least some components of the valuable information to other bidders. For example, OFTA commented at the industry briefing on 23 March that it could not prevent an individual bidders from informing third parties that it had entered the auction.

An operator that was not expected to bid may elect to disclose to two or three of the bidders that it intended to bid but did not tell the other bidders. Two operators may reach an agreement before the auction that one operator who was expected to bid will not bid but will be the MVNO on the

other operator's network. Alternatively, they may agree to be the MVNO for each other if one of them gets a licence and the other does not. Indeed, it is conceivable that evidence of such information may even be learned by one bidder as a result of coincidence (for instance, a staff member of a bidder may see a known staff of a "mystery" bidder delivering an envelope to OFTA on the date of closing the applications).

Further, if any means used to obtain information are illegitimate and such means are not discovered (or are only discovered some time after the end of the auction process) then the use of the Dark Room approach "rewards" the wrongdoer and significantly penalises the parties that followed the rules. Even without the complication of illegitimate means, a closed environment surrounding a topic as interesting as 3G is likely to generate a great deal of rumour and other distortion of information, which only exacerbates the problems already described.

Open auctions were developed for a very good reason: they address information asymmetries by ensuring that everyone has the same key market information. Processes which rely on closeting information are always vulnerable to chance or manipulation which puts someone in a more knowledgeable position than others.

5.2 How real is the risk of collusion?

Firstly, the overseas auction experience suggests collusion is less of a risk in practice than anticipated by auction rule designers.

"In the PCS spectrum auctions, there was a consensus among experts in favour of open bidding. The advantage of revealing more information in the bidding process was thought to outweigh any increased risk of collusion." [16]

Secondly, it is also a mistake to regard all behaviour in a market in which bidders respond to each other or send price signals to each other as collusive. Competition contemplates the interaction of market participants as they act in response to each other's signals. Even if higher prices are able to be achieved in the absence of signalling, such signalling does not necessary mean there is collusion. A more likely result is that in the absence of such signalling bidders have less information on which to base their valuation of the spectrum and the absence of signalling produces prices which are artificially inflated by an inefficient market mechanism. Signalling only becomes a competition issue when used by a participant with market power to control the market or where parties are colluding.

Cramton and Schwartz have conducted a study relating to collusion in the context of the DEF auctions for PCS in the United States. These auctions involved a small market with light

[16] Cramton, P "Spectrum Auctions", February 2001, at p 6.

competition, conditions that are ideally suited to collusive bidding strategies (compared with larger markets with high competition). The results of this study suggest 6 out of 153 bidders engaged in "code bids" or "retaliated bids". These bidders won 40% of the available spectrum weighted by population coverage[17].

The FCC, following the DEF auction, changed its rules to restrict code bidding. It is also salient to note that whereas signalling bidders on the D and E licences paid about 25% less than non-signalling bidders, auctions on the F licence (where competition was far greater) resulted in the signalling bidders paying about the same as non-signalling bidders. One obvious interpretation is that stimulating competition is an effective guard against bid signalling[18].

Gaming theory and standard competition analysis suggests that there will be countervailing forces against collusion in the Hong Kong auction:

- there are six existing operators all of whom potentially will bid;
- there probably will be additional "new entrants" bidding;
- but there are only four licences available.

Given the number of competing bidders it is likely that it would be very difficult for any bidders to effectively implement a collusion strategy.

5.3 The other anti-collusion advantages of the Dark Room outweighed by the disadvantages

Although there may be a limited risk of collusion, the view reached by auction experts and other regulators is that the disadvantages of depriving the auction of market information outweighs any advantages in preventing collusion:

> *"In the PCS spectrum auctions, there was a consensus among experts in favour of open bidding. The advantage of revealing more information in the bidding process was thought to outweigh any increased risk of collusion." (Cramton, Feb 2001, p6)*

> *"Although the FCC's fully transparent auction design is vulnerable to collusive bidding, we find that only a small fraction of the bidders' frequently used collusive strategies…Indeed, direct estimates of revenue losses from these practices are inconclusive."*[19]

[17] Cramton P and Schwartz JA, "Collusive Bidding in the FCC Spectrum Auctions", October 1999, at p2
[18] Cramton P and Schwartz JA, "Collusive Bidding in the FCC Spectrum Auctions", October 1999, at p26
[19] McMillan J, "Selling Spectrum Rights", February 1995, at p26

"…when it became possible to auction [more licences than there were incumbents], a straightforward ascending auction was no longer counter-indicated, even though there were non-trivial entry costs and a limited number of potential bidders. Because no bidder was permitted to win more than one licence and licences could not be divided, every bidder would end up either a winner of a single licence, or a loser. So bidders could not collude to divide the market because there was no way to share the spoils without resort to side-payments."[20]

5.4 Anti-Collusion Rules in other Jurisdictions

Overseas auctions have combated collusion by using external measures which allow the regulator to adopt a targeted response directed at those involved or reasonably suspected of being involved in the collusive activity. Further, although some elements of the approach proposed in Hong Kong reflect approaches taken in other jurisdictions (eg. U.K.), those approaches were applied in an open auction environment.

The TA has sufficient powers under the *Telecommunications Ordinance* and the PMRS licences to take prompt action to address collusion, and these powers could be further bolstered by the mechanisms of the type which every other regulator has found to be adequate.

An open process also throws the light of bidder and public scrutiny on the bidding process. It is also more likely to avert a potentially disastrous scenario of non-compliance with auction rules (or problems with the equipment used to implement the process) being discovered after the auction has been completed.

[20] Klemperer P "What Really Matters in Auction Design", February 2001. p19

6. OTHER PROCEDURAL REQUIREMENTS

SmarTone's view:

- *The pre-qualification process should include stringent mechanisms to prevent bidding by speculators and OFTA should adopt further measures to discourage arbitrage bidders.*
- *OFTA should determine before the commencement of the auction whether bidders are connected to ensure that bidders with unknown "distant" connections are not disadvantaged.*

6.1 Pre-qualification

SmarTone proposes that there should be mechanisms to ensure there will be no speculators or irrational bidders who have no interest of running a 3G business.

The pre-qualification approach set out below is typical of those used in USA, UK and Australia.

The pre-qualification phase lasts approximately four weeks, during which time the applications will be evaluated, bidders will be required to return certificates and information regarding any possible associations with other bidders and OFTA will undertake investigations as to the fitness of the bidder to enter the auction and ultimately to hold a licence. Clarification of information contained in the application or additional information may be requested at any time after the submission of applications.

Shortly after submission of applications, all bidders should be notified of the ownership structures of other bidders. All bidders will be required to certify within ten business days that other than where disclosed in the certificate, there are no associations between the bidder and any other bidder.

Applications should be evaluated against the following criteria:

(a) Compliance: applications will be evaluated for compliance by the bidder with the information and certification requirements specified.

(b) Financial capability. bidders will be required to certify that members of their candidate group are not subject to any form of insolvency or related proceedings or litigation which

is likely to have a material adverse effect on the financial position of any member of the candidate group.

Bidders should be informed of the results of pre-qualification within twenty business days of submission of applications. All pre-qualified bidders should be informed again of the composition of candidates, and should also be informed of any associations that exist between bidders.

6.2 Connected bidders

Under the “Dark Room” approach, it is unfair that a bidder is penalised by losing the licence or having to pay more by bidding in the second phase “connected bidders” auction. Bidders have no way to control other connected companies participating in the auction under the “Dark Room” approach.

It is economically inefficient for bidders to pay higher prices just because they are partly common owned (eg by foreign based companies). This is particularly the case where the putative "parent" company does not enjoy "control" of the bidders.

"Control" in this sense should mean an ability of the "parent" to influence "connected" bidders such that their bidding activities are conducted in concert (or with a view to some strategic advantage being gained for the parent or other associate). A minority vote on a board may not result in such an ability.

If "penalties" or higher spectrum prices are to be payable by connected companies, then bidders who are connected companies should at least be given the opportunity to act in concert (within the bounds of relevant competition regulations or other relevant restrictions). That is, OFTA should officially inform each of the relevant bidders that they have been deemed "connected". A timeframe should be allowed for the bidders (for example, 14 days) to consider their resulting situation.

Furthermore, if this type of disclosure is to take place (or even if it does not) and OFTA acknowledges that such connected companies will act in concert, then, in the interests of fairness, the fact that certain bidders are connected should be disclosed to other non-connected bidders.

Finally, the second phase “connected bidders” auction can be deleted if the “Dark Room” approach is replaced by announcing the identity of the bidders publicly and giving them time to resolve any connection above the threshold of concern. This would maximise the efficiency of the auction process and also reduce pricing uncertainty. This would also be a positive move to encourage entry into the market.

Further detailed comments on the draft connected bidder rules are set out in Appendix A.

6.3 Post Auction Arbitrage Risk

One significant issue in spectrum allocation is the potential for post auction arbitrage. Arbitrage could have significant adverse effects on the 3G market including:

- the increased cost of 3G services due to an artificial inflation of spectrum costs; and

- broad economic costs due to a potential delay in the arrival of 3G services including a lack of international competitiveness.

The risk of such spectrum arbitrage is particularly significant in Hong Kong as the adoption of the minimum royalty approach has increased potential to encourage arbitrage.

While the royalty approach was adopted for the stated policy reason of encouraging entry, it also may facilitate arbitragers whose participation places the auction process under added strain. Under the proposed model, purchasers who intend to arbitrage only have to pay a limited deposit and no further payments if they sell the spectrum before the first minimum payment is due. Covering the first minimum payment, as a worst case, also may not be a significant burden for an arbitrager.

As the number of current 2G operators exceeds the number of 3G licences (let alone any additional genuine new entrants), the arbitrager, if successful, will know that there will be one or more operators "bumped" by the arbitrager from the auction which will be willing to acquire the licence. As the arbitrager will be ahead if he or she manages to sell the licence for a margin above the deposit (e.g. doubling or tripling the deposit), it is very attractive to be involved. The Dark Room provides further cover for the activities of arbitragers.

Speculative activity has been tolerated in other auctions as a normal feature of markets. However, those auctions have involved features which discourage arbitragers, at least those at the fringe, such as the requirement to pay large cash instalments on completion of the auction (and sometimes large deposits) and the openness of bidding which allows bidders to identify parties which seem to be speculators. The spectrum auctions also have involved the sale of spectrum with no service-specific use requirements and, as a result, it is difficult to distinguish between a speculator and a bidder who is anticipating a higher and better use of the spectrum than those successful bidders which move immediately to use their spectrum.

The proposed pre-qualification requirements provide limited safeguards against arbitragers. However, those requirements represent a low threshold which is readily satisfied, including the experience as a telecommunications operator through management or technical assistance

agreements with an existing operator which have been entered on the understanding that the operator will get a cut of any arbitrage profits. Adopting the kinds of pre-qualifications which SmarTone has supported will provide (together with a sufficiently high deposit) an environment which tends to discourage mere speculators.

In order to further reduce the likelihood of arbitrage, SmarTone proposes a post-auction sale freeze for 3 years.

-- END --

APPENDIX A

SPECIFIC COMMENTS ON DRAFT CONNECTED BIDDER RULES

SmarTone believes that without the opportunity to consider the connected bidder rules in light of all of the auction rules the views that it expresses on legal drafting matters must be considered interim only. SmarTone requests the opportunity to comment further on the connected bidder provisions after it has had the opportunity to consider such rules in the context of the auction rules as a whole.

Section 1 – Definitions

In our view paragraph (k) under the definition of **2G Bidding Group** should be amended or at least be further clarified because the draft provision in its current form is rather vague. As 'group' is not defined potentially all of the bidders who are 2G operators would fall within this paragraph merely by virtue of the fact that they are bidding. If the list of circumstances set out in paragraphs (a) through to (j) is considered inadequate then this should be addressed by more thorough drafting. Unless this paragraph is amended the paragraph would give OFTA a wide discretion to determine whether or not a person is part of a 2G Bidding Group and this class of persons should not be subject to arbitrary expansion.

The complete definition of **Confidential Information** has not been provided. This definition is likely to be of importance when structuring a bid and SmarTone requests the opportunity to comment on the definition before the terms of the definition are finalised.

The definition of **Connected Bidder** is ambiguous. The consequences of being a Connected Bidder are too significant to allow this. The introductory phrase 'a Bidder that is closely connected to another Bidder and, for these purposes…' suggests that the items set out in the balance of the definition are merely inclusive. If this is the case the definition provides OFTA with significant discretion to determine whether two bidders are "closely connected". Maybe this is just loose drafting to allow the subject of the actual defining clause to be a Bidder (Bidder A) which needs to be got to from the starting point of the sentence which is Connected Bidder. If this is just a drafting issue then it can be addressed by making the definition expressly comprehensive. This could be easily done by including the words 'only if' rather than 'if' at the end of the introduction. Otherwise, OFTA may decide to adopt the view that because of some other kind of relationship two bidders are 'closely connected'. In our view the connected bidder's rules should be clearly set out given the importance of the issue.

There are a number of issues that arise out of the definition of **Participation**. Firstly it is broadly expressed to capture every scope of actual share interest etc in any body corporate, together with any voting power in that body corporate and this class of interest is then apparently subject to one exception consisting of three cumulative elements. Most likely these elements in (a), (b) and (c) are intended to be discrete exceptions and should be separated by 'or', rather than 'and'. If the exceptions are intended to correspond on a one-for one basis with the class of interest identified at the beginning then they should be

coupled together in that manner. In particular, paragraph (a) should be amended to make it clear that the exemption in that paragraph also applies in the case of unlisted companies. In this regard we note that paragraphs (b) and (c) (which should not be cumulative with paragraph (a)) do not contemplate that the relevant interest or power be held in shares in a listed company and there would seem to be no reason why the exceptions in paragraph (a) should not apply to unlisted companies.

Secondly, the meaning of voting power should be defined by reference to a right to vote in a particular circumstance (such as the right to vote on an election of directors at a general meeting).

Thirdly, the definitions of "Participation" and "Indirect Interest" should not be extended in the manner referred to in footnotes 2 or 3 on page 17 of the consultation paper. In our view, there should be sufficient precision in the rules to enable a bidder in structuring its bid to determine whether, given the information known to it, another party would be a connected bidder if it was to participate. The problems of a looser standard will be exacerbated if this is combined with the Dark Room proposal. We are also of the view that the proposed threshold of 15% is low compared to the international practice.

Finally, and more importantly, as in other jurisdictions there should be a requirement that in order for a person to be considered to be connected to a bidder the party who is "connected" with the bidder should be required to have both a direct or indirect shareholding interest above the relevant threshold **and** some other connection to the bidder such as:

- financing the bidder;
- assisting in the preparation of the bid; or
- holding confidential information in relation to the bid.

Section 2 - Interpretation

The definition of "Participation" in paragraph (a) of Section 2 seems to overlap with (and in some respects seems to be inconsistent with) the definition of Participation in section 1. We suggest that the definition in section 2 be deleted or merged with the definition in section 1.

Paragraph (h) contains the words 'These percentage interest shall in each case be calculated in the same manner as is prescribed for calculating the percentage interest of a Participation in the shares of a body corporate'. No such manner is prescribed. Perhaps this intends to refer to the material in paragraph (a)? Either way it is unclear.

Paragraph (i)(aa)(ii) is designed to exclude from the operation of the connected bidder rules a conditional entitlement to shares etc which was created before 20 March 2000. We note that 21 March 2000 was the date of OFTA's first consultation paper in relation to the 3G spectrum allocation process. However, as a

matter of principle we are unable to see why such conditional entitlements should be excluded given that a connection between the parties will still exist. In our view the position in relation to conditional entitlements "acquired" before 20 March 2000 should be no different from the position in relation to shares acquired prior to that date.

Section 3 - Connections

We suggest that because the connected bidder rules have potentially wide ranging application and because it is proposed that bidders will not know the identity of other bidders until after the auction has been completed, the connected bidders in concern should be allowed to make representation to the TA to request for exemption if they consider that the connection is no in breach of the "spirit" of the connected bidder rules.

Paragraph (a) (ii) refers to transactions which are not referred to elsewhere in the clause. This renders the subsection meaningless in the context. It should be removed.

We have referred earlier to the problems raised from not having a working definition of **Confidential Information**.

Section 4 – Qualified Bidders

Paragraph (b) should state that the Authority will make public at the time any consent which it gives for a 2G Bidding Group Bidder to be a Qualified Bidder and the reasons given for such consent.

APPENDIX B - UNIQUE FEATURES OF PROPOSED HONG KONG 3G AUCTION

FEATURE	HONG KONG	UK	GERMANY	US[1]	NZ	ITALY	CANADA	AUSTRALIA
Royalty	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**
MVNO	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Two Stage Auction	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Disclosure of leading Bidder	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Disclosure of highest bids per round	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Disclosure of all bids	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Disclosure of no of remaining bidders	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Bidding against individual allotments	**No**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Price based mechanism to break ties	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Auction closes when last lot sold (ie remaining bidders equal available lots)	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Connected bidder addressed in pre-qualification	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Prior consultation before rules finalised	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

[1] Based on US 2G auctions as the FCC is still developing 3G rules.