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Subject: **Licensing Framework for Establishing Satellite Earth Station Gateway**
Consultation Paper No. 9/2021

Dear Sir,

SES Worlds Skies Singapore Pte Ltd, a wholly owned indirect subsidiary of SES S.A., (together, "SES") is pleased to submit its comments on the Telecom Regulatory Authority of India ("TRAI") Consultation Paper on *Ease of Doing Business in Telecom and Broadcasting Sector*, released on 8 December 2021 ("Consultation").

SES is a global satellite operator that operates a fleet of about 50 satellites in geostationary orbit ("GEO"), as well as the innovative O3b Ka-band constellation of 20 High Throughput Satellites ("HTS") in medium Earth orbit ("MEO"). For over 20 years, through arrangements with ISRO and NSIL (formerly Antrix), SES has helped meet the satellite capacity needs of India. In doing so, it has contributed to the vibrant growth of the Indian broadcast industry and the expansion of satellite data networks across India. Today, two major Indian DTH platforms and several telecommunications and data service providers use SES satellite capacity to serve over 30 million TV households and to connect hundreds of thousands of VSATs around the country.

With its multi-orbit satellite fleet, SES stands ready to help meet India's rapidly growing need for satellite capacity and services. SES's Broadcasting Satellite Service ("BSS") satellites are ready to support the expansion of India's DTH platforms, while freeing up Fixed Satellite Service ("FSS") capacity for broadband data services. In addition, SES's HTS systems in GEO and MEO can be put to use immediately to extend 4G and 5G coverage,[1] expand broadband availability,[2] and to help meet the *Connect India 2022* goals in the *National Digital Communications Policy, 2018*.

SES is therefore keenly interested in the evolution of India's regulatory framework into one that will ease the conduct of the satellite business in India, and that will provide the Indian public with more choice and greater

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[1] *See, e.g.*, SES, *iSAT Africa and SES Networks to Provide Reliable 4G Services in East Africa via O3b mPOWER* (15 Jul. 2021), https://www.ses.com/press-release/isat-africa-and-ses-networks-provide-reliable-4g-services-east-africa-o3b-mpower; SES, *SES Leads Satellite-enabled 5G Tests* (13 Jul. 2021), *at* https://www.ses.com/blog/ses-leads-satellite-enabled-5g-tests.
[2] *See, e.g.*, SES, *INRED and SES Networks Expand Wi-Fi Access Across Colombia, Connect Nearly One Million People in 424 Municipalities* (4 Nov. 2020), *at* https://www.ses.com/press-release/inred-and-ses-networks-expand-wi-fi-access-across-colombia-connect-nearly-one-million.

access to the newest satellite technologies and services. The extraordinarily long, and often uncertain, processing times for satellite-based authorizations and capacity procurement in the current Indian system are an impediment to proper business planning and the pursuit of opportunities in the sector. Thus, SES supports TRAI's recommendations for single-window application system (whenever feasible); simple, online, and well-defined processes; seamless integration of inter-departmental processing; and a transparent query system and clear timelines for processing, in order to improve the ease of doing business in India's telecom and broadcasting sectors.

SES hereby provides its responses to TRAI's specific questions as they relate to the regulatory framework for satellite services in the Consultation.

Q10. Whether the present system of permission/approval mentioned in para no. 3.101 or any other permissions granted by NOCC, requires improvement in any respect from the point of view of Ease of Doing Business (EoDB)? If yes, what steps are required to be taken in terms of:
a. Simple, online and well-defined processes
b. Simple application format with a need to review of archaic fields, information, and online submission of documents if any
c. Precise and well-documented timelines along with the possibility of deemed approval
d. Well-defined and time bound query system in place
e. Seamless integration and approvals across various ministries/departments with the end-to-end online system
f. Procedure, timelines and online system of notice/appeal for rejection/cancellation of permission/approval
Give your suggestions with justification for each permission/approval separately with detailed reasons along with examples of best practices if any.

SES Response to Q10: In general, SES supports TRAI's recommendations for single-window application system (whenever feasible); simple, online, and well-defined processes; seamless integration of inter-departmental processing; and a transparent query system and clear timelines for processing. In addition, SES would raise a question as to whether NOCC's role in approving satellite carrier plans and providing uplinking permissions is necessary or useful, especially as India's space-based communications sector is opened to greater private participation. Some of NOCC's role may also be unnecessarily duplicative of WPC's role in assigning frequencies and assessing link budgets.

Historically, satellite service providers in India would lease satellite capacity in a defined frequency range on the INSAT or INSAT-approved foreign system. In such a regime, it seems NOCC approval served the purpose of ensuring no frequency conflict between users of the same satellite. However, the NOCC's role in this regard was limited as it could not fully account for unauthorized transmissions which, by definition, were being conducted without approved from the NOCC. In an environment with multiple satellite operators offering services in India (as foreseen by the new Spacecom Policy), it is unclear whether the NOCC needs to continue in this role. In satellite markets around the world, this function is successfully managed directly by the satellite operator and the service provider and/or end users.

NOCC's role of approving every carrier plan may also unintentionally limit the deployment of new more flexible satellite offerings in the Indian market. Many satellite service offerings, for example, use automatic power control and adaptive modulation and coding to maintain links in adverse conditions. New satellite service offerings also include the possibility of automatically adding more bandwidth, changing the carrier size, or switching to different frequencies, to ensure that promised data rates are maintained or to adapt to overall system capacity demand. This latter capability is seen most vividly in new multi-orbit satellite service offerings using software-defined wide-area networking ("SD-WAN") that transparently switches and prioritizes the use of different GEO and non-GEO satellite connections depending on end user application requirements.[3] The very need for NOCC approvals limits the development of new flexible satellite service offerings that might otherwise be negotiated and arranged directly between the satellite operator, service provider and/or end users.

Q11. Whether the present system of permissions/approvals mentioned in para no. 3.107 or any other permissions granted by TEC, requires improvement in any respect from the point of view of Ease of Doing Business (EoDB)? If yes, what steps are required to be taken in terms of:

> *a. Simple, online and well-defined processes*
> *b. Simple application format with a need to review of archaic fields, information, and online submission of documents if any*
> *c. Precise and well-documented timelines along with the possibility of deemed approval*
> *d. Well-defined and time bound query system in place*
> *e. Seamless integration and approvals across various ministries/ departments with the end-to-end online system*
> *f. Procedure, timelines and online system of notice/appeal for rejection/cancellation of permission/approval*

Give your suggestions with justification for each permission/approval separately with detailed reasons along with examples of best practices if any.

SES Response to Q11: In general, SES supports TRAI's recommendations for single-window application system (whenever feasible); simple, online, and well-defined processes; seamless integration of inter-departmental processing; and a transparent query system and clear timelines for processing. In addition, SES would raise a question as to TEC's role in promulgating standard interface requirements for FSS and BSS networks, given the rapid innovation in the industry.

The TEC Standard Interface Requirements for FSS/BSS networks establishes minimum technical requirements for satellite communications networks (including frequency usage, minimum antenna sizes, etc.) that are largely based on INSAT requirements or actual deployments by INSAT. They do not necessarily reflect the latest satellite system designs or requirements. For example, the TEC requirement for a Ka-band GEO hub antenna of 8m or larger is unnecessarily inflexible. Satellite operators and service providers should have the option of

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[3] *See*, *e.g.*, Orange Business, *SES: building the multi-orbit network of the future*, *at* https://www.orange-business.com/en/partners/ses; BT Watch, *BT ties with SES on 'multi-orbit' data and IoT*, *at* https://www.telcotitans.com/btwatch/bt-ties-with-ses-on-multiorbit-data-and-iot/4290.article; SES, *How you can solve Telco and MNO connectivity challenges with SES's Multi-Access SD-WAN Solution*, *at* https://www.ses.com/blog/how-you-can-solve-telco-and-mno-connectivity-challenges-sess-multi-access-sd-wan-solution; Intellian, *Intellian's Tri-band, Multi-Orbit antenna endorsed by SES Networks*, *at* https://www.intelliantech.com/news/newsroom/intellian-s-tri-band-multi-orbit-antenna-endorsed-by-ses-networks/#; ThinKom, *ThinKom Successfully Completes First-Ever, In-Flight Roaming Tests on SES's GEO and O3b MEO Satellites*, https://www.thinkom.com/first-in-flight-meo-geo-roaming-tests/.

deploying smaller hub antennas in order to meet market requirements, provided that satellite coordination agreements continue to be respected.

While some minimum technical standards are necessary and useful in ensuring that satellite spectrum is efficiently used and shared among multiple satellite operators (both GEO and non-GEO), the TEC standards development process should be made more open, transparent, flexible, and responsive to new technological and market developments. It should not become a means of preserving the technological status quo.

Q12. What measures should be taken to ensure that there is no duplicity in standards or in testing at BIS, WPC, NCCS, and TEC? Which agency is more appropriate for carrying out various testing approvals? Provide your reply with justification.

SES Response to Q12: SES supports consolidation of testing requirements so as to avoid unnecessary delay and duplication in processes and fees. A possible solution may be to consolidate some or all of the individual organizations with technical testing requirements (which all sit under the Ministry of Communications) to facilitate consolidated testing.

Q13. Whether the present system of getting fresh and additional space segment capacity on Indian and foreign satellites for various services mentioned in para no. 4.15 or any other new service from DOS, requires improvement in any respect from the point of view of Ease of Doing Business (EoDB)? If yes, what steps are required to be taken in terms of
a. Simple, online and well-defined processes
b. Simple application format with a need to review of archaic fields, information, and online submission of documents if any
c. Precise and well-documented timelines along with the possibility of deemed approval
d. Well-defined and time bound query system in place
e. Seamless integration and approvals across various ministries/ departments with the end-to-end online system
f. Procedure, timelines and online system of notice/appeal for rejection/cancellation of space segment capacity
Give your suggestions with justification for allocation of space segment capacity for each service separately with detailed reasons along with examples of best practices if any.

SES Response to Q13: In general, SES supports TRAI's recommendations for single-window application system (whenever feasible); simple, online, and well-defined processes; seamless integration of inter-departmental processing; and a transparent query system and clear timelines for processing. This is particularly important in the space sector, due to the way in which satellite services can cut across the responsibilities of multiple agencies, such as Department of Space (for space matters), Ministry of Communications (for spectrum and telecommunications), and Ministry of Information & Broadcasting (for broadcasting matters).

However, procedural simplification and streamlining is only a first step in improving the ease of doing business in the satellite sector. Substantive policy changes to the existing regulatory framework will also be required if a

vibrant, competitive market for satellite capacity is to be created in India. In this respect, the Government of India's announcement that it would be taking steps to boost private participation in the space sector is a welcome development.

SES supports a regulatory framework that allows service licensees access to satellite capacity directly from satellite operators, consistent with the TRAI's past recommendations in 2004 and 2015. This will ensure that service licensees can obtain access to the necessary satellite-based resources as quickly as possible to meet growing user demand, without too many layers of regulatory approval. Any national security or other concerns about the satellite operator or satellite capacity in question could be addressed one time as part of an initial Spacecom approval process initiated by the satellite operator, or as part of the first service licensee's or end user's ground segment approval process to use the satellite capacity in question. Once approved, other service providers should be able to obtain access to the approved satellite resource on a streamlined basis.

The DoS's draft new Spacecom Policy, 2020, purports to establish a new policy and regulatory framework that would boost private participation in the Indian space-based communications sector. While a positive step, SES is concerned that the new draft policy remains too restrictive. It is unclear whether the proposed process will be time-bound, transparent, fair, and non-discriminatory (as promised), or whether the process will continue to favour ISRO capacity and deter or prevent entry by private satellite operators. After all, the existing Indian Satcom Policy, 1997, and associated Norms, Guidelines and Procedures, 2000, have allowed private Indian satellite systems to be authorized for over 20 years, and yet none are authorized or in service today.

There are legitimate concerns as to whether the draft new Spacecom Policy, 2020, in its current form, will accelerate the availability of new and innovative satellite services in India. Elements of the draft Policy that could deter or prevent entry by Indian or non-Indian satellite operators include:

(1) uncertainty as to whether IN-SPACe will be an independent regulator that would create a level regulatory playing field for DoS and non-DoS satellite capacity;

(2) the proposed transfer of DoS satellite assets to a PSU/CPSE (*e.g.*, NSIL) at "no/notional cost" and creating unfair competition for private entrants that must actually finance and pay for their satellite assets;

(3) the undue emphasis on protecting DoS's existing spectrum and assets, regardless of international ITU priority;

(4) the reservation of the strategic and societal development sectors exclusively to DoS, regardless of DoS's available capacity or the needs or preferences of end users; and

(5) the unprecedented, unique-to-India requirement on non-Indian GEO satellite operators to arrange with the foreign administration to bring non-Indian orbital resources under Indian administration through Indian ITU filing.

All of these conditions may deter or limit entry by private satellite operators, and prevent or delay the provision of new and innovative satellite service to Indian end users, due to a combination of: (a) uncertainty as to whether a satellite system would be authorized, (b) the conditions and spectrum and other concessions required for authorization; (c) the restricted size of the addressable market (non-strategic, non-societal development sectors only) once finally approved, and (d) the prospect of unfair competition with DoS capacity sold through a PSU/CPSE.

SES would urge the TRAI to make recommendations to the Government of India and DoS to address these issues in the new draft Spacecom Policy so that the objective of boosting private participation in the space sector is fully realized and that the benefits of new satellite technologies and services – whether in GEO, MEO or LEO – are made available in India.

Q14. Whether the existing procedures to acquire a license for providing satellite-based services in the existing framework is convenient, fast, and end-to-end online for the applicants? If not, what other measures are required to simplify the various processes to enable ease of doing business in India for satellite-based services? Give details along with justification.

SES Response to Q14: SES supports TRAI's call to review and redefine processes to remove redundant steps in the process. For instance, under the current system, DoS, WPC and NOCC all seem to be engaged in the assignment frequencies and permissions/authorizations to use spectrum at different points in the process for each new request for satellite capacity. Replacing the current DoS process with a one-time process under a new Spacecom Policy that is focused on approving the space segment could help ease the overall process (see Response to Q13, above. Then, reconsidering the role of NOCC in approving carrier plans and providing uplink permissions (see Response to Q10, above) might eliminate another redundancy. As noted above, in other satellite markets around the world, carrier plans and uplink permissions are successfully managed by direct discussion between the satellite operator and service provider and/or end user. This leaves the frequency assignment responsibility with WPC, which is the nodal body for spectrum matters.

In addition, as suggested in SES Responses to Q11 and Q12, above, there may be further procedural optimizations possible for satellite service approvals. SES would also urge that the TEC standards setting process for FSS/BSS networks be made transparent, flexible, and responsive to changing technologies (see Response to Q11). While some minimum standards are necessary, they should not be overly prescriptive and should be flexible enough to accommodate end user, cost, and market requirements with respect to antenna size, power requirements, etc. SES also recommends consolidation of technical testing requirements, and of some or all of the individual organizations under the Ministry of Communications responsible for such testing, in order to eliminate unnecessary duplication and delay (see Response to Q12).

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Please contact me (daniel.mah@ses.com) or my colleague, Tare Brisibe (tare.brisibe@ses.com), if you have any questions regarding these comments.

Yours Sincerely,

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