GovTech/ACCESS/PMU/2026-27/ **September 15, 2026**

To: All Prospective bidders

Subject: Response to Clarifications-02 on Supply, Installation, and Commissioning of Equipment – Government Networks Core and Middle-Mile Infrastructure Enhancement.

Ref: Accelerating Transport and Trade Connectivity in Eastern South Asia (ACCESS) – Bhutan Project (Ref No: ACCESS/GovTech/GD-1)

The following Clarification-02 is issued for the Supply, Installation, and Commissioning of Equipment – Government Networks Core and Middle-Mile Infrastructure Enhancement is issued by GovTech Agency.

Clarification-02 to the Queries of the bidders

Sl. No	RFB Reference	Queries/Request made by the potential bidders	Clarification/ Responses of the Project
1	400G QSFP-DD MULTIRATE HIGH-POWER COHERENT TUNABLE DWDM WITH FEC OPTICAL MODULE	We understand that Pre-FEC BER indicates the raw BER before FEC correction, and if errors are not successfully corrected, ES (Errored Seconds) or SES (Severely Errored Seconds) can be monitored through the performance parameters. In that case, could you please clarify the requirement for a separate Post-FEC BER feature? We suggest that Post-FEC BER may not be necessary if ES/SES performance monitoring is already available to verify the corrected transmission performance.	The requirement for Post-FEC BER remain unchanged as per technical specifications specified in bidding documents as Post-FEC BER is required for direct verification of the effectiveness of FEC and the quality of the transmission after error correction, and enable more precise assessment of FEC performance.
2	400G QSFP-DD MULTIRATE HIGH-POWER COHERENT TUNABLE DWDM WITH FEC OPTICAL MODULE	Q-margin indicates better optical link quality and greater available margin. Since the OSNR margin also provides an indication of the available optical performance margin, we suggest that OSNR margin be accepted as an alternative parameter to Q-margin.	The requirement for Q-margin and OSNR will remain unchanged because they measure different aspects of optical link performance.

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3	400G QSFP-DD MULTIRATE HIGH-POWER COHERENT TUNABLE DWDM WITH FEC OPTICAL MODULE	Please confirm whether the 400G QSFP-DD Multirate High-Power Coherent Tunable will be mounted in a router or a transponder. If it is intended to be used in a router, please clarify who will be responsible for ensuring compatibility and interoperability between the coherent optic and the router platform	400G QSFP-DD will directly plug into Repeater Switch supplied by Lot-1 Contractor. The Purchaser will act as integration authority. Following evaluation, and where Lot-1 and Lot-2 are awarded to different entities, the Purchaser will review the proposed equipment of both lots, identify any compatibility constraints, and require these to be resolved through the respective contract negotiations before signature.
4	16CH DWDM Mux/DeMux for 1G/10G DWDM Links	As the 16-channel Mux/Demux will be mounted in the active shelf and can be managed through the management system, could you please confirm whether this approach is feasible? If so, why are additional 1310 nm and 1511 nm wavelengths required for management? Alternatively, please confirm whether it is the bidder's choice to offer management either through the active device or by using additional management channels at 1310 nm and 1511 nm, depending on the proposed solution.	The 16-channel Mux/DeMux will be used as passive device and the requirement for the 1310 nm or 1511nm management wavelength/port is intended to provide a dedicated management optical path independent of the 16 DWDM channels for out of band (OOB) management.
5	DWDM Mux/DeMux for 400Gbps DWDM Coherent links	We understand that the traffic line rate will be 400G, and the required filter –3 dB bandwidth is >65 GHz to support long-distance transmission across multiple spans. Our query is whether we can propose a filter with a –3 dB bandwidth of >100 GHz and a channel spacing of 200 GHz, which could provide better reach and support 400G channels over longer	A 200 GHz channel-spacing solution is accepted as an alternative to the specified 100 GHz solution, subject to the bidder submitting a complete technical design, link-budget calculations, compatibility matrix, OEM datasheets and evidence demonstrating

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		distances. Furthermore, with 200 GHz channel spacing, 800G channels could potentially be supported in the future without changing the existing hardware, subject to the required transponder and system capabilities. This approach would provide greater flexibility and could offer both commercial and operational benefits.	compliance with the required 400G transmission performance, interoperability, scalability and operational requirements. (Amendment to be issued)
6	DWDM Mux/DeMux for 400Gbps DWDM Coherent links	OSC is part of the OTS layer, not the OMS layer. Therefore, OSC management can be handled through the Mux/Demux. Our suggestion is to please add OSC management functionality to the amplifier.	We will be integrating the existing EDFA which does not have OSC port and the requirement remain unchanged as specified in bidding document.
7	DWDM Line System	Normally, the amplifier default gain is around 15 dB, and the output power can be adjusted using the VOA depending on the link budget. Therefore, the output power can be scaled down to around +5 dBm or lower. Please confirm whether power scalability using the VOA will be accepted to meet the specified requirement of +23 dBm (or higher) down to +5 dBm, with scalable gain from 5–23 dB. OSNR measurement mainly comes under the transponder, while channel monitoring functionality is part of the amplifier. The channel monitor measures optical power across the end-to-end frequency range of the C-band WDM channels.please confirm channel module based solution can purpose.	1. The proposed amplifier shall be capable of meeting the specified requirement and power scalability using the VOA will not be accepted to be used as as substitute for the specified amplifier gain capability. 2. The bidder may propose a solution as part of the integrated DWDM line system provided the proposed solution shall comply with the complete Optical Performance Monitoring and OSNR Management requirements specified in the bidding documents. A channel monitor that provides only optical power and wavelength monitoring shall not

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			be considered compliant with the OSNR Management requirement.
8	4 Core 25sqmm with Aluminum Armored Underground Cable	25 sq. mm Aluminum Cable: The 25 sq. mm mentioned refers to the overall cable size rather than the individual core diameter. Therefore, we understand the requirement to be a 6 sq. mm, 4-core aluminum cable. Kindly confirm if our understanding is correct.	The Conductor size for Item No.1 under LOT-3 shall be revised as follows: Item title: core, 6 sq. mm per core, copper conductor, armored underground cable. Conductor size: 6 sq. mm per core. Conductor material: copper. Armor material: Galvanized steel wire armor Except for the above changes, all other requirements for Lot 3, Item No. 1 remain unchanged. All references in the Request for Bids, including the Schedule of Supply, Price Schedule, Technical Specifications and related bidding forms, to "4 Core 25 sq. mm with Aluminum Armored Underground Cable" shall be replaced with "4-core, 6 sq. mm per core, copper-conductor, galvanized steel-wire-armored underground cable. (Amendment to be issued)
9	HDPE Pipe	The tender mentions a 25 sq. mm HDPE pipe, which needs to accommodate the specified cable. However, it appears that the cable cannot be properly accommodated within a 25 sq. mm pipe. We would therefore require a slightly larger HDPE pipe size. Kindly clarify	The diameter of HDPE Pipe, Item No.14 under LOT-3 shall be revised as follows: Diameter: 32 mm (Amendment to be issued)

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		whether an appropriate larger size may be used.	
10	Earthing Requirement	Earthing Requirement: The tender specifies that the earthing value should be within the acceptable range as per BPC standards. However, there is no specific requirement for additional earthing, and we understand that our power system will be connected to the existing earthing system. In the event that the existing earthing does not meet the required standards and subsequently causes damage to our equipment, kindly clarify the responsibility and required course of action. Further, if available, could you kindly provide the present earthing values for all 21 sites? This information would help us properly assess the existing earthing conditions and account for any necessary requirements in our bid.	The scope of work under LOT-3, section 6.3.3. sub-section 3 (K) will be revised as follow: The Contractor shall measure and record the existing earth-resistance value at each site before connecting the electrical infrastructure. An earth-resistance value of 5 ohms or less shall be considered acceptable. Where the measured value exceeds 5 ohms, the Contractor shall submit the test results and recommendations to the Purchaser. The Purchaser shall arrange and bear the cost of the required remedial or additional earthing works. Connection and commissioning shall proceed only after the Purchaser confirms that the earthing system complies with the applicable standards. The contractual treatment of any resulting delay shall be governed by the relevant contract provisions. (Amendment to be issued)
11	Site Survey-Phuntsholing Thromde	We had sent our Phuntsholing staff to conduct the site survey at Phuntsholing Thromde. However, the officials at the site were not certain about the final location of the server room and indicated that it might be relocated. As a result, we	The location of the server room at Phuntsholing Thromde office server room remains unchanged. Please contact Phuentsholing Thromde ICT officer Tshering Dorji for further enquiry (17977417).

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		were unable to obtain the required information and data for this site.	
12	Core Router (DC Input), Page 133, Port Density: Minimum 24x1/10Gbps SFP+ ports, 16x10/25Gbps SFP28 ports and 8x100Gbps QSFP28 Ports (All the ports should support DWDM and CWDM Optics besides gray optics - ZR+, ZR, LR, IR, SR)	Port Density: Minimum 15 x 1/10G/25G + 16 x 100G SFP 112 (100/50/25) + 6 x 400G QSFP DD (All the ports should support DWDM and CWDM Optics besides gray optics - ZR+, ZR, LR, IR, SR) Justification: Port Density seems to be proprietary and to allow other OEMs, we request to change port density to 15 x 1/10G/25G + 16 x 100G SFP 112 (100/50/25) + 6 x 400G QSFP DD	The port density specified in the technical specification is the minimum requirement that should be met by the bidders. Bidders can propose equipment with higher port density. (Refer the clarification submitted to Bidders under Clarification-Response_01)
13	Core Router (DC Input), Page 133, Performance: - Minimum throughput 800 Gbps (performance of the router should be equal to or better than 800 Gbps), - Minimum Forwarding rate: 800 Mpps (for packet size 64 Byte frames)	Performance: - Minimum throughput 1.4 Tbps Gbps Justification: Considering Port Capacity requirement which is 1.4 Tbps FD, 800G capacity in core routers will make it work in Blocking mode which make it unsuitable for core Routers. Router Capacity should be upgraded to atleast 1.4 Tbps FD.	The minimum throughput requirement of 800 Gbps is based on our required network architecture and anticipated traffic requirements. Bidders may propose equipment with a higher throughput capacity. Therefore, the minimum throughput requirement of 800 Gbps shall remain unchanged as specified in the bidding document
14	Core Router (DC Input), Page 133, Form Factor: <= 2RU	Form Factor: => 2RU Justification: High End Core Routers should be based on Dual Controller and multiple line cards to achieve High Level Redundancy, 1. Form Factor of 2 RU should be removed	The form factor requirement is decided based on our existing rack space and infrastructure constraints. The requirement of the form factor <= 2RU shall remain unchanged as specified in the bidding document
15	Core Router (DC Input), Page 133,	Router should have Dual Controller Justification: High End Core Routers should be based on Dual	The dual controller requirement is not mandatory. The bidder may

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	New Clause	Controller and multiple line cards to achieve High Level Redundancy, 1. Router should have Dual Controller	however propose router with dual controller.
16	Core Router (AC Input), Page 136, Port Density: Minimum 24x1/10Gbps SFP+ ports, 16x10/25Gbps SFP28 ports and 8x100Gbps QSFP28 Ports (All the ports should support DWDM and CWDM Optics besides gray optics - ZR+, ZR, LR, IR, SR)	Port Density: Minimum 15 x 1/10G/25G + 16 x 100G SFP 112 (100/50/25) + 6 x 400G QSFP DD (All the ports should support DWDM and CWDM Optics besides gray optics - ZR+, ZR, LR, IR, SR) Justification: Port Density seems to be proprietary and to allow other OEMs, we request to change port density to 15 x 1/10G/25G + 16 x 100G SFP 112 (100/50/25) + 6 x 400G QSFP DD	The port density specified in the technical specification is the minimum requirement that should be met by the bidders. Bidders can propose equipment with higher port density. (Refer the clarification submitted to Bidders under Clarification-Response_01)
17	Core Router (DC Input), Page 136, Performance: - Minimum throughput 800 Gbps (performance of the router should be equal to or better than 800 Gbps), - Minimum Forwarding rate: 800 Mpps (for packet size 64 Byte frames)	Performance: - Minimum throughput 1.4 Tbps Gbps Justification: Considering Port Capacity requirement which is 1.4 Tbps FD, 800G capacity in core routers will make it work in Blocking mode which make it unsuitable for core Routers. Router Capacity should be upgraded to at least 1.4 Tbps FD.	The minimum throughput requirement of 800 Gbps is based on our required network architecture and anticipated traffic requirements. Bidders may propose equipment with a higher throughput capacity. Therefore, the minimum throughput requirement of 800 Gbps shall remain unchanged as specified in the bidding document
18	Core Router (DC Input), Page 136, Form Factor: <= 2RU	Form Factor: => 2RU Justification: High End Core Routers should be based on Dual Controller and multiple line cards to achieve High Level Redundancy, 1. Form Factor of 2 RU should be removed 2. Router should have Dual Controller	The form factor requirement is decided based on our existing rack space and infrastructure constraints. The requirement of the form factor <= 2RU shall remain unchanged as specified in the bidding document

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19	Repeater Switch (DC Input), Page 140 Port Density: Minimum 6x400G QSFP-DD (QSFP-DD ports should comply with Multi-Source Agreement (MSA) standards for coherent pluggable optics and DSP interfaces) and 24x40/100G QSFP-28 Ports (Breakout should be supported for 10G, 25G and 50G with minimum of 48x10G ports)	Port Density: Minimum 4x400G QSFP-DD (QSFP-DD ports should comply with Multi-Source Agreement (MSA) standards for coherent pluggable optics and DSP interfaces) and 32x40/100G QSFP-28 Ports (Breakout should be supported for 10G, 25G and 50G with minimum of 48x10G ports) Justification: In Router industry, most common configuration is 4x400G + 32x100G. Hence, we request to change port density to 4x400G + 32x100G to allow all OEMs to participate in bid	The port density specified in the technical specification is the minimum requirement that should be met by the bidders. Bidders can propose equipment with higher port density. (Refer the clarification submitted to Bidders under Clarification-Response_01)
20	Repeater Switch (DC Input), Page 142 Security: Root-of-trust and secure boot, Authentication, Authorization, and Accounting (AAA), Terminal Access Controller Access-Control System Plus (TACACS+), RBAC, Syslog over TLS, Secure Shell (SSHv2), Layer 3 ingress and egress ACLs for IPv4 and IPv6, Layer 2 ingress ACLs, 802.1AE (MACsec) support on all the QSFP-DD and QSFP28 Ports MACsec Support:	Security: Root-of-trust and secure boot, Authentication, Authorization, and Accounting (AAA), Terminal Access Controller Access-Control System Plus (TACACS+), RBAC, Syslog over TLS, Secure Shell (SSHv2), Layer 3 ingress and egress ACLs for IPv4 and IPv6, Layer 2 ingress ACLs, 802.1AE (MACsec) support on all the QSFP-DD and QSFP28 Ports MACsec Support: IEEE 802.1AE MACsec shall be supported on all 400G QSFP-DD and 40/100G QSFP-28 interconnection ports Justification: MACsec is usually only in Core and Aggregator routers and not required for Repeater Switches. Hence, we request to remove this MACsec requirement from repeater switch.	MACsec Support: IEEE 802.1AE MACsec shall be supported on at least 6x400G QSFPDD interconnection Ports. The repeater switch shall be used to connect transit upstream links with capacity more than 100Gbps. (Refer the clarification submitted to Bidders under Clarification-Response_01 and amendment issued under AMENDMENT No.1)

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	IEEE 802.1AE MACsec shall be supported on all 400G QSFP-DD and 40/100G QSFP-28 interconnection ports		
21	Repeater Switch (AC Input), Page 143 Port Density: Minimum 6x400G QSFP-DD (QSFP-DD ports should comply with Multi-Source Agreement (MSA) standards for coherent pluggable optics and DSP interfaces) and 24x40/100G QSFP-28 Ports (Breakout should be supported for 10G, 25G and 50G with minimum of 48x10G ports)	Port Density: Minimum 4x400G QSFP-DD (QSFP-DD ports should comply with Multi-Source Agreement (MSA) standards for coherent pluggable optics and DSP interfaces) and 32x40/100G QSFP-28 Ports (Breakout should be supported for 10G, 25G and 50G with minimum of 48x10G ports) Justification: In Router industry, most common configuration is 4x400G + 32x100G. Hence, we request to change port density to 4x400G + 32x100G to allow all OEMs to participate in bid	The port density specified in the technical specification is the minimum requirement that should be met by the bidders. Bidders can propose equipment with higher port density. (Refer the clarification submitted to Bidders under Clarification-Response_01)
22	Repeater Switch (AC Input), Page 145 MACsec Support: IEEE 802.1AE MACsec shall be supported on all 400G QSFP-DD and 40/100G QSFP-28 interconnection ports.	MACsec Support: IEEE 802.1AE MACsec shall be supported on all 400G QSFP-DD and 40/100G QSFP-28 interconnection ports. Justification: MACsec is usually only in Core and Aggregator routers and not required for Repeater Switches. Hence, we request to remove this MACsec requirement from repeater switch.	MACsec Support: IEEE 802.1AE MACsec shall be supported on at least 6x400G QSFPDD interconnection Ports. The repeater switch shall be used to connect transit upstream links with capacity more than 100Gbps. (Refer the clarification submitted to Bidders under Clarification-Response_01 and amendment issued under AMENDMENT No.1)
23	Agencies/Customers Router 10G (AC input), Page 146,	Memory: Minimum 8GB Justification: Memory is required to run OS image and protocols seamlessly. Nokia OS is very slim	The proposal to reduce the minimum memory requirement to 8 GB will not be considered and

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	Memory: Minimum 16GB	and don't need very large memory. 8 GB memory is enough to run OS smoothly and store events and logs. Kindly change it to 8 GB.	will remain unchanged as per the Bidding document.
24	Agencies/Customers Router 10G (DC input), Page 148 Memory: Minimum 16GB	Memory: Minimum 8GB Justification: Memory is required to run OS image and protocols seamlessly. Nokia OS is very slim and don't need very large memory. 8 GB memory is enough to run OS smoothly and store events and logs. Kindly change it to 8 GB.	The proposal to reduce the minimum memory requirement to 8 GB will not be considered and will remain unchanged as per the Bidding document.
25	Core/Aggregation Switch (AC Input), Page 150 Memory: Minimum 16 GB	Memory: Minimum 6GB Justification: Memory is required to run OS image and protocols seamlessly. Nokia OS is very slim and don't need very large memory. 6 GB memory is enough to run OS smoothly and store events and logs. Kindly change it to 6 GB.	The proposal to reduce the minimum memory requirement to 6 GB will not be considered and will remain unchanged as per the Bidding document.
26	Core/Aggregation Switch (DC Input), Page 153 Memory: Minimum 16 GB	Memory: Minimum 6GB Justification: Memory is required to run OS image and protocols seamlessly. Nokia OS is very slim and don't need very large memory. 6 GB memory is enough to run OS smoothly and store events and logs. Kindly change it to 6 GB.	The proposal to reduce the minimum memory requirement to 6 GB will not be considered and will remain unchanged as per the Bidding document.
27	Evaluation and Qualification Criteria, Page 58 and 59 Lot-2: Value of at least US$ 3 Million or equivalent. The contract will be treated as similar if it includes supply, installation and commissioning of optical network	Lot-2: Value of at least US$ 2 Million or equivalent. The contract will be treated as similar if it includes supply, installation and commissioning of optical network equipment such as DWDM Line System, 400G Coherent optical transceivers, and other optical transceivers. Justification: As this criteria is only with 2 contracts, request you to please consider either same amended value of lot-1 i.e US$1.5	The clause will be revised as follows: b. Lot-2: Value of at least US$ 2.5 Million or equivalent. The contract will be treated as similar if it includes supply, installation and commissioning of optical network equipment such as DWDM Line System, 400G Coherent optical transceivers, and other optical transceivers.

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	equipment such as DWDM Line System, 400G Coherent optical transceivers, and other optical transceivers.	Million or please make it maximum of US$ 2 Million for broader participation opportunity.	*The Bidder shall submit copies of the relevant contracts or purchase orders, together with completion or acceptance certificates, evidence of the Bidder's role and participation, the value of work performed and client contact details sufficient to verify the claimed experience.* (Amendment to be issued)

Project Management Unit
ACCESS- Bhutan Project
GovTech Agency