

## **SCHEDULE 2 – PHYSICAL AND VIRTUAL INTERCONNECTION**

### **1. GENERAL**

- 1.1 This Schedule details the establishment of Interconnection between the PTCL Network and the Operator Network and describes the forecasting and provisioning procedures for Interconnection provided under this RIO Agreement.
- 1.2 **Schedule 2** contains the details on the Network interface requirements and specifications for Interconnection between the PTCL Network and the Operator Network. **Schedule 2** details the requirements for Physical Interconnection for an Operator for Interconnection to the PTCL Interconnect Gateway Switches (“IGS”).
- 1.3 If PTCL requires Physical Interconnection with the Operator, the Operator will provide such Interconnection on reciprocal terms and conditions to those set out in this **Schedule 2**.
- 1.4 Each Party agrees to interconnect and keep interconnected their respective Networks subject to and in accordance with the terms and conditions of this **Schedule 2**.

### **2. INTERCONNECT CONFIGURATION**

- 2.1 The Operator may interconnect its Network with the PTCL Network at the PTCL IGS. If the Operator chooses to interconnect, the following provisions in this clause **2** shall apply.
- 2.2 Both Parties’ Networks shall interface at IGS level.
- 2.3 The provision of Interconnect Links shall take into consideration the need for diversity and security in traffic routes and signaling links.
- 2.4 The Operator must interconnect its Network with the PTCL Network, by way of Physical Interconnection, at the PTCL IGS.
- 2.5 The Operator may interconnect to as many or as few Points of Interconnection as it so chooses, subject to the terms and conditions of its License.
- 2.6 The Minimum Interconnection Capacity for Interconnection by the Operator to a PTCL IGS is one (1) E1 (2Mbps) link.
- 2.7 An Interconnection Link may comprise different types of circuit groups. The circuits in each circuit group may convey traffic of different types
- 2.8 If PTCL or the Operator wishes to interconnect their respective Networks at additional IGSs, that Party may request additional POIs and the Parties will

- negotiate in good faith in relation to the interconnect configuration applicable to such additional Interconnection.
- 2.9 Neither Party shall be required to commence work on the installation of Network Facilities to support a new POI under clause **2.8** until the Parties have agreed on the interconnect configuration to apply under clause **2.8**.
- 2.10 The Operator shall ensure activation/patching of interconnection capacity within thirty (30) days of issuance of Advice Note by PTCL along with media allocation, failing which PTCL shall give written notice to the Operator requiring it to activate the interconnect capacity within seven (7) days from the date of the said notice.
- 2.11 Where the Operator does not activate the interconnecting capacity within seven (7) days of the notice as mentioned in clause **2.10** above, the capacity so allocated may be withdrawn by PTCL and the amount paid for may be forfeited.

### **3. POINT OF INTERCONNECTION**

- 3.1 The Parties agree that the number and location of POI for Physical Interconnection shall be mutually agreed by the Parties from time to time.
- 3.2 Each Party is responsible for the provisioning and maintenance of network facilities (including those network facilities which form part of the Interconnect Links and the transmission equipment) on its “side” of the POI.
- 3.3 The cost of the installation, maintenance and operation of the network facilities on each Party’s side of the POI, which form part of the Interconnect Link(s), shall be borne by that Party.
- 3.4 Each Party will ensure that its Network Facilities that form part of the Interconnect Link(s) are provisioned and maintained with Interconnect Capacity in accordance with the ordered Capacity under this **Schedule 2**.

### **4. ALTERNATIVE INTERCONNECT CONFIGURATIONS AND POINTS OF INTERCONNECTION**

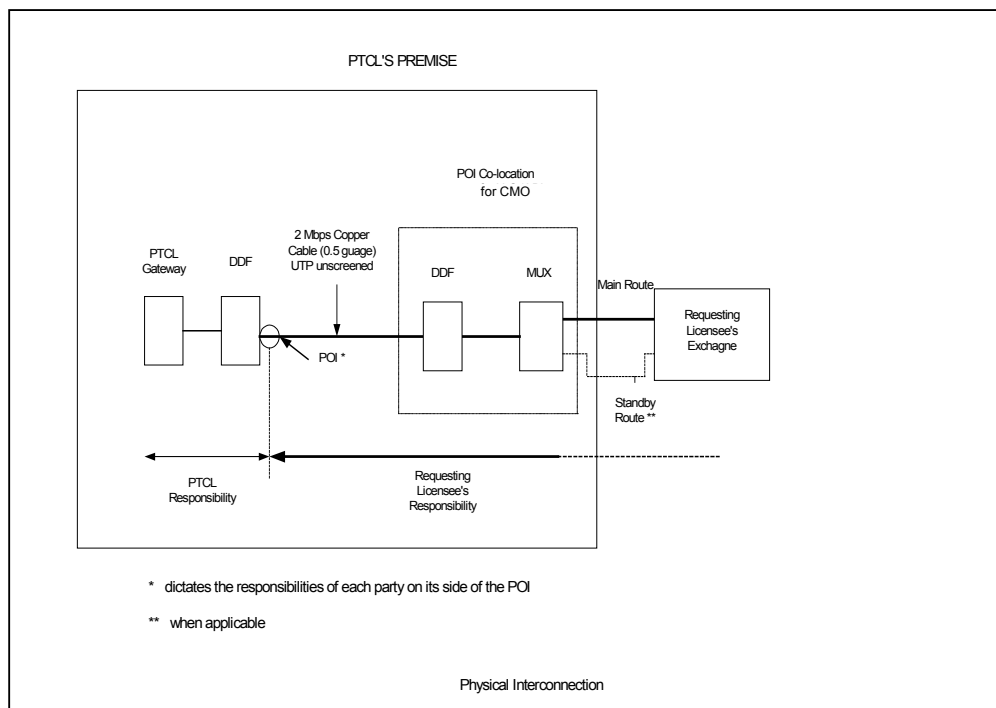
- 4.1 The Operator may request alternative interconnect configurations and locations for the POI at any technically feasible point.
- 4.2 On receipt of a request under clause **4.1** in respect of an alternative interconnect configuration or POI location, PTCL and the Operator will promptly discuss the Operator’s request.

- 4.3 If, thirty (30) Calendar Days, after the receipt of a request under clause 4.1 and following discussions under clause 4.2, the Operator wishes to pursue the alternative interconnect configuration or POI, the Parties will mutually agree the terms and conditions to incorporate into this Interconnection Agreement.
- 4.4 The Parties will submit terms and conditions to the Authority for approval and incorporation into this Interconnection Agreement within seven (7) Calendar Days of agreeing on the terms and conditions under clause 4.3.

## 5. PHYSICAL INTERCONNECTION

- 5.1 **Figure 1** depicts a possible configuration of the Physical Interconnection of the Interconnect Links between the PTCL Network and the Operator Network and the location of the POI.

**Figure 1**



- 5.2 The provisions in **Schedule 9** will apply to access to and Co-location of Co-Location Equipment at the PTCL's IGS for Physical Interconnection.

## 6. VIRTUAL INTERCONNECTION

- 6.1 The Parties agree to interconnect their Networks through Physical Interconnection only. Neither Party shall be obliged to provide Virtual Interconnection to the other Party unless otherwise directed by the Authority.

## **7. TECHNICAL REQUIREMENTS AND SPECIFICATIONS**

- 7.1 The Parties' shall interface at 2Mbps level and comply with ITU-T Rec G.703.
- 7.2 The Parties shall comply with the Common Channel Signaling ("CCS") No.7 Signaling System – Message Transfer Part ("MTP") and ISDN User Part as specified in **Section 1 of Annex A** hereto.
- 7.3 The Operator shall obtain its own Signaling Point Code from the Authority.
- 7.4 The Parties' IGS shall inter-work on associated mode of signaling for the establishment of Interconnected Calls between the Parties' Network.
- 7.5 Both Parties shall provide CCS No. 7 Signaling System (SS7) Signaling Link set comprising of two (2) SS7 Signaling Links on each Interconnect Link.
- 7.6 The Parties shall adhere to additional SS7 signaling requirement as follows:
- (a) the Calling Party Number and Redirecting Number shall be conveyed through CCS7 Signaling System for all calls across the Network Interconnection, including the terminating end-point, without manipulation;
  - (b) the Dummy CLI received from Mobile Operators from inbound and outbound roamers shall be an eight (8) digit Dummy CLI;
  - (c) the number dialed by the calling subscriber shall not be changed or amended for the routing of international outgoing calls from one Party's Network to the other Party's Network. In addition, the Nature of Address (NOA) of the Called Party Number shall be set to 'International'; and
  - (d) each Party's Network shall deliver international incoming Calls to the terminating Party's Network with the international Call indicator 'A' bit of FCI parameter of the IAM set to '1'.
- 7.7 The Parties shall inter work with each other on plesiochronous mode of synchronization if the Operator owns a primary reference clock (cesium or atomic), otherwise Master-Slave Mode shall apply.
- 7.8 The Parties shall route Interconnected Calls in accordance with the agreed arrangements applicable to that Call Type under **Schedule 3**.
- 7.9 The Parties shall comply with the testing procedures set in **Section 1A of Annex A**.

## **8. FORECASTING AND PROVISIONING OF INTERCONNECT CAPACITY**

- 8.1 Sections **8.2** to **8.14** apply to Forecasts to be provided by each Party (the “**Forecasting Party**”) in relation to Interconnect Capacity, if the Forecasting Party reaches a minimum Interconnect Capacity of sixty-three (63) EIs for Interconnection with the other Party’s (the “**Supplying Party**”) Network.
- 8.2 Where Interconnect Capacity is below sixty-three (63) EIs, each Party shall provide the Interconnect Capacity without the need for a Forecast. Each Party (the “**Requesting Party**”) shall apply for the Interconnect Capacity under clause **8.15**.
- 8.3 The Forecasting Party shall provide to the Supplying Party the Forecasts for Interconnect Capacity on or near 1 March and 1 September of each year.
- 8.4 The Forecasts shall be on rolling basis for periods commencing six (6) months from 1 April and 1 October (“**Forecast Date**”) respectively, and be for a period of twenty-four (24) months, in intervals of six (6) months for the first twelve (12) months, and yearly thereafter.
- 8.5 The Requesting Party shall place Capacity Order with Supplying Party in writing. The Supplying Party will respond to a Capacity Order within fifteen (15) Business Days of receipt, or such other period as may be agreed. The response shall be either:
- (a) an acknowledgment that the Supplying Party is able to provide the Ordered Interconnect Capacity by a particular date (“**Ordered Delivery Date**”) which shall not exceed ninety (90) days from the date of Capacity Order from the Requesting Party; or
  - (b) an advice that the Supplying Party is unable to provide the Ordered Interconnect Capacity as procurement is required.
- 8.6 Where procurement is required in order to meet the Capacity Order, and where the Supplying Party advises the Ordering Party pursuant to clause **8.5(b)**, the Supplying Party shall seek confirmation of the Order from the Ordering Party. Upon confirmation by the Ordering Party, the Supplying Party shall complete the procurement and provisioning as soon as possible but not later than a period beyond 120 days from the date of confirmation from the Ordering Party.
- 8.7 In the event that the Requesting Party cancels the Capacity Order after confirmation as given in clause **8.6** above, the Requesting Party shall be liable to pay to the Supplying Party the cancellation charges equivalent to one month rent of the Ordered Capacity, provided the Requesting Party has not given thirty (30) days prior written notice to this effect to the Supplying Party.

- 8.8 If the Ordering Party seeks Interconnect Capacity at a level higher than the Ordered level or on a Order Delivery Date other than the agreed Order Delivery Date, it may make a request to the Supplying Party to provide the revised level of capacity or revise the Order Delivery Date. Where necessary, the Supplying Party will undertake and complete a feasibility study within thirty (30) Business Days, and the Ordering Party shall pay a fee to the Supplying Party to recover the reasonable costs involved in the conduct of the study in response to the request.
- 8.9 Without prejudice to this clause **8**, the Operator remains responsible for Forecasting and ordering sufficient Capacity on Domestic Private Leased Circuits under the PTCL standard terms and conditions as set forth in **Schedule 7**.
- 8.10 **Ordering and Provisioning Procedure for Interconnect Capacity Without Forecast**
- (a) The Requesting Party shall submit its Request for Interconnect Capacity Without Forecast to the Supplying Party.
  - (b) The Supplying Party shall process all Requests for Interconnect Capacity Without Forecast on a ‘first come, first served’ basis.
  - (c) The Supplying Party shall respond to a Request of Interconnect Capacity Without Forecast within fifteen (15) Business Days of receipt of such request. The response shall be either:
    - i. an acknowledgement that the Supplying Party is able to provide the Interconnect Capacity without Forecast in whole or in part by the “**Required By Date**”;
    - ii. an acknowledgement that the Supplying Party is able to provide the Interconnect Capacity without Forecast in whole or in part, but not be able to provide the quantities by the “**Required By Date**”;  
or
    - iii. an advice that the Supplying Party is unable to provide the Interconnect Capacity without Forecast as procurement is required.
  - (d) When procurement is required in order to meet the request, and the Supplying Party advises the Requesting Party pursuant to clause **8.10(c)iii**, the Supplying Party shall seek confirmation of the required Capacity from the Requesting Party. Upon confirmation, the Supplying Party shall complete the procurement and provisioning as soon as possible but not later than 120 Calendar days from the date of confirmation from the Ordering Party.
- 8.11 The Supplying Party reserves the right to reduce the capacity (number of E1s) as given to the Requesting Party by the number of E1s so as to bring the utilization

to the level of 60% of the capacity, in case the capacity is utilized by less than 40% for a consecutive period of three (3) months.

- 8.12 In case the Requesting Party is unable to deliver any traffic within the first quarter after the Commissioning Date, the Supplying Party may withdraw the Capacity provided under this Agreement after giving fifteen (15) Business days written notice to the Requesting Party.

## **9. DECOMMISSIONING**

- 9.1 Subject to clauses **9.2** and **9.3**, a Party ("**Decommissioning Party**") may, for whatever reason upon giving no less than six (6) months prior written notice to the other Party ("**Decommissioning Period**"), close, replace or relocate any IGS in respect of which an Interconnection Link is connected, decommission an Interconnection Link or close a POI ("**Decommissioning**").
- 9.2 (a) The Decommissioning Party shall be responsible for and bear all direct costs incurred by both Parties in carrying out the Decommissioning. Direct costs are limited to removal of equipment and cabling at the POI or IGS. Each Party will bear its own costs of recovering its own part of the Interconnection Link.
- (b) When the request for Decommissioning is at the direction of a Third Party pursuant to a legal obligation binding on the Decommissioning Party, each Party shall bear its own costs associated with the Decommissioning together with the direct costs incurred by that Party in respect of the establishment of alternative arrangements.
- 9.3 Decommissioning Party will, if requested by the other Party within thirty (30) Business Days after receiving a notice under clause **9.1**, offer alternative interconnection solutions to the other Party. The alternative interconnection solutions offered must, to the extent feasible, be comparable in terms of cost and functionality and, if accepted by the other Party within sixty (60) Calendar Days from the date of the offer, must permit the full implementation of the alternative interconnection solutions. Nothing in this clause prevents the Decommissioning from occurring on the expiry of the Decommissioning Period provided that the Decommissioning Party has complied with this clause **9.3**.
- 9.4 Upon the happening of an event which causes or is likely to cause significant damage to the Network of a Party or which endangers or is likely to endanger the health or safety of any person ("**Emergency Event**"), that Party may close or replace its IGS or a POI or Decommission an Interconnection Link without prior written notice to the other Party, provided that it notifies the other Party as soon as practicable that the Emergency Event exists and that emergency relocation work is being or will be performed. The costs incurred as a result of, or in connection

with, a closure or replacement of an IGS or a POI or Decommissioning of an Interconnection Link under this clause **9.4** shall be borne as follows:

- (a) where the occurrence of the Emergency Event was caused as a result of the negligence or willful act or omission of the first-mentioned Party, its employees, agents or contractors, that Party shall bear the costs associated with the closure, replacement or Decommissioning incurred by both Parties; and
- (b) where the occurrence of the Emergency Event was not caused as a result of the negligence or willful act or omission of the first-mentioned Party, its employees, agents or contractors, each Party shall bear its own costs associated with the closure, replacement or Decommissioning.

## **10. SYNCHRONIZED DELIVERY OF SERVICES**

- 10.1 Where a Party (“Requesting Party”) requests for simultaneous provisioning of more than one Services (Interconnect Ports, DPLC, IPLC, Co-location etc.) to the other Party (“Supplying Party”) and the Supplying Party, in case of unavailability of one or more requested Service(s) at the time of request, intimates the Requesting Party of such simultaneous unavailability of Service(s), the Requesting Party may give its consent in writing to accept the available Service(s) by making due payment for the available Service(s) to the Supplying Party.
- 10.2 Where Requesting Party does not give its consent in writing for provisioning of un-synchronized delivery of Services as mentioned in clause **10.1**, the entire request shall be considered as cancelled.