Enquiry Report

In Re: PTCL Broadband DSL

Background

1. A complaint was filed under Section 37 (2) of the Competition Act, 2010 (the "**Act**") on August 16, 2010 with the Competition Commission of Pakistan (the "**Commission**") by Aqlaal Advocates on behalf of their clients Mircronet Broadband (Private) Limited ("**Micronet**"), LINKdotNET Telecom Limited ("**LinkDotNet**") and Nexlinx (Private) Limited ("**Nexlinx**") (collectively referred to as the "**DSL Operators**") against Pakistan Telecommunication Company Limited ("**PTCL**") for alleged violation of Section 3(3) (h) and (f) of the Act.

2. The DSL Operators alleged that under the current regime for provision of Digital Subscriber Line (**DSL**) services, DSL Operators are dependent upon the infrastructure of PTCL as it owns and controls the required copper line infrastructure. This ownership and control of the copper line infrastructure, gives PTCL a dominant position in the market, which is abused by PTCL by denying or delaying access to the DSL Operators to the required infrastructure and/or increase in the rates charged by PTCL for access to this infrastructure.

3. The Commission decided to initiate an enquiry pursuant to Section 37 (2) of the Act read with regulation 17 (2) of the Competition Commission (General Enforcement) Regulations, 2007 (the "**General Enforcement Regulations**") for alleged violation of Section 3 of the Act by PTCL. The Commission exercising its powers under Section 28 (2) of the Act, appointed Ms. Mehreen Ibrahim, Deputy Director (Legal) and Mr. Syed Umair Javed, Deputy Director (Cartels and Trade Abuses) as members of the enquiry committee (the '**Enquiry Committee**') to investigate whether (a) PTCL holds a dominant position and (b) PTCL has abused its dominant position, thereby violating the provisions of the Act. During the course of the enquiry, Syed Umair Javed, Deputy Director went on study leave

and thus the Commission appointed Ms. Shaista Bano, Director (Cartels & Trade Abuses) as a member of Enquiry Committee in his place.

4. The Complainants filed an application dated March 7, 2011 for withdrawal of the complaint filed against PTCL. The pretext on which the application for withdrawal was made was that the Complaint was filed on the basis of a determination of the Pakistan Telecommunication Authority (PTA) whereby PTCL was declared as Significant Market Player (SMP) in the DSL market. However, the said determination was suspended by the Honorable Lahore High Court, Rawalpindi Bench and was still pending before the Islamabad High Court upon transfer. Furthermore, the Complainants submitted that one of the relief's sought through the Compliant was that PTCL be directed to separate its accounts for DSL and other services and it is ambiguous to the Complainants whether the Commission has the power to order such separation of accounts. Therefore, the Complainants wished to file a complaint before PTA.

5. The Commission, after considering the application, informed the Complainants that while they were free to pursue alternate remedies under any other laws, the Commission remains the competent forum for possible violations of competition law. The Complainants were further informed that Regulation 21 of the General Enforcement Regulations permitted the withdrawal of a complaint at any stage of the proceedings but the enquiry or proceeding initiated by the complaint would not necessarily abate on withdrawal. Given the nature of the case and the potential impact on the market and consumers, the Enquiry Committee was directed to proceed in respect of the matter. Notwithstanding the legal issues, it must be mentioned that the Complainants remained engaged with the Enquiry Committee throughout the duration of the enquiry and provided all the relevant information as and when required.

The Undertakings

6. Following is a brief introduction of the complainant and respondent undertakings.

PTCL: PTCL is a public limited telecommunications company of Pakistan established under Section 34 of the Pakistan Telecommunication (Re-Organization) Act, 1996 (the "**1996 Act**"). It is engaged in the business of providing telecommunications services from basic telephony to data, internet and carrier services pursuant to license issued by the Pakistan Telecommunication Authority ("**PTA**"). An integrated license has been issued by PTA for 14 regions of Pakistan while a license on regional basis is issued for 3 regions in AJK and Gilgit-Balistan. PTCL has the largest copper infrastructure spread all over Pakistan. The network has over 6 million PSTN lines installed across Pakistan with more than 3 million of these lines being operational. PTCL is an undertaking in terms of Section 2 (1) (q) of the Act.

LINKDOTNET: LinkDotNet is a subsidiary of Orascom Telecom Holding Company which is one of the integrated telecommunications service providers in the region. It has regional offices in Dubai, UAE; Riyadh, KSA; Qatar; Algeria; and Pakistan. The company employs more than 1000 consultants, web developers and support staff in Egypt and the region to deliver internet and e-solutions to its users and clients. Products and services include Business DSL, Domain Hosting, Home DSL, Dial-up, ISDN;Global, Connectivity, Data Network & VPNs, and Dedicated IP Internet Access. LinkDotNet is an undertaking in terms of Section 2 (1) (q) of the Act.

MICRONET: Micronet Broadband Group of Companies constitutes of following companies:

1. Micronet Broadband (Pvt.) Ltd. and
2. Nayatel (Pvt.) Ltd.

Inspired by the broadband revolution of 21st century in the developed part of the world, the founding team of Micronet, a then dialup ISP setup, conceived the idea of broadband Internet services for Pakistan. They had put efforts of two years in convincing and competitive bidding by the state-owned fixed line incumbent, PTCL in order to open up its copper loop for DSL services. Micronet offers variety of bandwidth and service packages. Micronet has designed DSL packages to suit most organizations and individuals in Pakistan since 2002. Micronet offers connectivity from 64 Kbps to 2 Mbps on its various pre-paid and post-paid packages with the option for availing Value Added Services (VAS) like Video Conferencing, Multiplayer gaming, Web Hosting, Email Hosting/Security, LAN/WAN setup and configuration etc. at customer's premises, which are billed separately.[1] Micronet is an undertaking in terms of Section 2 (1) (q) of the Act.

NEXLINX: Nexlinx is a data network / internet service provider, currently serving the clients in Pakistan. The services range from Simple Dial-up connectivity to Extensive Wireless Networks which allow access to the internet. It provides internet based communications and can provide Dialup, ISDN, DSL as well as Wireless Broadband access solutions.[2] Nexlinx is an undertaking in terms of Section 2 (1) (q) of the Act.

Complaint

7. The DSL Operators through a formal complaint filed with the Commission under Section 37(2) of the Act, read with Regulation 18 of the Competition (General Enforcement) Regulations, 2007 and request for submitting additional information, made the following submissions:

(a) That PTCL plays a dual role in the DSL services market, as on the one hand it owns the requisite copper line infrastructure laid down across Pakistan upon

[1] http://www.dsl.net.pk/thecompany.php
[2] http://www.rozee.pk/nexlinx-company-8603.php

which each DSL Operator is dependent due to the existing regulatory and contractual framework. On the other hand it is a competitor of the DSL Operators as it provides DSL services itself.

(b) Under the current regime for provision of DSL services in Pakistan, all DSL Operators are solely dependent upon PTCL for (i) co-location space within PTCL exchanges for installation of DSL equipment; (ii) inter-exchange fiber leased lines from PTCL to connect one DSL equipment to another; (iii) interconnect exchange bandwidth and backbone internet and (iv) access to copper lines up to customers premises to provide DSL services. PTCL uses its ownership and control of the copper line infrastructure to deny or delay access to the DSL Operators or increase rates, thus restricting, distorting and preventing competition.

(c) Pursuant to Rule 13 (2) and (3) of the Pakistan Telecommunication Rules, 2000, PTCL is under an obligation to facilitate the request of other operators in the market who wish to interconnect with PTCL.

(d) PTCL has acted unlawfully by abusing its dominant position in violation of Section 3 of the Act in terms of clauses (f) and (h) of sub-section 3 and caused excess loss to the DSL Operators on numerous occasions.

(e) Previously, the interconnect and co-location arrangements between DSL Operators and PTCL were governed by a DSL agreement, which was detrimental to the interests of the DSL Operators. DSL Operators approached PTA in respect of the DSL agreement as PTCL did not satisfactorily respond to the request to review and revise the DSL agreement.

(f) After review for a period of 2 years, starting in 2007, PTA vide its determination dated June 10, 2009 approved the DSL Interconnect Agreement (the "**IA**"), which has to be signed within seven (7) days of the issuance of the

above mentioned determination. PTCL violated the determination by delaying the signing of the IA by a period of six (6) months and at the same time approached PTA for further changes in the IA. PTA unilaterally reduced the duration of the IA from period of the license and subsequent renewals to a period of two (2) years.

(g) Agreements such as the IA need to have a longer term in order to meet the purpose which is to commercially validate the interconnection, without which the DSL Operators are unable to function. This is one of many instances of abuse of PTCL's dominance.

(h) The DSL Operators remain dependent upon PTCL's leased lines, as their request to be allowed to install their own fiber optic cables at all exchanges of PTCL was denied by PTCL at the time of negotiating the IA. This has been restricted to the DSL Operators being able to only connect to one exchange of PTCL in each city. Subsequently, PTCL unilaterally increased the tariff for such leased lines by 450%.

(i) PTCL violated its own Standard Operating Procedure dated February 22, 2008 for DSL services (the "SOP"), according to which PTCL was obligated to issue new connections within 48 hours of receipt of a request from a DSL Operator. The timeline prescribed under the SOP were not followed but delayed on many instances. PTA was informed of such delays in December 2009 and the DSL Operators were informed by PTA that PTCL was upgrading its system and would cater to new requests from December 29, 2009 onwards. However, PTCL in the same duration was issuing new connections to its customers, clearly showing that PTCL was refusing access to the DSL Operators to increase its own consumer base. This was also brought to PTA's attention.

(j) PTCL has shifted its public switched telephone network (PSTN) consumer numbers from the copper network to an optical fiber network which the DSL Operators do not have access to. PTCL has not only violated PTA's Numbering Plan Regulations, 2005 but also clause 7.2.1 of the IA and PTA's determination No. 15-70/07 (CA)/PTA dated August 3, 2007, according to which PTCL may not change the copper pair of a customer to optical fiber without the customers consent.

(k) PTCL has created operational problems for the DSL Operators, such as denial of their authorized staff to enter PTCL exchanges in violation of clause 7.2.1 (c) of the IA, delaying provision of infrastructure, cutting of cables, refusal to provide collocation space, etc.

(l) PTCL has forcefully disconnected the connections of the DSL Operators provided to customers and started providing these customers DSL services through PTCL's DSL connection without even informing the customers.

(m) DSL Operators pay PTCL PKR 650 per month for use of essential facilities to provide a single connection of 1Mbps, which PTCL provides to its customers at price of PKR 299. PTCL through cross-subsidization and predatory pricing is driving competitors out of the DSL market in violation of Section 3 (3) (f) of the Act, Section 26 (e) of the Pakistan Telecommunication (Re-Organization) Act, 1996 (the "PTA Act") and Article 11 of Schedule 2 of the 2000 Rules.

(n) PTCL charges DSL Operators in US$ parity rate while it's selling retail services in Pak Rupees. Another example of predatory pricing.

(o) PTCL does not maintain separate accounts for its retail DSL services, therefore, not treating it at arms length basis.

(p) In 2001 when DSL services were initially introduced in Pakistan, DSL Operators provided services under PTCL's license and paid 5% of their gross revenue to PTCL pursuant to an Operations and Maintenance (O&M) Agreement which subsisted for a term of 5 years. Later, PTA allowed all inernet service providers (ISP's) to provide DSL services and fixed a tariff of PKR 150 per customer per month which was 300% higher than the previous tariff. PTA vide determination No. 15-5/99 (Tariff)/PTA/643 dated March16, 2006 decided to abolish the new tariff, against which PTCL filed an appeal on the grounds that since PTCL was no providing DSL services, it was essential to charge the said amount to cover costs. PTCL continues to charge customers a flat rate of PKR200 per month for basic telephone service to cover costs of maintenance of copper lines. Even on PTCL beginning to provide DSL services, it continues to charge the DSL Operators the said amount, while lowering its retail rates for DSL services, making it impossible for DSL Operators to compete.

(q) PTCL having Significant Market Power (SMP) status in the fixed line segment, there is a real possibility of cross subsidization. This practice can only be curtailed by separation of accounts for the DSL retail services. Furthermore, PTCL is offering DSL customers packages that are priced lower than the wholesale price offered to the DSL Operators, which is an example of predatory pricing.

(r) DSL Operators submitted that the Commission should direct PTCL to revert the IA to its original form as approved by PTA vide its determination, allow DSL Operators to bring their own optic fiber to all PTCL exchanges, abolish the local loop sharing charges and separate its accounts of its own DSL retail boroadband service and treat the said service at arm's length, thus eliminating element of cross subsidy and predatory pricing.

(s) PTCL should also be asked to compensate the DSL Operators for the loss they have sustained due to PTCL's abuse of dominant position and appropriate penalty may be imposed on PTCL with direction to refrain from further violations.

PTCL's Reply

8. The complaint filed by the DSL Operators was sent to PTCL for its comments/reply and PTCL made the following submissions:

(a) The determination of PTA that PTCL holds a dominant position has been challenged before LHC, Rawalpindi Bench and has been suspended. The matter is *sub-judice* and the complaint is an attempt to frustrate the judicial process.

(b) PTCL reserves the right to challenge the validity of the Act and constitution of the Commission at an appropriate forum as the Commission lacks jurisdiction in this respect.

(c) Pointed out that reference should be made to Competition Act, 2010 and not Competition Ordinance.

(d) The requirement for determining the relevant market as per the Act has not been determined by the DSL Operators in their complaint before alleging contravention of the provisions of the Act.

(e) The Act requires determination of relevant market by the Commission before conducting of enquiry and the Commission has failed to do that and initiated an enquiry on allegations of violation.

(f) The complaint incorrectly defines DSL as a service in the market, when it is merely one technology for provision of Broadband Internet Access. Therefore, it cannot be said that consumers cannot interchange or substitute the DSL technology for other technologies.

(g) The complaint does not touch upon the homogeneity of the conditions of competition in the geographic market, which has been presumed to be the entire territory of Pakistan without considering that barriers to entry and exit vary from region to region.

(h) The market definition makes it impossible to determine market shares and market power for the purpose of assessing dominance. The failure to determine the relevant market in the complaint in accordance with the Act, renders cognizance of the matter and holding of enquiry without jurisdiction, lawful authority and of no legal effect.

(i) Complaint fails to demonstrate the ability of PTCL to behave independently of competitors, customers, consumers and suppliers and dominance cannot be presumed as PTCL's share does not exceed 40% for provision of any service.

(j) The DSL Operators misunderstand the concept of predatory pricing which is clear as the allegations have not been substantiated by any legal argument. In order to allege predatory pricing, certain criteria needs to be fulfilled which includes:

(i) Alleged predator must be offering services below an appropriate measure of cost. Case law suggests that appropriate measure is either prices below average variable costs or simply when the difference in cost between the cost of manufacturing and price charged to consumers is excessive. DSL Operators have not shown that prices of

PTCL are below appropriate measure of cost and in fact several ISP's are offering services at rates substantially lower than PTCL;

(ii) Demonstrate that predator has a high probability of recoupment of losses;

(iii) Need to establish predator's conduct of extra ordinary price cutting to lack business purpose or unnecessarily or unreasonably impedes the efforts of other firms to compete for raw materials or customers, or if the anticipated benefits of the conduct flow primarily from its tendency to hinder or eliminate competition. In the case at hand no barriers to entry and technologies used to provide broadband services is so variable that competitors are free to use alternative means to provide services.

(k) Allegations of refusal to deal have not been substantiated.

(l) No evidence of violation of Section 3 of the Act. In failing to define the relevant market, DSL Operators have failed to recognize that unlike them PTCL provides various other services other than broadband services and provides the same all over Pakistan which the DSL Operators failed to due to lack of feasibility.

(m) That due to the definition of 'interconnection' provided under regulation 2 of the Pakistan Telecommunication Rules, 2000, PTCL and the DSL Opeartors cannot be said to be interconnected as there is no interdependency between the customers of both parties.

(n) All annexed documents are not reflective of any abuse on part of PTCL but only include determinations and directions of PTA which have been followed by PTCL.

(o) Violative of principles of natural justice and an attempt to cause unnecessary harassment to PTCL due to mala fide and ulterior motives.

(p) Broadband is a type of telecommunication that uses high speed data channels to send large volumes of information. There are several types of broadband internet services and DSL is one of the technologies, which enables creation of additional bandwidth for transfer of date on ordinary telephone cables. DSL is not a service but a technology used for provision of broadband services and PTCL cannot be alleged have dual role in the DSL services market, as its neither a service nor a market.

(q) It is incorrect that the DSL Operators are solely dependent upon PTCL for infrastructure as Nayatel provides broadband services through use of optical fiber technology (FTTH) instead of depending upon PTCL's copper lines.

(r) The complaint is based on a misunderstanding of competition law, the purpose of which is not to punish market leaders but to enhance economic efficiency and protect consumers.

(s) PTCL signed O&M agreements in 2001 for provision of broadband (high speed internet) service through DSL technology at which time it did not itself provide DSL connections. In 2003 PTA introduced regime of individually charging for copper loop at rental of PKR 670 per month which was challenged by Micronet which was remanded back to PTA by the High Court which maintained its orders. PTCL signed DSL agreements with ISP's for provision of DSL service on instructions of PTA which did not have provision of Voice and VPN and these still continue.

(t) In 2003 PTA allowed all ISP's to provide broadband services and fixed local loop charges at PKR 670 per month as opposed to 5% revenue sharing

arrangement which was difficult to maintain due to different packages and multiple operators. Fixed local loop charge regime reflected cost of the loop and was transparent and simple.

(u) GOP introduced the Broadband Policy 2004 through which it revised the local loop charges to PKR 250 per month for DSL connection and also reduced backhaul bandwidth charges significantly to proliferate the broadband market. Despite this reduction in costs the ISP's did not proliferate the market as this required additional investment and broadband services remained limited to few metropolitan cities.

(v) PTCL entered the retail broadband market in 2007/08 and by making huge investments made the service available throughout the country, which led to large scale awareness among customers and rationalization of retail tariffs.

(w) DSL Agreements as alleged by the DSL Operators are not one sided but have been thoroughly negotiated over the span of 2 years between PTCL and the ISP's and PTCL has acted in accordance with PTA's determinations and amendments.

(x) DSL Operators should be aware that laying of unrestricted and unlimited installation of independent fiber optic cables is harmful to PTCL and DSL Operators as provides opportunity for selling unauthorized bandwidth to third parties and/or grey operators and hence misuse of facilities. PTCL had increased the lease line tariff in view of inflation but these were revoked vide PTCL letter No. DD (Tariff) 064/2005/DPLC dated July 8, 2008.

(y) Allegations of violation of PTCL's SOP of 2008 are denied and PTCL has at all times endeavored to perform within given timelines. There have been exceptions where extra time has been required by the DSL Operators have been timely informed by PTCL and PTA. PTCL customers were not given

preference over DSL Operators customers and had to face the same problems. The fault incidence is not attributed to PTCL only as numerous external factors are also responsible, such as poor in-house wiring, large scale damage to PTCL outside plant, utility companies, malicious cable cuts and theft and right of way (ROW). Supreme Court also took notice of the problems faced by PTCL and directed Secretary Interior and Secretary Home Department, Government of Punjab to ensure that no unauthorized digging is done leading to cutting or causing damage to telephones lines and allied services by or through semi-autonomous/autonomous bodies, organizations or by city district government or local governments. Also PTCL provides voice services on the same lines that DSL Operators use, therefore undue long duration results in significant revenue loss to PTCL.

(z) PTCL denies violation of applicable law and PTA determinations. Also PTCL submitted that the DSL Operators cannot blame PTCL for upgrading its technologies when they have themselves failed to do so. The shift from copper infrastructure which is an older technology is for the benefit of the customers and customers have an option to choose the new numbers given upon shift from copper to optic fiber. In some cases there is an automatic change of numbers, but the customer has option to use that number or forgo the service.

(aa) PTCL denies that it has intentionally or illegally ever created problems for DSL Operators at PTCL's installation and collocation at exchange. PTCL accommodates all operators provided the PTCL exchange has space.

(bb) PTCL denies that it has forcefully disconnected customers of other DSL Operators and only provides services on request of customers. PTCL also informed that it has offered the ISPs to work in partnership with PTCL for its white label DSL broadband services on revenue sharing basis. Under which PTCL will provide end to network infrastructure and resources and DSL Operators will provide marketing, sales, provision and installation of customer

premises equipment, billing and revenue collection and after sales support services.

(cc) PTCL denied that it provides 1 Mbps broadband at a monthly rate of PKR 299 which is actually PKR 1199 and the PKR 299 is for a connection of 256 Kbps. Other operators provide broadband services at much lower rates in non USF areas. USF subsidizes investment for broadband services in areas where no operator is willing to provide services and these were open for bidding to all but PTCL obtained these as others were not interested. PTCL submitted that the copper line cannot be said to be an essential facility as firms have access to the infrastructure and also has other alternate means such as laying optical fiber.

(dd) PTCL only charges the DSL Operators for IP Bandwidth in US dollars which PTCL itself also pays for in US Dollars. Other charges are paid in Pakistan rupees and DSL Operators have the option to obtain IP Bandwidth from other sources.

(ee) Broadband services are being provided in line with established business practices and costing principles and in accordance with legal framework, as well as PTA determinations and regulated tariffs.

(ff) Facts have been miss-stated and important details have been left out. PTCL entered into Operation and Management agreements with the DSL Operators on a 5% revenue sharing basis. As number of customers increased and revenues per customer increased, it became difficult for PTCL to verify the charges being paid by customers. In order to increase transparency, it was suggested that fixed line loop charge be determined at PKR 670/- which was gradually reduced to PKR 150/- per month. DSL Operators have an option not to use PTCL infrastructure by investing in its own infrastructure.

(gg) Offer of student packages by PTCL is an example of market segmentation which enables a marketer to create sub-sets of its markets and clusters customers/clients into groups with similar characteristics, which causes them to demand similar products/services based on quality of those products such as price, specifications, etc. Sub sets or clusters are created on various bases, such as gender, age, income/purchasing power, education, social status, geographical location, etc.

(hh) Allegations of DSL Operators that PTCL is providing 4MB package at PKR 1999 and 10MB at 9999 and putting negative impact on competitors in the market is absolutely false and frivolous. PTCL explained:

(i) PKR 28,000 per MB relates to rates for clear pipe (unshared-committed information rate (CIR) connectivity which are given in US Dollars. Service provider sets contention ratio.

(ii) The 4 MB and 10 MB packages are not linked to CIR and come with a contention ratio of 1:40 and not 1:10 as alleged.

(iii) Sale of clear pipe connectivity is based on requirement of customers which may range form 1MB to STM-4 (155 Mbps) or more.

(iv) Allegation of cross subsidization in terms of PTCL student bundles package is false and malicious and PTCL has been providing the same since 2 years. Giving free SMS is a PTCL value added service.

(ii) Complaint is frivolous, vexatious, based on insufficient facts and should be rejected.

Issues

9. Although many issues have been raised in the complaint, the Enquiry Committee has determined that only the following issues are relevant for the purposes of this report.

(a) What is the relevant market?

(b) Whether PTCL holds a dominant position in the relevant market?

(c) Whether PTCL has violated the Section 3 of the Act by abusing its dominant position in the relevant market?

Relevant Market

10. In terms of Section 2 (1) (k) of the Act, the relevant market comprises of two aspects, one being the product market and the other the geographic market. Since the case in hand pertains to broad band access using DSL technology, it would therefore, be pertinent to explain the DSL technology first.

11. DSL is a service that is offered using copper infrastructure available at the local loop to the end user. The copper pair coming into the house for voice is being used to provide broadband data services. Both voice and data is supported on the same pair though both could be from different service providers. This is most prevalent model for broadband services as it is the quickest to deploy wherever copper is available. The operator that owns the copper infrastructure makes good money by pricing the copper infrastructure and offering co-location and leased lines to broadband service providers using DSL technology. This model is being very successfully used around the world and typically is called Local Loop Unbundling or Sharing.

12. The changes that take place to go from a pure voice connection on copper to an additional DSL service are two-folds. The first change is the change at the exchange where the pair is moved from the Main Distribution Frame (MDF) to the DSLAM which is an additional frame that comes in for DSL which then connects to the Broadband Remote Access Server (BRAS) which provides the authentication and connection to the internet, which is via the Pakistan Internet Exchange (PIE). On the subscriber end additional devices also come in which is the splitter and the Asymmetric Digital Subscriber Line (ADSL) Router. The splitter is a device which is used to separate the voice which is signal at 3KHz,

Low Frequency, and data which is above 3KHz, High Frequency. The voice goes to the telephone set while the data goes into the ADSL router which connects to the BRAS via the DSLAM to connect to the internet. The quality of the copper pair coming into the subscriber home and the distance to the MDF, are factors which affect the quality of the data connection and the bandwidth it can carry. It is possible to carry in excess of 10MB easily on a good quality copper pair provided the distance to the MDF/DSLAM is less than 2 Km. DSL allows different service levels which the service provider controls which is the connection from the service providers Point of Presence (POP) to the subscriber home on the dedicated copper. From the DSLAM onwards to the POP the bandwidth is shared. The DSL at home is asymmetric which means that the speed varies from download to upload, with more through-put available on the downlink side which is what the service provider will guarantee versus the uplink speed. As most people use the internet for browsing they are more interested in the downlink speed.

13. It is evident from the above discussion that there are two relevant product markets in question, one being the upstream market of copper wire infrastructure, including related network elements, and the other being the downstream retail market for provision of broadband service through DSL technology using the copper infrastructure. In order to provide retail broadband access through DSL, the availability of copper infrastructure is essential.

14. PTCL being the incumbent provider of fixed line telecommunication services in the country is the only company in Pakistan that has a nation wide network of copper infrastructure. The PTCL network has over 6 million PSTN lines installed across Pakistan with more than 3 million of these lines being operational. It is not practically possible for any other telecom operator/ competitor of PTCL to duplicate the facility of copper infrastructure in Pakistan.

15. Now we come to the other product market i.e. the market for providing broadband services to customers using DSL technology. Presently in the Pakistan market

there are four dominant technologies being used to deliver Broadband services to end users. They are DSL, Wimax, EVDO and FTTH. We have already discussed DSL technology that is the most dominant of all other technologies. Here is the description of other technologies being used in Pakistan to provide Broadband services.

16. Wireless Broadband in the local loop is being offered to subscribers by two means in Pakistan Code Division Multiple Access (CDMA) and Wimax. CDMA 1XRTT/Evolution Data Optimized (EVDO) is based on the CDMA Wireless standard and can be offered by companies who have licensed frequency in the local loop. CDMA like Global System for Mobile Communications (GSM) is a digital standard used primarily for voice but offers data capability. Depending on the infrastructure in place this can offer 1XRTT or EVDO which is a 3G equivalent service. This is primarily a mobile broadband connection where the user has the ability to move and allows roaming. The subscriber end device is mostly a USB dongle which has the SIM or subscriber module built in it. The infrastructure for this is very similar to a GSM infrastructure where the subscriber connects to the POP by registering to a BTS like a phone and then registers to a gateway which allows the internet connection. For the subscriber who does not want fixed connectivity and wants broadband mobility this is very useful. As frequency is a scarce resource this service is typically more expensive than DSL. CDMA in Pakistan operates in 450MHz for rural and 1900Mhz for Urban areas. The licenses were sold as part of deregulation and were auctioned by region.

17. Wimax is another Wireless Technology which is primarily being used for Broadband Data with limited voice application. In Pakistan the frequency allocated for Wimax is 3.5GHz. This has the same infrastructure as cellular meaning that there are BTS with towers to which a subscriber connects and typically backhaul to core is via Micro Wave(MW). Wimax can be of two variants fixed also called IEEE 802.16d and mobile IEEE 802.16e. The reason why Wimax is predominantly a Broadband data technology is the unavailability

of handsets which can be used for voice. At the subscriber end a CPE comes into play which then connects via BTS to the core network where it connects to the internet pipe. Like other wireless technologies the farther away from the BTS the weaker the signal, hence slow data rates. There is a limit to the available bandwidth typically 9.3 Mbps at the BTS so limit on the number of subs that can be supported at BTS and their SLA levels. Most Wimax operators in Pakistan support roaming where one can take their CPE to another service area where their service provider has coverage and start using the service. The USB dongle is also available allowing mobility in cell.

18. Fiber to the Home (FTTH) is the delivery of a communications signal over optical fiber from the operator's switching equipment all the way to a home or business, thereby replacing existing copper infrastructure such as telephone wires and coaxial cable. Fiber to the home is a relatively new and fast growing method of providing vastly higher bandwidth to consumers and businesses, and thereby enabling more robust video, internet and voice services. Connecting homes directly to fiber optic cable enables enormous improvements in the bandwidth that can be provided to consumers. Current fiber optic technology can provide two-way transmission speeds of up to 100 megabits per second. Further, as cable modem and DSL providers are struggling to squeeze increments of higher bandwidth out of their technologies, ongoing improvements in fiber optic equipment are constantly increasing available bandwidth without having to change the fiber. That's why fiber networks are said to be "future proof."[3]

19. As per section 2 (1) (k) the product market comprises all those products or services which are regarded as interchangeable or substitutable by consumers by reason of the products characteristics, prices and intended use. Although, the intended use of each of the technologies is the same, which is to allow consumers to access broadband data services but the characteristics and prices ranges result

[3] FTTH Council website - http://www.ftthcouncil.org/pt-br/content_themes/what-is-ftth

in differentiation. Wimax and CDMA are both wireless technologies and as a result have different product characteristics as opposed to DSL and FTTH. Furthermore, FTTH uses the optical fiber network while DSL uses the copper infrastructure for provision of Broadband services. Also, optic fiber is a relatively new technology and at present its availability is limited to few big cities of Pakistan. Therefore, the downstream market is not that for broadband services as submitted by PTCL but for Broadband services using DSL technology.

20. The second element of the relevant market is the relevant geographic market. The copper infrastructure of PTCL is available all over the territory of Pakistan and it has a nationwide license for provision of DSL services. Furthermore, the mode and manner of connectivity to the PTCL copper infrastructure is the same all over Pakistan, thus making the conditions of competition sufficiently homogenous and therefore, the relevant geographic market for both the product markets is whole of Pakistan.

Dominant Position of PTCL

21. In view of the above discussion it is clear that PTCL holds a dominant in the market for provision of copper infrastructure in Pakistan that is an essential facility for the undertakings engaged in the business of providing broadband services to customers using DSL technology. In fact PTCL is the only company which has a copper network.

22. As regards the other product market i.e provision of broadband services using DSL technology, it would be appropriate to review the present scenario of broadband market in Pakistan.

23. The Broadband market in Pakistan has grown tremendously in the last few years with the start of Wimax and then the explosion in DSL. Both have benefited from new entrants coming into the market. DSL has seen the explosive growth when

PTCL entered the market in 2008 prior to this the other DSL operators were content to milk the limited number of corporate and high end residential users they had. PTCL opened it up to the masses by aggressive marketing and lowering the entry barrier by offering ADSL routers at no cost. Currently, PTCL is very effectively bundling the copper voice/broadband in packages which are quite attractive for users. The table below shows the number of users using the different Broadband technologies and the percentage of DSL penetration as compared to total Broadband penetration.

Broadband Market					
	May-11	Jul-10	Jul-09		
DSL	654,707	486,409	476,722		
Wimax	397,155	261,864	257,616		
EvDO	294,161	134,927	111,194		
HFC	42,490	39,529	49,110		
FTTH	6,222	5,255	5,002		
Others	1,873	1,077	1,004		
	1,396,608	929,061	900,648		
Total Wimax	397,155	261,864	257,616		Wimax is predominantly Data
Total Fixed Line	3,417,802	3,417,802	3,533,275		
Total Wireless Local Loop	2,791,609	2,720,112	2,658,685		
Total Fixed + Wireless	6,606,566	6,399,778	6,449,576		
Broadband Penetration	21.1%	14.5%	14.0%		
Copper Access Lines	3,373,461	3,373,461	3,479,641		
DSL Penetration	19.4%	14.4%	13.7%		

24. Apart from having a dominant position in the market for providing access to copper infrastructure, PTCL is also a dominant player in the market for provision of broadband services using DSL technology in Pakistan. It is also pertinent to mention that PTCL has the nation wide presence in the DSL based broadband services in Pakistan, whereas the DSL Operators operate only in few metropolitan cities of Pakistan i.e Lahore, Karachi and Islamabad. Accordingly there is a huge

difference in PTCL's number of customers and the number of customers of other DSL Operators.

Abuse of Dominance by PTCL

25. It has been alleged in the complaint that PTCL is abusing its dominant position through the practices of predatory pricing and refusal to deal thus violating Section 3(3) (f) and 3(3) (h) of the Act.

26. It has been alleged by the DSL Operators in their complaint that PTCL has refused to provide access to its copper infrastructure by refusing to cater requests of DSL Operators for issuance of new connections in a timely manner as required by SOP on DSL services. The DSL Operators submitted that PTA informed the DSL Operators that such delays were caused in December 2009 as PTCL was upgrading its system. However, the DSL Operators have stated that PTCL was issuing new connections to its own customers during this period of system up gradation. PTCL has denied that it issued any new connections at the time the DSL Operators were not being issued new connections.

27. As the DSL Operators have been unable to provide substantive evidence which shows that new connections were being issued by PTCL at the time that DSL Operators were refused access to new connections, it does not seem that PTCL has abused its dominant position by refusing to deal with the DSL Operators. Furthermore, the allegations of the DSL Operators seem to be related to an isolated event that has been attributed to system up gradation and not an on going practice of PTCL.

28. It has also been alleged by the Complainants that PTCL has also violated the provisions of Section 3 (3) (f). According to Section 3 of the Act, an undertaking shall be deemed to have abused its dominant position in terms of clause (f) of sub-

section (3) if the undertaking is involved in practices such as predatory pricing, prevention of new entry and monopolization of the market.

29. Predatory pricing is a commercial strategy by which a dominant firm first lowers its price to a level which will ultimately force its rivals out of the market. The incentive is short-term losses for an overall control of the market in the long run. Generally the average variable costs are taken into account while calculating what price would be predatory. Another form of abuse by a dominant firm is the concept of margin squeeze which has the effect of preventing new undertakings from entering the market and monopolizing the relevant market. When a firm is engaged in retailing its products at prices which make it unfeasible for the competitor to remain in the market at a similar price, it could be a case of margin squeeze as well as that of predatory pricing.

30. However, for predatory pricing it is not essential that the dominant firm be present in the upstream market as well as the downstream market. Secondly, in cases of predatory pricing, the incumbent makes a loss with regards to that specific product. However it may be recovered through profits from other products, but it is able to sustain that loss for the period of time it takes to exclude the competitor from the market. In margin squeeze the incumbent might not be making a loss because in all probability its wholesale charges on the upstream market ensures that it makes an overall profit.

31. In light of the above discussion and the facts of the case, it seems relevant to discuss the concept of margin squeeze as it appears that PTCL may be monopolizing the market and preventing new entry into the market by this practice.

32. A margin squeeze occurs when the incumbent, by its actions, reduces the difference between upstream and downstream prices, for the others, to such an extent, that entering the market becomes prohibitive and staying in the market becomes uncompetitive. Or we can say that margin squeeze is associated with a

firm that is vertically integrated and by virtue of its dominant position in the upstream market prevents its (non-vertically integrated) downstream competitors from achieving an economically viable price cost margin.

33. Margin squeeze evolved as a way of excluding competitors from the market after the telecom sector was liberalized around the world. It could be done in a number of ways. The incumbent could raise wholesale prices to such an extent that the margin between that and the retail price could become negligible or even negative. Alternatively the existing operator could lower its prices in the retail market, while it makes an overall profit due to its wholesale charges. It could even carry out both these steps simultaneously.

34. The European Commission has this definition of a margin squeeze (or price squeeze):

> *A price squeeze could be demonstrated by showing that the dominant company's own downstream operations could not trade profitably on the basis of the upstream price charged to its competitors by the upstream operating arm of the dominant company.... In appropriate circumstances, a price squeeze could also be demonstrated by showing that the margin between the price charged to competitors on the downstream market (including the dominant company's own downstream operations, if any) for access and the price which the network operator charges in the downstream market is insufficient to allow a reasonably efficient service provider in the downstream market to obtain a normal profit (unless the dominant company can show that its downstream operation is exceptionally efficient).*

35. The case laws[4] on margin squeeze suggest following pre-conditions need to be met in order to establish the case.

(a) The incumbent should have a dominant position in the upstream market

[4] Deutsche Telekom, Decision of the Commission dated 21 May 2003; Wanadoo Espana Vs Telefonica, Decision of the Commission dated 7 July 2007.

(b) The incumbent should be vertically integrated to leverage its dominant position in the upstream market to negatively effect competition in the downstream market.
(c) the upstream input should be essential for the downstream operators and downstream competition
(d) The margins available to the efficient downstream competitor should be insufficient
(e) The margin squeeze should continue for a sufficient duration
(f) Foreclosure of downstream market/harm to the consumer

36. Here in the present case PTCL has a dominant position in the upstream market for provision of access to copper infrastructure, and related network elements. It is also vertically integrated and is providing broadband internet access in the downstream market. The upstream input, that is the copper infrastructure of PTCL, is an essential input for the downstream competitors. A facility that is controlled by a single firm will be considered 'essential' only if control of the facility carries with it the power to eliminate competition in the downstream market. It has to shown that duplication of the facilities or an alternative is not feasible because when there are other feasible options available with regards to the input, a finding of margin squeeze will probably not be in order. In case of PTCL, laying of copper infrastructure is neither feasible economically but also would require obtaining a license from PTA for this purpose which would be a time consuming process. There would be additional issues as obtaining right of way for laying such copper lines. The copper network is therefore, an essential facility for any of the undertaking that intends to provide broadband services using DSL technology.

37. The most important question, however, is to determine the existence of a margin squeeze. As already mentioned, one of the ways to determine a margin squeeze is by showing that the dominant operator's own downstream concern would not be able to compete effectively at the prices at which the input is being supplied to the competitor. In the present case PTCL is offering the downstream services by itself and there is no separation of entities or accounts. Thus, the accounts cannot be checked to assess if the downstream competitor would be able to compete effectively with the same difference in prices, therefore, this test cannot be used.

38. The second way one could test for a price squeeze is by seeing if the margin is sufficient for a reasonably efficient service provider to obtain a normal profit. In order to use this test an analysis of the prices at which PTCL and other DSL Operators provide DSL services to their customers needs to be done.

PTCL Packages

39. As per the website of PTCL, currently following packages are being offered to the customers with dynamic IP

***DSL-1MB Unlimited**

PKR 1,250 / month

Unlimited download

Free Modem

PKR 1000 Installation (w.e.f 1st Aug 2011)

***DSL-2MB Unlimited**

PKR 1,499 / month

Unlimited download

Free Modem

PKR 1000 Installation (w.e.f 1st Aug 2011)

***DSL-4MB Unlimited**

PKR 1,999 / month

Unlimited download

Free Modem .

PKR 1000 Installation (w.e.f 1st Aug 2011)

40. PTCL has doubled its broadband data rate speed and upgraded all its existing 2Mbps customers to 4Mbps data rate on the same tariff and all existing 4Mbps customers have been upgraded to 6Mbps data service at the same tariff. In addition a new 8Mbps package has also been introduced.

Micronet Packages

Package	Download Speed	Monthly Volume	Monthly Charges per month
DSL Econo (Dynamic IP)	128 Kbps(Day) 1Mbps(Night) 8 p.m. to 8 a.m. & Sundays	Unlimited	PKR 749/-
DSL Moderate (Dynamic IP)	512 Kbps 24x7	Unlimited	PKR 850/-
DSL Pro (Dynamic IP)	512 Kbps(Day) 1Mbps(Night) 8 p.m. to 8 a.m. & Sundays	Unlimited	PKR 950/-
DSL Cruise* (Dynamic IP)	512 Kbps(Day) 2Mbps(Night) 8 p.m. to 8 a.m. & Sundays	Unlimited	PKR 1,149/-
Ultimate Plus (Dynamic IP)	1Mbps 24x7	Unlimited	PKR 1,199/-
DSL Nitro* (Dynamic IP)	1 Mbps(Day) 2 Mbps(Night) 8 p.m. to 8 a.m. & Sundays	Unlimited	PKR 1,499/-

w.e.f from 09 December 2009
* Due to technical limitations DSL Cruise and DSL Nitro are not available in Bahria, DHA, Gulraiz and PIA exchanges.
Note: Package speed availability is dependant upon your telephone line condition.

Sr.No	Service Description	Charges
a.	Monthly Advanced Charges	as per package!
b.	Installation & Line Conditioning Charges	PKR 750/-
c.	Choice of hardware (either of the following as per requirements)	
	DSL Modem (1 USB Port)	PKR 2,000/-
	DSL Combo Router (1 Ethernet Port, 1 USB Port)	PKR 2,500/-
	DSL Wireless Router (4 Ethernet Ports)	PKR3,000/-
	Reach Router	PKR 8,000/-
Note: Above mentioned prices are inclusive of GST.		

Bandwidth: Upto 2 Mbps dedicated as per chosen Package with Dynamic IP
CPE Warranty (Limited): 12 Months by Manufacturer.
Time and usage Limit: 30 days or usage of (as per subscribed package) volume (whichever comes first).
Free Multiplayer Gaming.
Free 25MB E-mail Box.
24x7 Technical Support (Phone, Email and SMS).

Nexlink Packages

41. No information on the packages being offered by Nexlink was made available to Enquiry Committee, neither it is available online.

Link dot Net Packages

Price of Connections Offered toUsers:

Package	Speed	Monthly Internet Charges (PKR)
LINK DSL 1M	1 Mbps	1,050
LINK DSL 2M	2Mbps	1,850
LINK DSL 4M	4Mbps	3,750

Apart from these monthly internet charges, monthly CPE rental fee for non Wi Fi CPE @ PKR150/month and PKR250 per month incase of Wi Fi CPE

Cost Models Submitted by DSL Operators and PTCL

42. During the course of enquiry various cost models were submitted by the DSL operators including PTCL. If we review these cost models, no conclusion can be made, because for each undertaking's individual circumstance, there is a drastic variation in costs and resultant profit margins. Following are few of those cost models presented to the enquiry committee. The table below summarizes the cost model submitted by PTCL in relation to different contention ratios:-

Description	Comments	Unit	Cost of 2 Mbps DSL			
			Contention			
			1:12	1:21	1:30	1:40
IP Bandwidth						
Cost of IP Bandwidth/month(1Mbps@US$80/month)	2Mbps/Month	US$	160	160	160	160
Cost of IP Bandwidth/month	2Mbps/Month	PKR	13,760	13,760	13,760	13,760
Cost of DPLC data/month based on 25Km Av distance	2Mbps/Month	PKR	1,458	1,458	1,458	1,458
Contention Used			12	21	30	40
Cost of (IP Bandwidth + DPLC) per customer of 1 Mbps	**2Mbps/Month**		**1,268**	**725**	**507**	**380**
ADSL Cost						
ADSL Capital cost per port		US$	22	22	22	22
ADSL Capital cost per port		PKR	1,892	1,892	1,892	1,892
ADSL port cost (Amortized at 5 years life and 17% annual interest rate)	Per port/year	PKR	576	576	576	576
Over head 50% of annual cost (power, co-location etc,)	Per port/year	PKR	288	288	288	288
Hardware maintenance cost 5% of Capex	Per port/year	PKR	95	95	95	95
Total Annual cost of Network per customer		PKR	959	959	959	959
Total cost of Network per customer per month		**PKR**	**80**	**80**	**80**	**80**
Cost of Modem (10$ cost amortized over 02 years at 17% annual interest rate)		**PKR**	**45**	**45**	**45**	**45**
Cost of access network						
Local loop charges	Per customer/month	PKR	150	150	150	150
Operations, maintenance and customer supports	Per customer/month	PKR	200	200	200	200
Total cost of DSL customer (A+B+C+D+E)		**PKR**	**1,743**	**1,200**	**982**	**855**

Description	Comments	Unit	Cost of 4 Mbps DSL			
			Contention			
			1:12	1:21	1:30	1:40
IP Bandwidth						
Cost of IP Bandwidth/month(1Mbps@US$80/month)	4Mbps/Month	US$	320	320	320	320
Cost of IP Bandwidth/month	4Mbps/Month	PKR	27,520	27,520	27,520	27,520
Cost of DPLC data/month based on 25Km Av distance	4Mbps/Month	PKR	2,916	2,916	2,916	2,916
Contention Used			12	21	30	40
Cost of (IP Bandwidth + DPLC) per customer of 1 Mbps	**4Mbps/Month**		**2,536**	**1,449**	**1,015**	**761**
ADSL Cost						
ADSL Capital cost per port		US$	22	22	22	22
ADSL Capital cost per port		PKR	1,892	1,892	1,892	1,892
ADSL port cost (Amortized at 5 years life and 17% annual interest rate)	Per port/year	PKR	576	576	576	576
Over head 50% of annual cost (power, co-location etc,)	Per port/year	PKR	288	288	288	288
Hardware maintenance cost 5% of Capex	Per port/year	PKR	95	95	95	95
Total Annual cost of Network per customer		PKR	959	959	959	959
Total cost of Network per customer per month		**PKR**	**80**	**80**	**80**	**80**
Cost of Modem (10$ cost amortized over 02 years at 17% annual interest rate)		**PKR**	**45**	**45**	**45**	**45**
Cost of access network						
Local loop charges	Per customer/month	PKR	150	150	150	150
Operations, maintenance and customer supports	Per customer/month	PKR	200	200	200	200
Total cost of DSL customer (A+B+C+D+E)		**PKR**	**3,011**	**1,924**	**1,489**	**1,236**

Description	Comments	Unit	Cost of 6 Mbps DSL

			Contention			
			1:12	1:21	1:30	1:40
IP Bandwidth						
Cost of IP Bandwidth/month(1Mbps@US$80/month)	6Mbps/Month	US$	480	480	480	480
Cost of IP Bandwidth/month	6Mbps/Month	PKR	41,280	41,280	41,280	41,280
Cost of DPLC data/month based on 25Km Av distance	6Mbps/Month	PKR	4,374	4,374	4,374	4,374
Contention Used			12	21	30	40
Cost of (IP Bandwidth + DPLC) per customer of 1 Mbps	**6Mbps/Month**		**3,805**	**2,174**	**1,522**	**1,141**
ADSL Cost						
ADSL Capital cost per port		US$	22	22	22	22
ADSL Capital cost per port		PKR	1,892	1,892	1,892	1,892
ADSL port cost (Amortized at 5 years life and 17% annual interest rate)	Per port/year	PKR	576	576	576	576
Over head 50% of annual cost (power, co-location etc,)	Per port/year	PKR	288	288	288	288
Hardware maintenance cost 5% of Capex	Per port/year	PKR	95	95	95	95
Total Annual cost of Network per customer		PKR	959	959	959	959
Total cost of Network per customer per month		**PKR**	**80**	**80**	**80**	**80**
Cost of Modem (10$ cost amortized over 02 years at 17% annual interest rate)		**PKR**	**45**	**45**	**45**	**45**
Cost of access network						
Local loop charges	Per customer/month	PKR	150	150	150	150
Operations, maintenance and customer supports	Per customer/month	PKR	200	200	200	200
Total cost of DSL customer (A+B+C+D+E)		**PKR**	**4,279**	**2,649**	**1,997**	**1,616**

			Cost of 8 Mbps DSL			
			Contention			
Description	**Comments**	**Unit**	**1:12**	**1:21**	**1:30**	**1:40**
IP Bandwidth						
Cost of IP Bandwidth/month(1Mbps@US$80/month)	8Mbps/Month	US$	640	640	640	640
Cost of IP Bandwidth/month	8Mbps/Month	PKR	55,040	55,040	55,040	55,040
Cost of DPLC data/month based on 25Km Av distance	8Mbps/Month	PKR	5,832	5,832	5,832	5,832
Contention Used			12	21	30	40
Cost of (IP Bandwidth + DPLC) per customer of 1 Mbps	**8Mbps/Month**		**5,073**	**2,899**	**2,029**	**1,522**
ADSL Cost						
ADSL Capital cost per port		US$	22	22	22	22
ADSL Capital cost per port		PKR	1,892	1,892	1,892	1,892
ADSL port cost (Amortized at 5 years life and 17% annual interest rate)	Per port/year	PKR	576	576	576	576
Over head 50% of annual cost (power, co-location etc,)	Per port/year	PKR	288	288	288	288
Hardware maintenance cost 5% of Capex	Per port/year	PKR	95	95	95	95
Total Annual cost of Network per customer		PKR	959	959	959	959
Total cost of Network per customer per month		**PKR**	**80**	**80**	**80**	**80**
Cost of Modem (10$ cost amortized over 02 years at 17% annual interest rate)		**PKR**	**45**	**45**	**45**	**45**
Cost of access network						
Local loop charges	Per customer/month	PKR	150	150	150	150
Operations, maintenance and customer supports	Per customer/month	PKR	200	200	200	200
Total cost of DSL customer (A+B+C+D+E)		**PKR**	**5,548**	**3,374**	**2,504**	**1,997**

			Cost of 10 Mbps DSL			
			Contention			
Description	**Comments**	**Unit**	**1:12**	**1:21**	**1:30**	**1:40**

IP Bandwidth						
Cost of IP Bandwidth/month(1Mbps@US$80/month)	10Mbps/Month	US$	800	800	800	800
Cost of IP Bandwidth/month	10Mbps/Month	PKR	68,800	68,800	68,800	68,800
Cost of DPLC data/month based on 25Km Av distance	10Mbps/Month	PKR	7,290	7,290	7,290	7,290
Contention Used			12	21	30	40
Cost of (IP Bandwidth + DPLC) per customer of 1 Mbps	**10Mbps/Month**		**6,341**	**3,623**	**2,536**	**1,902**
ADSL Cost						
ADSL Capital cost per port		US$	22	22	22	22
ADSL Capital cost per port		PKR	1,892	1,892	1,892	1,892
ADSL port cost (Amortized at 5 years life and 17% annual interest rate)	Per port/year	PKR	576	576	576	576
Over head 50% of annual cost (power, co-location etc,)	Per port/year	PKR	288	288	288	288
Hardware maintenance cost 5% of Capex	Per port/year	PKR	95	95	95	95
Total Annual cost of Network per customer		PKR	959	959	959	959
Total cost of Network per customer per month		**PKR**	**80**	**80**	**80**	**80**
Cost of Modem (10$ cost amortized over 02 years at 17% annual interest rate)		**PKR**	**45**	**45**	**45**	**45**
Cost of access network						
Local loop charges	Per customer/month	PKR	150	150	150	150
Operations, maintenance and customer supports	Per customer/month	PKR	200	200	200	200
Total cost of DSL customer (A+B+C+D+E)		**PKR**	**6,816**	**4,098**	**3,011**	**2,377**

43. The cost model submitted by Micronet is attached below.

Bandwidth cost	PKR 24,182,850/-
Charges of PTCL copper line	PKR 13,168,055/-
PTCL inter-exchange media Charges	PKR 4,247,611/-
PTCL co-location Charges	PKR 3,690,615
PTA Fees	PKR 2,149,713
Other Operational and Administrative costs	PKR 61,984,877
Total Cost of DSL Services	**Rs. 109,423,721/-**

44. The cost model submitted by LinkDotNet is as follows. The following costs have been calculated based on the contention ratio of 1:23. These costs are direct service costs and are exclusive of other operational costs incurred in running the business.

Cost Allocation per Subscriber (PKR)	1Mbps	2Mbps	4Mbps
IP BW	278	556	1,112
Stream/Media Connectivity	424	848	1,697
Co-Location	160	160	160
Unbundle Fee	150	150	150
Total Cost	1,012	1,714	3,118
Price Per Package	1,050	1,850	3,750
Margin	38	136	632
Margin %age	4%	7%	17%
Costs after reduction of BW to half			
Cost Allocation Per Subscriber (PKR)	1M	2M	4M
IP BW	139	278	556
Stream/Media Connectivity	424	848	1,697
Colocation	160	160	160
Unbundle Fee	150	150	150
Total Cost	873	1,436	2,562
Price Per Package	1,050	1,850	3,750
Margin	177	414	1,188
Margin %age	17%	22%	32%

Costs after Unbundled fee is waived and Alternative Media is allowed

Cost Allocation Per Subscriber (PKR)	1M	2M	4M
IP BW	278	556	1112
Stream/Media Connectivity	212	424	848
Colocation	160	160	160
Unbundle Fee	-	-	-
Total Cost	650	1140	2120
Price per Package	1050	1850	3750
Margin	400	710	1630
Margin %	38%	38%	43%

45. The complainant Nexlink has not submitted a cost model.

Cost Model for an as Efficient Competitor

46. From the above costing tables it appears that cost of providing DSL based broad band services vary from company to company. Although PTCL is charging every company at the same rate for PTCL related charges, however, other expenses like bandwidth charges, marketing expense, administrative expenses etc are company specific. Based on the cost calculations provided above by PTCL and by other operators and independent evaluation of each cost item, the Enquiry Committee has developed a hypothetical cost model that can closely represent the cost of providing DSL based broad band services by an as efficient competitor as PTCL. This is a hypothetical model based on some key assumptions that are presented below. The Enquiry Committee mostly relied on the costs provided by PTCL. However, some of the costs provided by PTCL appeared unrealistic when compared with the costs provided by other operators. The Enquiry Committee verified these costs independently from market sources and relevant evidences are annexed to the report.

Description	**Comments**	**Unit**	Cot of 1Mbps DSL	Cost of 2Mbps DSL	Cost of 4Mbps DSL
IP Bandwidth					
Cost of IP Bandwidth/month (1Mbps@US$80/month)		US$	80	160	320
Cost of IP Bandwidth/month		PKR	6880	13760	27520
Cost of IP DPLC data/month based on 35km Av Distance	Annex C	PKR	1021	2042	4084
Contention used	Annex D		27	27	27
Cost of (IP Bandwidth + DPLC) per customer			**293**	**585**	**1170**
ADSL Cost					
ADSL Cost per port	Annex A	US$	53	53	53
ADSL Cost per port		PKR	4767	4767	4767
ADSL Port Cost (Amortized at 5 year life and 17% annual interest rate)	Per Port/Year Annex B	PKR	1457	1457	1457
Overhead 50% of annual cost	Per Port/Year	PKR	729	729	729
Hardware maintenance cost 5% of	Per Port/Year	PKR	238	238	238

Capex					
Total annual cost of network per customer		PKR	2424	2424	2424
Total cost of network per customer per month (A)		**PKR**	202	202	202
Cost of Modem (10$ cost amortized over 02 years at 17% annual interest rate) (B)	Per customer/ month	**PKR**	47	47	47
Cost of access network					
Local loop charges (C)	Per customer/ month	PKR	150	150	150
Operations, maintenance and customer supports (D)	Per customer/ month	PKR	200	200	200
Sales & Marketing	Per customer/month	PKR	30	30	30
Total cost of DSL customer (A+B+C+D+E)		**PKR**	**922**	**1304**	**191**
Price being offered to customers by PTCL			**PKR850 student PKR1250 others**	**PKR1499**	**PKR1999**
Withholding tax @ 6% of price		**PKR**	**75**	**90**	**120**
Total Cost Per Customer Per Month		**PKR**	**997**	**1304**	**1919**
Price/Cost Margin Per Customer Per Month		**PKR**	**(147) 253**	**195**	**80**
% Margin			**20%**	**13%**	**4%**

Assumptions for the Model

47. The following assumptions have been taken in the model above.

(a) Cost of IP Bandwidth has been used as per the figures provided by PTCL and has been kept at minimum. It is to be clarified that cost of IP Bandwidth may vary from company to company and it is cheaper when bought in bulk. Since we are applying an 'as efficient competitor test' it would be most relevant to use the costs provided by PTCL, except where the cost provided by PTCL appear significantly unrealistic.

(b) Dollar rate for conversion has been taken as the most recent US$ to PKR rates.

(c) Although PTCL in their costing assumed minimum 25KM distance, however, in actual PTCL charges other DSL operators a minimum of 35 KM distance. Relevant evidence in this regard is attached with the report as **Annex C**.

(d) Contention Ratio of 1:27 has been used, based on the determination of PTA and copy thereof is enclosed herewith. **Annex D**

(e) Costing for ADSL port along with the diagram is annexed to the report. **Annex A**

(f) The cost for operations maintenance and customer support has been taken from the costing provided by PTCL

(g) Sales and marketing expenses have been estimated following the principle of prudence from PTCL's DSL related accounts provided by PTCL during the course of enquiry.

(h) The analysis only contains operational costs relevant for calculating gross profit margins. It does not include costs like interest, depreciation of capital cost, vehicles, transportation, the cost of salaries of administrative staff, other administrative cost, provision of taxation etc.

Analysis

48. From the above table following points emerge:

(a) At the current prices offered by PTCL, an as efficient competitor as PTCL would incur an average gross margin of PKR 95.25 (assuming equal distribution of customers across various packages) per customer per month, if it offers all the packages currently being offered by PTCL.

(b) An as efficient competitor as PTCL can only offer student package by incurring a loss of PKR 147 per customer per month.

(c) Margins are highly insufficient and unattractive for the 4 MB package. Moreover, the margins available at 1Mb and 2Mb cannot be considered sufficient to allow for profitable operation for an equally efficient competitor. PTCL upgraded free of cost all its 1Mb customers to 2Mb, 2Mb to 4Mb and 4Mb to 6Mb. This means that the actual margins for these packages are even lower than what appears on paper.

(d) Moreover, as mentioned above, it should be kept in mind that these margins are not the net margins but gross margins from which means that actual margins would be even lower.

(e) Due to the vertical integration, and lack of arms length transactions and separate accounting, PTCL may appear to have significantly high margins. However, this is not true in reality since arm's length transactions are not being recorded.

Profitability Analysis[5]

Micronet

49. According to the financials of Micronet, its sales are showing a decreasing trend over last three years. The sales declined by 18% from FY 08 to FY 09 and by 35% from FY 09 to FY 10. Total expenses have reduced over the period of 3 years but they have not helped in reaping the profits. The gross margins show a decrease of 33% from FY 08 to FY 09 and 46% from FY 09 to FY 10. The same is the trend with Operating Profits that from declining profits to FY 09, incurred losses in FY10. Operating profits decline from FY08 to FY09 by 31 % and then in FY10 by 56%.

[5] Done on the basis of financial reports submitted to the Enquiry Report

50. If we look at the expenses that Micronet is incurring the biggest chunk is that of salaries which is around 35% for last two years, down from 41% in 2007-8. Salaries are followed by PIE at around 20% and similar number for the PTCL related expenses which include Copper pair rent, co-location charges and bandwidth charges. The other opex, rent, depreciation and OH make up the rest of 25%.

51. It appears that with the entry of PTCL revenues have come down as tariffs have come down and also loss of customers plus higher Opex. The result is that the service which was profitable in 2008-9 is running into a loss in 2009-10.

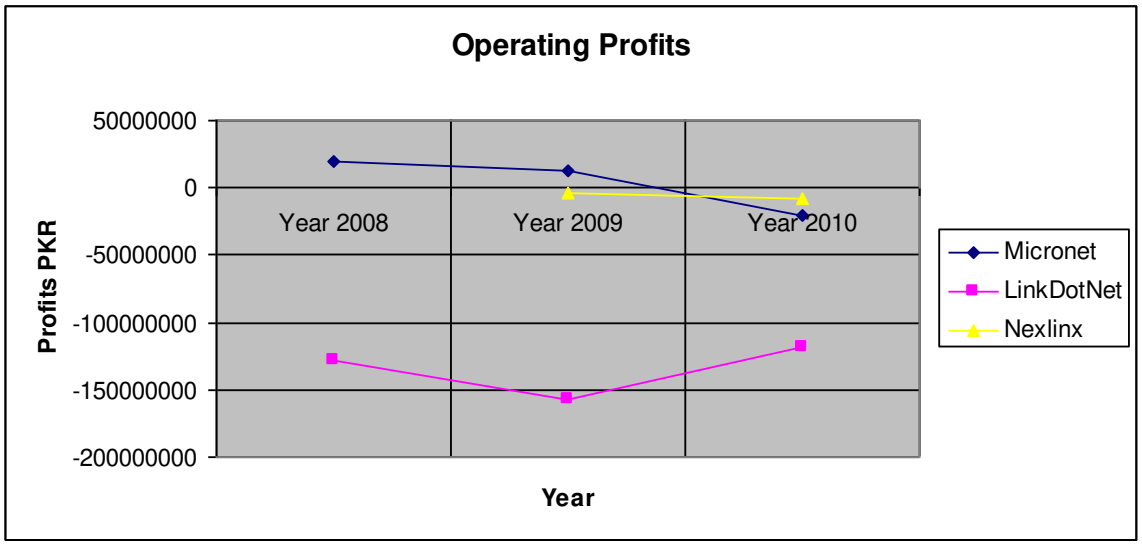
LinkDotNet

52. LinkDotNet is a subsidiary of Mobilink and its portfolio includes ISP services, DSL services and Wimax Broadband trial they were running. The financials provided show losses in all the years even though revenue is growing slightly year over year. Unlike Micronet, which was getting a premium, LinkDotNet was pricing its products at low levels and possibly going after the low end market. It is also interesting that they have very low GM of around 35% which is suggesting that for them the PTCL related costs are very significant and crippling. As they are operating in Islamabad, Lahore and Karachi their bandwidth costs are higher as longer distances covered and possibly had expected customers to move to higher transmission rate so getting more capacity from PTCL than was needed. The fact that they may have had Wimax backhaul also driving bandwidth could partly explain higher bandwidth requirement.

Nexlinx

53. Sales for Nexlinx got reduced by 53% from FY10 to FY11 along with a decrease in total expenses by 26% from FY10 to FY11. Gorss margins show a drastic

decrease from FY10 to FY11 by 106% and the losses are also showing an increase for consecutive years. The operating losses increased by 106% from FY10 to FY11.



PTCL

54. PTCL financials have confirmed that without the additional burden of copper pair rent, bandwidth charges and co-location charges they have a very healthy gross margin of 88% in 2010-11 and similarly in the previous year. What is also interesting to note that their stated revenue of PKR 6.66B is significant portion of their overall revenue of PKR 55.25B at 12% for 2010-11. The operating profit of 31% is very good and is better than 21% which PTCL posts for overall operations, suggesting how important broadband is for PTCL. It is reaping profit from investment made ages ago in the copper network. It is also apparent from PTCL financials that device charges are 66.5% of marketing and selling expenses confirming the importance of lowering cost of entry for a new subscriber, a key factor in strong uptake of the service for PTCL.

55. What is different for PTCL vis-à-vis other DSL Operators is that, given its vertical integration, and lack of arms length transactions or separate accounting, it

would not incur any additional OPEX in the form of copper pair rent, bandwidth, and co-location charges that other DSL Operators would have to pay for. Moreover, salaries would be negligible so around 70-80% of the expense a DSL operator incurs would not be born by PTCL. They already have a wire-line network with personnel who manage its operations and sales. PTCL might need the additional DSLAM investment with BRAS but the incremental OPEX for this would be negligible.

56. It would be pertinent to mention here that since the entry of PTCL in the DSL retail market, almost half the number of firms providing DSL have exited the market. In 2005, eleven companies namely Micronet, World Online, Cybernet, Habib Rafique, Dancom, Nexlinxs, Brainnet, GOI, Comsats, Multinet, and Nexcom were providing DSL packages. By 2012 only six companies namely Micronet, LinkDotNet, Comsats, Multinet, Nexlinxs, and Cybernet are left. Moreover, since PTCL's entry no new player has entered into the market.

Conclusion

57. From the above discussion it can be concluded that PTCL is a dominant player in the upstream market for provision of access to country wide copper infrastructure, which is an essential input for the undertakings operating in the market of providing DSL based broad band services. Based on the findings of cost analysis it appears that the margins in the DSL retail market due to PTCL's pricing for the access to its copper network are insufficient for an efficient competitor to operate profitably. The analysis of financial statements of DSL Operators appears to confirm that as a result of such low prices the profit margins of DSL Operators have gradually reduced and now they are operating under huge losses. Many of the players in the DSL retail market have exited the market. The cost analysis of PTCLs DSL operations shows that it has been able to record profits despite offering very low retail prices and having very low margins. PTCL being a vertically integrated company, its DSL business does not incur/record some of the

expenses such as co-location charges, copper pair rent, additional overheads etc that other operators have to bear. Additionally, the offers like double the speed without additional cost, upgrading of package etc are impossible for the competitors of PTCL to match. Resultantly, *prima facie*, DSL operators are losing market shares and incurring huge operational losses and if this continues, it may lead to exclusion of further competitors and thus monopolizing the relevant market by PTCL.

58. Apparently the lower tariffs are beneficial for the customers and are a good way to penetrate in a growing market for DSL based broadband services. However, such low tariffs and low margins are making this market unattractive for further investment, research and development. This may result in competitors leaving the market and creating a monopolistic situation in the long run, thus leaving the customers on the mercy of a super dominant player who will be at its free will to exploit customers. This also has the effect of preventing new undertakings from entering the DSL market.

59. Section 3(1) read with Section 3 (2) of the Act prohibits practices by a dominant player which prevent, restrict, reduce or distort competition in the relevant market. Price squeezing has been established as an abusive practice in all the leading jurisdictions of the world and has the impact of monopolizing the market and preventing new entrants and thereby preventing, reducing and distorting competition within the relevant market.

60. PTCL's pricing strategy in the broadband wholesale market is inducing a margin squeeze in the DSL retail market thereby making it impossible for an equally efficient competitor to conduct profitable operations in the DSL retail market. This margin squeeze is not only driving out competition in the downstream DSL retail market, but is also preventing new entrants from coming in. This pricing strategy appears to be a *prima facie* violation of Section 3 of the Act.

Recommendation

61. In view of the above, and given the importance of the broadband DSL sector in the development of the country, it is proposed that proceedings under Section 30 may be initiated against PTCL for *prima facie* violation of Section 3(1) read with Section 3 (2) of the Act.

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