

**MINISTRY OF TRANSPORT AND COMMUNICATIONS**

**TELECOMMUNICATIONS SECTOR POLICY**

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## 1. INTRODUCTION

The Ministry of Transport and Communications (MTC) continues the overall programme, commenced in 1991 by the Committee of Posts and Telecommunications (CPT), for implementation of the necessary reforms related to the transition of telecommunications from state monopoly to development under market conditions.

This document gives an idea about the present state and identifies the future directions of telecommunications development in a short-term (by the end of 2002), medium-term (by the end of 2004) and long-term (after 2004) perspective.

The telecommunications sector policy was drafted bearing in mind that **the Postal Sector Policy, the Strategy for Information Society Development in the Republic of Bulgaria and the Action Plan for e-Europe+ for the candidate-states for accession to the European Union (EU)** are elaborated in separate documents.

The current update takes into account the following documents:

- Telecommunications Sector Policy (2000);
- Government programme 2001-2005;
- National Programme for the Adoption of the Acquis of the European Union 1999-2004 (including the Copenhagen criteria);
- National Plan for allocation of the radio frequency spectrum for civil needs and for the needs of the national defence and security and for shared use between them;
- Recommendations of the International Telecommunication Union (ITU);
- Documents of the European Conference of Posts and Telecommunications (CEPT);
- Directives and other documents of the European Union.

## 2. GOAL, TASKS AND EXPECTED RESULTS

The strategic goal for the development of communications and information technologies, as stated in the Government Programme 2001-2005, is: satisfaction of the needs of the business and citizens of modern, efficient and quality information and communication services as a necessary condition for Bulgaria's technical and technological development and as the basic driver of long-term conditions for growth. That strategic goal is an elaboration of the goal specified in the Telecommunications Sector Policy (version 2000) - provision of opportunities for access of the population and business to a wide spectrum of modern, quality and effective telecommunications services, provided at reasonable prices under conditions of fair competition, adhering to the principles of equality and transparency, taking into account the requirements for Bulgaria's accession to the EU and NATO.

The accelerated implementation of information and communication technologies is the key to the development of a new type of knowledge-based economy and Bulgaria's accession to EU and NATO. Their successful development will ensure:

- stable economic growth;
- new jobs;
- successful realisation of young educated Bulgarians within the country;
- building the information society in the country which is to take an adequate part in the processes of global modernisation of economy, the new business relations, the application of new means of training and education and the development of the electronic government services.

The strategic goal in the telecommunications sector shall be achieved through:

## **2.1. Normative regulation**

- passing a new Telecommunications Act (TA) or of Amendment to the Telecommunications Act :
  - establishing a legal framework which, through its clarity, completeness, transparency and harmonisation with the European norms, shall ensure to a maximum extent predictability of the behaviour of the executive bodies and of the independent regulatory body, aimed at stable development of the business in the sector;
  - abolition of the Bulgarian Telecommunications Company monopoly, full market liberalisation, introduction of regulatory instruments forcing the operators with significant market power to stick to the requirements of the competitive environment, determination of conditions for network interconnection, for access to the local loop, determination of the scope of the universal service (US), unbundling of the local loop, determination of rights of way, provision of consultativeness and rights for the operators to express opinions before the regulator on problems related to their licences, handling of users complaints;
  - full separation of the regulatory functions from the ownership management;
  - introduction of mechanisms for compensating the operator for the universal service provision under economically unprofitable conditions;
  - development of a set of measures aimed at providing telecommunications services in economically poor regions as a prerequisite of business development and ensuring jobs;
  - development of a set of measures aimed at providing telecommunications services to people with specific needs – disabled, people of inequitable status;
  - relaxation of the licensing regimes and procedures, ensuring predictability, transparency and consultativeness of the licensing policy.
- passing Act on Personal Data Protection in Telecommunications (or a relevant chapter in the Telecommunications Act):
  - determination of the personal data in the field of telecommunications, identification of the calling line, users' rights in terms of their data entry and processing;

## **2.2. Communications regulation**

- institutional strengthening of the Communications Regulation Commission (CRC), ensuring efficient and effective control in telecommunications, introduction of new automated technological monitoring systems after ensuring the necessary investments for that purpose;
- phased relaxation of the licensing regimes and reduction of the terms of licence issuing so that full compatibility with the EU regimes be achieved by the end of 2004;
- ensuring financial independence of CRC;
- awarding a licence to a third GSM operator and licences to operators of third-generation mobile cellular networks (UMTS);
- awarding a licence to a telecommunications operator for satellite radio and television broadcasting from a geo-stationary orbital position of 1.2°W.

### **2.3. Telecommunications infrastructure development and efficient utilisation of scarce resources**

- fixed network modernisation by further digitalisation in accordance with the commitments under Chapter 19 of the negotiations for accession to the EU if the necessary investments are ensured;
- development of the necessary infrastructure for the introduction of the single emergency call number 112;
- provision of condition for the development of new (for example, voice transmission over power lines, transportation lines, etc.) telecommunications networks and promotion of competition;
- harmonisation of the National plan for radio frequency spectrum allocation for civil needs, for the needs of the national defence and security, and for shared use between them and phased release of frequency bands for GSM network, for TETRA Emergency, for 3G mobile cellular networks (UMTS);
- development of the national numbering plan and the principles of number allocation;
- satellite communication development: efficient utilisation of the existing two orbital positions and of the requested third orbital position of the Republic of Bulgaria;
- development of digital radio and television broadcasting.

### **2.4. Privatisation of the Bulgarian Telecommunications Company plc.**

- implementation of the drafted Privatisation Strategy, approved by the National Assembly;
- a procedure for privatisation by strategic partners or financial investors / consortium is under way.

### **2.5. Development of telecommunications for the needs of the national security, defence and in emergencies**

- completion and maintenance of a reliable telecommunication national system for prevention and action under emergencies, disasters and accidents;
- completion of a departmental situation centre of the Ministry of Transport and Communications as part of the National system for action under emergencies, disasters and accidents;
- digitalisation of the network used for the needs of the national defence and security and completion of regional situation centres of MTC;
- introduction of satellite communications in order to ensure system autonomy;
- adherence to the requirements for information encryption.

### **2.6. Expected results**

- phased harmonisation of the normative basis in the telecommunications sector with that of the European Union in view of the future integration in it;
- development and consolidation of the regulatory mechanisms;
- development and strengthening of the institutions in the sector;
- development, modernisation and renovation of the existing telecommunications infrastructure, improvement of the telecommunications services quality;
- entry of foreign investments;

- introduction of new modern telecommunications services;
- preparation of the necessary infrastructure for carrying out telecommunications under emergencies, accidents, natural disasters, catastrophes, etc.;
- development of telecommunications and information systems along the routes of the trans-European transport corridors on the territory of the Republic of Bulgaria;
- transition to cost-oriented prices of telecommunications services, provided by operators with a significant market power and prevention of unfair competition;
- extension of the market with diversified and quality telecommunications services, progressive reduction of the prices of services under conditions of full liberalisation and free and loyal competitive relations;
- full liberalisation of the market after 31 December 2002 (when the term of the Bulgarian Telecommunications Company plc. monopoly expires);
- provision of opportunities for competitive telecommunications operators to enter the market and provide services through introduction of selection of long-distance and international telecommunications operator, selection of servicing telecommunications operator in the local loop;
- phased introduction of number portability where the infrastructure makes it feasible;
- assistance in building the information society in Bulgaria.

While pursuing the telecommunications sector policy the principles of **consultativeness and transparency** between the state bodies, non-governmental organisations, telecommunications operators, users of telecommunications services and manufacturers shall be adhered to.

### **3. BUILDING THE NORMATIVE BASIS RELEVANT TO THE NEW CONDITIONS**

In the field of telecommunications in the Republic of Bulgaria the political, legal and institutional framework are developing in accordance with the EU acquis. The achievements in this field and the commitments taken in the process of negotiations for accession to the EU under Chapter 19 “Telecommunications and Information Technologies”, according to which by 1 January 2007 the Republic of Bulgaria will harmonise its legislation with that of the EU and ensure its implementation, made possible the closure of Chapter 19 in October 2001 (according to the negotiation procedures, the closure of any chapter is preliminary).

#### **3.1. Telecommunications Act under conditions of a liberalised market**

The Telecommunications Act has been effective since 15 August 1998 (latest amendments in 2001) and is the most important step towards the adaptation of the Bulgarian normative basis in the field of telecommunications to the requirements of the EU.

The main goal of the Telecommunications Act is to create the necessary legal and regulatory framework for the development of telecommunications and for the satisfaction of the public needs of telecommunications services. This act ensures conditions for:

- creation of a free market and fair competition;
- equality of telecommunications operators;
- universal service provision across the territory of the whole country at affordable prices;
- safeguarding the interests of the national security.

According to the Telecommunications Act, the telecommunications activities and services are liberalised with the exception of the provision of the fixed voice service (local, long-distance, international and transit) between terminal points of the fixed telephone network, the

provision of leased lines and the real-time trans-border voice transmission for the purpose of the provision of international voice services by public telecommunications operators. State monopoly is established over those activities until 31 December 2002. This deadline is defended and accepted in the World Trade Organisation and endorsed by the National Assembly by the Law of ratification of the Fourth Protocol to the General Agreement on Trade in Services.

The basic formulation in the Telecommunications Act is the separation of the functions of state governance (in the person of the Ministry of Transport and Communications, Council of Ministers (CM) and the National Radio Frequency Spectrum Council (NRFSC)) from the telecommunications market regulation (in the person of the CRC) and clear definition of the rights and responsibilities of the institutions engaged in shaping the policy and accomplishing the regulation in telecommunications.

The amendment of the Telecommunications Act in December 2001 led to the establishment of the Communications Regulation Commission which differs substantially from the closed-down State Telecommunications Commission (STC) in terms of its independence, composition and mandate. New functions of CRC are introduced - regulation and control over the provision of postal services, registration and control over the activities on the provision of certification services related to the electronic signature and so forth.

The establishment of the CRC is in the direction of the implementation of the European legislation with respect to the national regulatory authorities.

The legislative framework of the established NRFSC for exercising the sovereign rights of the State over the radio frequency spectrum in accordance with the Constitution is to be improved in order to make the Council more efficient.

Other important areas in which the amendments of the Telecommunications Act of December 2001 contribute to the fuller harmonisation with the European legislation are:

### **Universal service**

The scope of the universal service is extended and specified, incorporating services for free calls for the population (urgent medical aid, fire and emergency safety, police), inquiry services for the subscribers' telephone numbers, access to voice services through public payphones, special services enabling disabled people to use the services within the scope of the universal service - all very important from the viewpoint of the public interest. In accordance with the requirements of the European norms, the Minister of Finance and the Minister of Transport and Communications will issue an ordinance specifying the criteria which should be met by the operators obliged to provide the universal service, as well as a mechanism for their compensation when the costs on its provision surpass the earnings. According to §10a of the Telecommunications Act, BTC plc. shall be obliged to provide the universal service until the end of 2004 and it shall comprise all services specified in Article 3, par.3 of the Telecommunications Act. This will guarantee the users' rights and a smooth transition to the distribution of the universal service obligations among the competitors on the market.

### **Licensing regimes**

Clear and transparent criteria are determined about the regimes under which the telecommunications activities are carried out.

According to these criteria, individual licences are awarded for individually assigned scarce resource, for building public telecommunications networks, for building technological networks, for air traffic control, and for provision of voice services, which corresponds to the trend of gradual elimination of the regulatory barriers (reduction of procedures, giving preference to general over individual licences and longer period of preliminary public consultation) and transition to relaxed licensing regimes for the prevailing part of the telecommunications activities.

Activities are foreseen that shall be carried out under registration under general licence

when telecommunications are carried out for proprietary needs through the use of radio frequency spectrum for general use and access to global satellite systems, as well as activities that will be carried out in a free regime, i.e. requiring no licence. That, however, does not imply that those activities shall not be subject to certain rules and norms, which are mandatory even in the absence of a licence.

#### **Provision of access and interconnection**

The legal arrangement of the statute of the technological telecommunications networks and of their operators' rights to build infrastructures and connect their networks to that of BTC plc. fills a void and is a step towards the preparation for the emergence of competitive operators after the onset of full liberalisation. The legislative amendments so far envisage the creation of procedures stipulated in an ordinance for the provision of access to and interconnection of telecommunications networks. Besides, the changes enable the regulatory body to solve problems related to the provision of access to networks and services and interconnection, taking into account the interests of the parties.

#### **Regulation of the allocation of the licence fees and the fees for utilisation of the radio frequency spectrum**

The change in the allocation of the earnings from the fees is imposed by the need of redirecting funding for the development of the telecommunications market, information and communication technologies, as well as for funding projects related to the governance and the national defence and security. Conditions are created for funding the state bodies for the purpose of implementing the state policy in the field of telecommunications.

### **3.2. Secondary legislation**

The secondary legislation based on the Telecommunications Act makes possible its application and regulates profoundly specific issues in the field of telecommunications.

The main secondary legislation applicable at present, may be divided conditionally in several basic groups:

#### **Licensing**

The telecommunications activities subject to individual licensing, general licensing and free regime are specified in an Ordinance of the minister of transport and communications. The list of activities subject to licensing is reduced almost to the possible minimum of activities requiring licensing by the law.

#### **Scarce resources - radio frequency spectrum, numbering plan and geo-stationary orbital positions**

The Council of Ministers adopted a number of decisions, endorsing updates of the National plan for allocation of the radio frequency spectrum for civil needs, for the needs of the national defence and security and for shared use between them. Each successive update extends the range of frequencies allocated for civil needs.

The minister of transport and communications endorsed the principles of the national numbering plan, according to which it is developed and regulated by the STC (at present CRC). The State Telecommunications Commission developed and adopted Rules for allocation of the National numbering plan and procedures for primary assignment, reservation and revocation of numbering capacity.

The Council of Ministers approved a Memorandum of Understanding between the Republic of Bulgaria, the Republic of Greece and the Republic of Cyprus for common use of a satellite at geo-stationary orbital position 1.2°W for radio and TV broadcasting.

### **Conformity assessment**

The field of conformity assessment is regulated by the Act on Technical Requirements to Products. Based on it and on a Decision of the Council of Ministers, an ordinance on the essential requirements to radio equipment and terminal telecommunications equipment and assessment of their conformity, transposing Directive 99/5/EC, will be drafted and will become effective by the end of 2002.

Presently, an Ordinance on essential requirements and conformity assessment for electromagnetic compatibility, transposing Directive 89/336/EEC, and an Ordinance on marking for conformity with the essential requirements to the products are effective. These documents contribute to the free placing on the market of radio equipment and terminal telecommunications equipment.

### **Prices and tariffs**

In 1998 the Council of Ministers adopted a Methodology for regulation of the prices of the ordinary telephone service, provided via the fixed telephone network of BTC plc., and for the provision of leased lines.

In 2001 the Council of Ministers amended the Tariff of fees collected by the STC (CRC), thus adapting the fees to the dynamics of the telecommunications market and, in particular, simplifying the method of calculating the fees for radio and television activity and for professional/private mobile radionetworks (PMR).

The secondary normative acts developed so far treat some of the most important issues of the telecommunications market regulation. The need of accelerating the pace of development of the other secondary and normative acts, regulating the liberalisation processes should also be emphasised.

The following documents should be developed and adopted:

- a new ordinance on the specific telecommunications activities subject to individual licensing, general licensing and free regime;
- ordinances on the terms of procedure and technical parameters of the different radio services;
- ordinance on essential requirements to radio equipment and terminal telecommunications equipment and assessment of their conformity, transposing Directive 99/5/EC;
- ordinance on Short-range devices;
- general licences for telecommunications activities, resulting from the amendment of the Telecommunications Act (State Gazette, issue 112/2001);
- a new Tariff of Fees, corresponding to the amendments in the Telecommunications Act;
- update of the National plan for allocation of the radio frequency spectrum for civil needs, for the needs of the national defence and security and for shared use between them for its further harmonisation with the Radio Regulations of the ITU and the European Frequency Allocation Table.

In addition, secondary acts shaping the regulatory frameworks for interconnection, leased lines provision, universal service and mechanisms for its funding should be developed.

**In 2002 a detailed review of the legal framework is to be made, envisaging the adoption of a new Telecommunications Act (or amendment to the Telecommunications Act) in view of the full liberalisation of the telecommunications sector after 31 December 2002.**

## **4. MANAGEMENT OF SCARCE RESOURCES**

### **4.1. Radio frequency spectrum management**

The institutions responsible for the radio frequency spectrum management policy are guided above all by legal and administrative and technical considerations.

The main economic considerations are:

- efficient use of the radio frequency spectrum;
- assignment of frequencies and frequency bands on market principles;
- promotion of competition;
- ensuring financial revenues for the state budget.

The more important legal and administrative considerations are:

- transparency for the parties concerned;
- predictability of the radio frequency spectrum management, legal and administrative guarantees;
- solving problems arisen from changes in already assigned frequencies and frequency bands.

The technical considerations are:

- efficient use of the radio frequency spectrum from a technical point of view, use of frequencies and frequency bands from the higher ranges, more efficient technologies for shared use of the radio frequency spectrum, more efficient use of the frequency bandwidth in terms of protection against interference;
- shared use of the radio frequency spectrum;
- precise technical criteria in terms of electromagnetic compatibility.

The state policy of strategic planning and allocation of the radio frequency spectrum for its use for civil needs, for the needs of defence and security, as well as for shared use between them is carried out by the NRFSC. In view of the globalisation of the use of the radio frequency spectrum and the services, the NRFSC is authorised to harmonise the National plan for allocation of the radio frequency spectrum into radio frequencies and radio frequency bands with that of the CEPT member-states, NATO nations and the Radio Regulations of the ITU.

By virtue of its authorities, the NRFSC develops and periodically proposes for approval by the CM an updated National plan for radio frequency spectrum allocation.

In connection with the continuous development of the radio frequency spectrum use, the introduction of new systems and technologies in the field of telecommunications, and its harmonisation with the Radio Regulations of the ITU, the NRFSC updated the National plan for radio frequency spectrum allocation in the range from 10 to 105 GHz in accordance with CEPT allocation, and in the frequency range from 105 to 400 GHz in accordance with ITU allocation, and partially from 9 kHz to 10 GHz at the proposal of the interested departments. Additional frequency bands in the frequency ranges 900 MHz and 1800 MHz were released for GSM operators, and frequencies for the needs of various radio systems - TETRA, DECT, Iridium, Globalstar, were released. A time-table is drafted for phased release of frequency bands that

envisages full release of the frequency bands for GSM networks in the frequency range 900 MHz (2 x 25 MHz) by 2004 and in the frequency range 1800 MHz (2 x 75 MHz) by the end of 2003. As a result of the harmonisation of the National plan for radio frequency spectrum allocation Bulgaria's name is gradually excluded from footnotes to Article S5 of the Radio Regulations of the ITU, which is an indicator that the frequency allocation in accordance with the National plan is approximating to that of CEPT and ITU.

In mid-2001 the National plan for radio frequency spectrum allocation was updated and in the frequency range from 9kHz to 400GHz it was harmonised with the allocation accepted by CEPT, taking into account the Radio Regulations of the ITU and the decisions, resolutions and recommendations of the World Radiocommunication Conference (WRC-2000). At the end of 2001, radio frequency bands of 2 x 2 MHz were released for the needs of TETRA Emergency in the region of the town of Svilengrad, and by the end of 2002 the same frequency bands are to be released for the Sofia region. By the end of 2003 frequency bands 2 x 2 MHz for TETRA Emergency needs are expected to be released for the territory of the whole country. Additional frequency bands for civil needs in the range 400 MHz are to be released soon.

The Communications Regulation Commission develops the management policy and manages the radio frequency spectrum allocated for civil needs, co-ordinates radio frequencies and frequency bands for civil needs in order to guarantee air and maritime navigation safety, supervises the import, manufacturing and distribution of transmitter equipment by assessing their conformity with the essential requirements to them.

The convergence of the existing wireless telecommunications services to global services is the main goal of operators, users and manufacturers. An absolute prerequisite for the achievement of this goal is the use of the same harmonised radio frequency spectrum by all countries. This is especially true for the Universal Mobile Telecommunications Systems (UMTS), also known as third-generation mobile telecommunications. At the World Radiocommunication Conference (WRC-2000) there was full consensus with respect to the allocation of frequency bands for the terrestrial and satellite component for the needs of 3G mobile networks. The NRFSC made the first steps towards the determination of the free bands and the preparation of a strategy for releasing the necessary frequency bands for the needs of the Universal Mobile Telecommunications Systems (UMTS). Frequency resource for 3G wireless networks is to be released by 1 June 2003.

An integrated automated frequency management system should be built that should be used jointly by the institutions concerned.

#### **4.2. Numbering, addressing and naming**

One of the basic requirements for the emergence of a competitive telecommunications market is the availability of sufficient numbering capacity and its efficient allocation.

The management of the national numbering plan should be objective, non-discriminating, equitable, proportional, timely and transparent.

The Numbering plan (NP) and the relevant numbering ranges should provide sufficient numbering capacity, both in a short-term, and in long-term aspect. The plan should be in a position to meet the needs of the existing telecommunications services, the rapidly changing telecommunications market and the emergence of new and still unknown services.

In 2001 the regulatory body developed and adopted Rules for allocation of the National numbering plan and procedures for primary assignment, reservation and revocation of numbering capacity. In view of the more efficient management of the National numbering plan, a Co-ordinating body to the STC (CRC) was set up. This is a big step forward in the management process of the national numbering space.

The provision of sufficient numbering capacity requires the following measures:

- reduction of the number of geographic numbering regions in order to achieve more efficient use of the total available numbering capacity;
- harmonisation of the ranges “1” and “01” by releasing and using them for access to new telecommunications operators and special information services;
- holding in reserve at least one of the first significant digits of the national (significant) number, allowing flexibility in future changes;
- number allocation contributing to the efficient use of the numbering space and supporting the market and technological development of the telecommunications market;
- maximum correspondence of the Numbering plan to the European and international recommendations, standards and agreements on numbering.

In order to be able to meet the needs of a fully liberalised market, the NP should undergo an in-depth reorganisation. In the accomplishment of such a fundamental reorganisation in a network in which more than 15-20 per cent of the subscribers are analogue, the occurrence of problems is inevitable.

The decisions associated with the future type, structure, details and procedures for the application of the administrative and technical aspects of the change in the NP, as well as for promulgation within the public, are to be made when the market and technological development reach the level necessary for their accomplishment.

Based on the predicted network digitalisation rate, a substantial change in the NP may be expected around 2008. Nonetheless, preparation for the change in the NP may start not later than 2002, the first step being the provision of a possibility for carrier selection for each call at the beginning of 2003 and carrier pre-selection by default in 2005.

The introduction of number portability may be achieved if two conditions are fulfilled: high level of digitalisation of the networks of the main telecommunications operators and reorganisation of the National numbering plan.

Partial geographical number portability may be applied around 1 January 2007, when the expected level of digitalisation of the local exchanges will be around 50-55 per cent. That requires the start of serious functional and technical changes at least two years in advance.

Full number portability may be expected around 1 January 2009, although it is very difficult to predict the investments and the technological development in a dynamically developing field, such as telecommunications, for the coming eight years.

Presently, there is no common opinion on the issue of transition to a European integrated numbering plan, starting with the digit “3”, since that would cause a lot of inconveniences related to changes in legislation, difficulties in implementation and inconveniences for the users. For these reasons the introduction of the European Telephone Numbering Space (ETNS) would be more preferable in view of the provision of pan-European services.

The trend towards harmonisation of the numbering schemes, for example, access codes for mobile and personal services starting with the digits “6” and “7”, is getting greater support. Code 800, used for free dialling, and code 900, used for calls with shared charges, are to be given reserves for future use in the range 80X and 90X. All these issues will be considered in detail in the light of the future development of Recommendation E.164 of ITU-T.

The International Corporation for Assignment of Names and Numbers (ICANN) in the Internet space and the European Commission intensify their activity for the establishment of fair and transparent action in the process of registration and management of the national address spaces of the Internet. This requires adequate measures that would ensure a substantial increase in the quality of service mainly through guaranteeing fair competition and equality of all players on the Internet market in accordance with the requirements of the international organisations.

The support for the users when making calls demands decisions on the preparation of suitable working schemes for naming and addressing. The studies on such universal schemes and

the methods of dialling names from different terminal equipment have not started yet, but some steps are to be made to that end.

In this context, the international organisations ITU, IETF and ICANN are actively working on the introduction of the ENUM protocol. The abbreviation “ENUM” is accepted for this protocol that ensures the integration of the international numbering system, defined with Recommendation E.164 of ITU-T and the Domain Names System (DNS) in Internet. The ENUM protocol is used for the conversion of numbers into domain names and setting up connections with the relevant IP addresses. In this way, every user, identified by a single telephone number, will be able to receive telephone calls, fax-messages and e-mail. The international organisation IETF proposes to the ITU and to the national regulatory authorities to create an authorised numbering register.

The decisions to be taken in this field are to influence the liberalisation process and the competition development in the sector. That is why, a common policy should be pursued in this sphere, taking into account:

- the global Internet environment;
- avoidance of new obstacles and problems related to market supervision under conditions of convergence;
- the need of development of a competitive market at all levels through the introduction of new standards and technologies;
- possible macro- and microeconomic consequences of the cessation of the competitive development in DNS;
- the fact that this industry is dominated by the private sector and the share of the public sector is constantly diminishing.

The following **short-term** activities are envisaged:

- harmonisation of the ranges “1” and “01” in order to provide numbering capacity for new telecommunications operators;
- ensuring the service “carrier selection for each call”;
- development of measures for ensuring equality of the players in the Internet market.

**In the medium term:**

- ensuring the possibility of pre-selection of international and long-distance telecommunications operator;
- development of a functional approach to accomplishment of number portability and starting consultations with the telecommunications operators for its accomplishment.

**In the long term:**

- development of technical solutions, guaranteeing full number portability;
- development of universal interoperable schemes for naming and addressing.

## 5. DEVELOPMENT OF MOBILE NETWORKS AND SERVICES

### 5.1. NMT

Mobile communications continue to be one of the most dynamically developing fields in the telecommunications sector.

In the Republic of Bulgaria the **analogue cellular mobile network (NMT-450i)** has reached the maximum of its development and there is no increase in the level of consumption and in the number of subscribers. Besides, the assigned frequency resource for such an analogue

network does not permit an increase in the number of subscribers. Possibilities are to be sought for gradual and parallel introduction of digital technologies in the existing network of the analogue cellular operator, while protecting the customers' interests, with the aim of upgrading the network, thus enabling increase of the number of subscribers within the relatively small available frequency resource. Such technological possibilities are proposed and discussed in Working Party 8F of the ITU and in Recommendation ITU-R M.1457 of the ITU. Also possible is the use of the deployed network of the existing analogue mobile operator for its conversion into a third GSM operator.

## 5.2. GSM

Presently, two **digital cellular GSM networks** are operating in the Republic of Bulgaria, using simultaneously the frequency ranges 900 MHz and 1800 MHz. An equitable frequency resource is provided for a third GSM network. A time-table is drafted for the release of additional frequency resource for the needs of the GSM networks until 2003. This time-table envisages full release of the frequency bands (2 x 25 MHz + 2 x 10 MHz) in the frequency range 900 MHz and full release of the frequency bands (2 x 75 MHz) in the frequency range 1800 MHz. This will make possible extension of the services provided by the operators, the assigned frequency resource comprising frequency bands from both ranges.

## 5.3. TFTS and TRTS

The **Terrestrial Flight Telephone System (TFTS)** has not undergone any development, although the frequency bands for use on the territory of the Republic of Bulgaria are allocated. The drop in its popularity on European scale as well is due to the short air routes over Europe and the faster development of satellite system for similar purposes, which, in addition, have coverage over oceans as well.

So far, there is no explicit need of introduction of the **Telematic Road Transportation Systems (TRTS)**, but their development in Europe will be followed closely. Possible development could be expected in the long term.

## 5.4. TETRA, DECT, BLUETOOTH and paging networks

Currently, in the Republic of Bulgaria the necessary conditions exist (frequency resource 2 x 3 MHz and suitable regulatory framework) for the development of the **mobile radio network TETRA Civil**. At the end of 2001 frequencies (2 x 3 MHz) were also released for the radio system for emergency applications (TETRA Emergency). From the two versions of the system - TETRA Emergency and TETRA Civil, higher interest is expected in the latter, which is also suitable for regional application.

Compared to 1998, the number of operators of **paging networks using the POCSAG standard** diminishes. Bearing in mind that the paging services are displaced by the service "short messaging" in the cellular GSM networks, it may be expected that paging will not undergo further development, and still less so the ERMES system, for which no frequency resource has been secured so far. The use of the Radio Data System (RDS) standard for building paging networks will not undergo further development.

Following compatibility studies, implementation of pilot projects and release of the frequency band 1880-1900 MHz, conditions have been created for the deployment of the **Digital Enhanced Cordless Telephones (DECT)** in the Republic of Bulgaria. Their utilisation for telephonisation of sparsely-populated regions in the Wireless Local Loop version will be extended, being implemented by BTC plc. until 31 December 2002 in view of its exclusive

rights. From 2003 onwards, this is expected to be one of the main approaches for local loop liberalisation.

The **Bluetooth** technology, originally devised as a means for elimination of the connecting cables between the office equipment, offers also possibilities for data transmission at rates up to 700 kbit/s with a coverage up to 10 m. There is also a competitive technology, known under the name Specification 802.11b for wireless LANs (WLAN) that offers still higher data rates (10 MB/s). They allow pseudo-mobile data exchange in the sense that users are provided with a high-speed Internet connection in regions with high concentration of business-subscribers - airports, railway stations, hotels, etc. These technologies extend the operators' potential of offering new services on the telecommunications market.

## **5.5. 2.5G networks**

In their endeavour to redesign their networks in order to implement protocols, enabling mobile phones to use Internet applications and services, the existing digital mobile operators can get closer to the commercial launch of 3G radio networks by using intermediate technological platforms, offering services of generation 2.5G. This intermediate group of technologies includes High-Speed Circuit-Switched Data (HSCSD), General Packet Radio Service (GPRS) and Enhanced Data GSM Environment (EDGE).

It may be generalised about the 2.5G technologies that they, through hardware or software modifications in the existing GSM networks, requiring much smaller investments than those, needed for deployment of 3G mobile networks, offer data rates, comparable to those of the 3G technologies.

The natural evolution seems to be from GSM through enhancements HSCSD-GPRS-EDGE to eventually 3G. However, Bulgarian operators will obviously skip HSCSD and jump directly to GPRS. The need to deploy the next interim stage, EDGE, will depend on whether UMTS arrives on time. If UMTS becomes available in 2004, as planned, EDGE may not be needed. Otherwise, operators may well include it in their portfolio to be consistent with their 3G migration policy. It should be borne in mind that to a large extent HSCSD technology is already considered to be out-of-date and the telecommunications operators move to the GPRS technology. If the conditions for the introduction of UMTS are not too late, the operators could skip the EDGE technology.

It could be expected that the extension of the frequency resources of the GSM mobile operators will enable them to offer 2.5G services on the Bulgarian telecommunications market by 2004.

## **5.6. UMTS**

At a European level, the **Universal Mobile Telecommunications Systems (UMTS)** are continuing their development, but the initial enthusiasm has subsided. This is most obvious during the conduct of tenders (more seldom beauty contests) for licensing operators of third-generation (3G) mobile services. The tender prices that the telecommunications operators are inclined to pay are much less than those paid in 2000. To a large extent, this can be attributed to the high technological costs. In Bulgaria, the core frequency bands for UMTS (a total of 230 MHz) are still occupied, so it is too early to plan releasing the additional frequency bands (another 160 MHz). This delay could be overcome by making a time-table for phased release of frequency bands for UMTS several years ahead. As a first step, frequency blocks of at least 2 x 10 MHz in the frequency bands 1920-1980 MHz and 2110-2170 MHz will be sought. Frequency resource is expected to be released by mid-2003, so that the first operators be licensed by the middle of 2004. Foreign experience will be explored and in a medium-term plan the regulatory framework and the standardisation base will be developed.

## **6. DEVELOPMENT OF SATELLITE COMMUNICATIONS IN THE REPUBLIC OF BULGARIA**

Satellite communications in the Republic of Bulgaria were liberalised as early as 1998, and presently, the following regimes for licensing satellite networks and stations exist:

- individual licences - installation, maintenance and operation of public or professional telecommunications networks of the fixed satellite service, utilising individually assigned radio frequency spectrum; use of geo-stationary orbital positions, allocated to the Republic of Bulgaria under international agreements;
- general licence - operation of networks and stations of the satellite services for proprietary needs and utilising radio frequency resource for general use; provision of the public telecommunications service - access to global satellite systems;
- free regime - use of mobile satellite terminal equipment for proprietary needs.

In the period 2000-2001 structural changes occurred in some of the international satellite organisations using geo-stationary satellites with which the Republic of Bulgaria maintained close co-operation. INTELSAT and EUTELSAT became private companies - INTELSAT Ltd. and EUTELSAT SA, respectively, while INMARSAT was privatised as far back as 1999.

In the field of satellite systems using non-geostationary orbits, the SKYBRIDGE project for launching 80 wideband satellites was not accomplished. GLOBALSTAR is still building its 50-odd earth stations planned for maximum coverage of the Earth's surface by the system's satellites. Presently, IRIDIUM is not used for civil needs, but that may happen by the end of 2002. TELEDESIC's plans for launching a satellite network are still in the process of particularisation. The National frequency plan of the Republic of Bulgaria has provided enough frequency spectrum for these systems.

The main trends in the development of satellite services are the convergence of various services with the introduction of the new digital technologies, globalisation of services and of the market of radio equipment, as well as the share of commercial applications, resulting from liberalisation and growing competition for access to the radio frequency spectrum and orbital resources. The stress falls on wideband applications, higher satellite power, wider use and faster access to Internet. Digital services through satellite systems have the highest priority: services, switchable via the public network, services for private networks, radio and television broadcasting. Satellite organisation, such as INTELSAT, EUTELSAT and INTERSPUTNIK offer a wide range of services: TDMA, IDR, IBS, VSAT IBS, SCPC/DAMA, wideband Internet, DTH TV, BVSAT, EDP, Skyplex, DVP/IP, DAMA-STS, D-SAT, Open-Sky and others.

Bulgarian licensed operators use the technical possibilities and services of about 10 satellite operators and satellite organisations, among which are INTELSAT, EUTELSAT, TELENOR and INTERSPUTNIK, both for "point-to-point" transmission and television and radio broadcasting, and for VSAT corporate networks and efficient Internet access through satellites on inclined orbits (geostationary satellites being taken out of operation) that offer Internet capacity at lower tariffs.

The development of the market of services with the utilisation of satellite services in the private sector of the Republic of Bulgaria features gradual differentiation of big private operators of earth stations who, for the last 7-8 years, have gained experience, knowledge, instrumentation, expert teams, contacts with foreign operators, and have found their niche in the satellite communications market.

The Strategy for satellite communications development in the Republic of Bulgaria includes the following steps:

### **In the short term:**

#### Amendments in the Telecommunications Act:

- defining the terms “harmonised” and “non-harmonised” frequency bands and ranges;
- adaptation of the requirements for international co-ordination and registration of frequencies and frequency bands of radio stations in conformity with the Radio Regulations of the ITU;
- making more precise the provisions relating to placing on the market and putting into service of radio equipment, taking into consideration the Technical Requirements to Products Act;
- drafting provisions regulating the regulatory body’s obligations to create conditions, related to the electromagnetic compatibility for carrying out telecommunications activity when issuing individual licences;
- adding texts for registration of all operators of satellite systems providing services on the territory of the Republic of Bulgaria.

#### Amendments in the secondary legislation:

- amendment of the ordinance on licensing regimes and of the Tariff of fees collected by CRC;
- development and adoption of an ordinance on issuing individual licences without contest or tender for telecommunications networks of the fixed satellite service, utilising individually assigned radio frequency spectrum; general licences for networks and stations for proprietary needs, using common frequency resource and for access to satellite systems.

#### Amendments in the National plan for radio frequency spectrum allocation:

- harmonisation of the frequency ranges 1 GHz, 1.5 GHz, 2 GHz, 2.5 GHz, 14 GHz, 15 GHz, 19 GHz, 21 GHz и 29 GHz for the satellite service with the Radio Regulations of the ITU and the European Frequency Allocation Table.

#### Commitment of the Republic of Bulgaria to Decisions of the Electronic Communications Committee (ECC), recommendations of the ITU-R and transposition of Directives of the EU:

- commitment to Decisions ERC/DEC(97)09, ERC/DEC(00)03, (00)04, (00)08, ERC/DEC(01)22 and (01)23;
- transposition of Directive 99/5/EC;
- commitment to Resolution 94/C379/04 of the EU Council on the conditions for the provision of and access to satellite systems resources.

#### Activities on utilisation of the resources allocated to the Republic of Bulgaria in the frequency ranges of the international plan from Appendices S30/S30A of the Radio Regulations of the ITU:

- implementation of the commitments under the Memorandum of Understanding of 20 September 2001 between the Republic of Bulgaria, the Republic of Greece and the Republic of Cyprus on a common satellite at a geo-stationary orbital position of 1.2°W for radio and television broadcasting with the resources of the international plans in the satellite broadcasting service.

#### Standardisation:

- development of a terminological standard in the field of satellite communications;
- application of the requirements of Directive 99/5/EC to earth stations and terminal equipment in satellite systems in the ranges 6/4 GHz, 11/12/14/GHz и 20/30 GHz.

### **In the medium term**

Amendments in the secondary legislation:

- amendment of technical parameters of satellite services in accordance with Decisions of the World Radiocommunication Conference (WRC-03).

Amendments in the National plan for radio frequency spectrum allocation:

- ensuring better operating conditions for the satellite services in the 1-1.6 GHz range;
- update in accordance with the resolutions of the World Radiocommunication Conference (WRC-03).

Commitment of the Republic of Bulgaria to Decisions of the Electronic Communications Committee (ECC), recommendations of the ITU-R and transposition of Directives of the EU:

- studies and commitment to Decisions ERC/DEC(99)05, (99)06 и ERC/DEC(00)09;
- development of an ordinance for transposition of Directive 94/46/EC on competition in the markets in satellite communications;
- commitment to Decision 710/97/EC of the European Parliament and Council on a co-ordinated approach in the field of satellite personal communications services;
- commitment to basic recommendations of ITU-R related to earth stations co-ordination and satellite transmission quality: S.1062, S.1420, S.1424.

Activities on utilisation of the resources allocated to the Republic of Bulgaria in the frequency ranges of the international plan from Appendices S30/S30A and S30B of the Radio Regulations of the ITU:

- implementation of the project for a common satellite at a geo-stationary orbital position of 1.2°W;
- studies on the possibility for utilising the resources of the additional request of the Republic of Bulgaria of geo-stationary orbital position 50.4°E jointly with the resources of the Republic of Bulgaria for a national system in the fixed satellite service in the frequency ranges of the international plan of Appendix S30B of the Radio Regulations of the ITU.

Standardisation:

- application of the requirements of Directive 99/5/EC to earth stations and terminal equipment in satellite systems in the ranges 1.5/1.6/2/2.4 GHz;
- harmonisation of standards on earth stations in the maritime and aeronautical services and for the return channel in a DVB-S system.

### **In the long term**

Amendments in the National plan for radio frequency spectrum allocation:

- update in accordance with the resolutions of the World Radiocommunication Conference 2006 (WRC-06).

Activities on utilisation of the resources allocated to the Republic of Bulgaria in the frequency ranges of the international plan from Appendix S30B of the Radio Regulations of the ITU:

- realisation of the national system of the fixed satellite service at a geo-stationary orbital position 50.4°E.

Satellite systems will play an increasingly important role in the global information infrastructure, providing fast, easy-to-use and economic possibilities for Bulgaria's incorporation in the international information space.

## **7. DEVELOPMENT OF DIGITAL RADIO AND TELEVISION BROADCASTING**

### **7.1. Transition from analogue to digital television in the Republic of Bulgaria**

In recent years in Europe considerable attention is paid to the development and implementation of terrestrial, satellite and cable digital television broadcasting. Based on DVB-T, DVB-S, DVB-C systems that use the MPEG-2 standard, since 1998 digital television transmissions have been under way - first in Great Britain, and now in almost all of Europe. In 2003 one-third of 248 m of households in Europe are expected to receive digital television programmes, the percentage of terrestrial, satellite and cable reception varying substantially for the individual countries with a domination of satellite reception.

In Bulgaria the market of digital terrestrial, satellite and cable radio and television broadcasting is liberalised. In 2001 a contest was held for terrestrial digital television broadcasting by the DVB-T system for the Sofia region. The applicable National plan for radio frequency spectrum allocation defines the free frequency ranges for satellite and terrestrial television broadcasting. No amendments in the legal and regulatory framework are necessary, however, the available frequency bands for digital terrestrial television broadcasting need to be extended. The available frequency resource is insufficient for the digital terrestrial television broadcasting network. The frequencies for the television channels 61-69 should be released and allocated for the needs of terrestrial digital television. The development of the national digital television broadcasting network should rely on combinations of single-frequency networks, shaping a multi-frequency network. One and the same programme will be transmitted in parallel in analogue and digital format, the aim being to switch over to digital programmes only, depending on the economic state of the users. For this reason the TV sets are planned to be of a combined type - analogue and digital.

Presently, all Bulgarian programmes which are distributed by communication satellites are digital. That implies that the transition to digital broadcasting of television programmes by satellite has been accomplished. In terrestrial television broadcasting, as well as in the cable distribution networks, only analogue programmes are distributed. Digital receivers for terrestrial and cable digital television broadcasting have to be offered on the market at reasonable prices.

The Strategy for transition from analogue to digital television in the Republic of Bulgaria comprises the following steps:

#### **In the short term**

- deployment of a terrestrial digital television broadcasting network by the DVB-T system for the Sofia region;
- initial steps for the introduction of cable digital television broadcasting by the DVB-C system;
- introduction of the European standards EN 300 472, EN 300 801, EN 301 192 as Bulgarian State Standards.

#### **In the medium term**

- introduction of the European standards EN 300 468, EN 300 473, EN 301 701 as Bulgarian State Standards;
- participation in the ITU Conference for determination of the frequency planning criteria for re-planning the Stockholm frequency plan of 1961 aimed at co-ordinated introduction of digital television in Europe;

- extension of cable and terrestrial digital television broadcasting.

#### **In the long term**

- introduction of the European standard EN 301 210 and of the standards ISO/IEC 13818-3, ISO/IEC 13818-4 and ISO/IEC 13818-5 of the International Standardisation Organisation (ISO) as Bulgarian State Standards;
- development of a National plan for digital television networks of mixed type to be presented at the ITU Conference in 2005 for re-planning the Stockholm frequency plan of 1961 aimed at co-ordinated introduction of digital television in Europe;
- complete transition from analogue to digital television broadcasting in 2015.

### **7.2. Transition from analogue to digital radio in the Republic of Bulgaria**

In the recent years considerable attention is devoted to the development of digital terrestrial, satellite and cable radio broadcasting. The aim is to implement a single system for digital radio broadcasting DAB, based on the Eurika 147 Project. In Western Europe a total of 180m potential users are covered by the DAB system, and more than 500m Euro have been invested for the development of these systems in the period 1987-1999. Much effort is also devoted to the development of other systems for digital radio broadcasting, such as DRM (digital radio broadcasting on short, medium and long waves), digital radio broadcasting over Internet and over the UMTS networks. Strong efforts were applied for the development and series production of radio receivers, operating by the DAB standards, which are already on the European market.

The Digital Audio Broadcasting system (DAB) makes possible the transmission of both audio signals, and data, texts, pictures and even video images. The range of possible applications is extremely broad - weather forecasts, guidance information for fire-brigade and first-aid vehicles, road and tourist information, etc. Digital audio broadcasting in the range below 30 MHz (DRM) is still in the experimental stage in the European countries. It may be expected that it will withdraw the requirement for transition to SSB in short-wave transmitters by 2012. Currently, there is no data on whether the European countries have moved to digital terrestrial audio broadcasting on short, medium and long waves. In Bulgaria it is not recommended to interrupt the analogue audio broadcasting on short, medium and long waves before a transition is made to digital transmission, due to the great number of operating analogue receivers.

Presently, digital audio broadcasting by the DAB or DRM systems is not carried out in Bulgaria. The effective National plan for radio frequency spectrum allocation specifies the available frequency ranges for satellite and terrestrial audio broadcasting. No amendments are needed in the legal and regulatory framework. The market of digital terrestrial and satellite audio broadcasting is liberalised. So far, no licence has been awarded for carrying out that kind of telecommunications activity. Digital technologies are implemented in the creation of radio programmes of Bulgarian radio operators but their transmission is accomplished in an analogue form.

In the field of digital audio broadcasting the efforts should be directed both towards development of the DAB system in the VHF (176-230 MHz) and L (1452-1467.5 MHz) frequency ranges in accordance with the block allocation for the Republic of Bulgaria from the Wiesbaden Conference, and towards development of the DRM system on medium and short waves. The development of the national broadcasting networks should rely on combinations of single-frequency networks, shaping a multi-frequency network. In the future the relay transmitters at the local network level are to be determined for switching to powerful transmitters from the single-frequency network. It is believed that the radio receivers may be of a combined type, allowing reception of both digital and analogue audio programmes.

The Strategy for transition from analogue to digital radio in the Republic of Bulgaria comprises the following steps:

**In the short term**

- preparation for transmission of digital terrestrial radio programmes by the DAB-T system;
- introduction of the European standards ETS(EN) 300 384 и ISO/IEC 13818-7 as Bulgarian State Standards.

**In the medium term**

- introduction of the European standards ETS(EN) 300401 и ETS(EN) 300 799 as Bulgarian State Standards;
- preparation of a National plan for distribution of the multiplexes for digital terrestrial audio broadcasting by transmission locations and by territory in accordance with the block allocation of the Wiesbaden Conference and the Technical planning parameters of the Mainz Conference.

**In the long term**

- building and putting into operation of local and national digital terrestrial audio broadcasting networks by the DAB-T system, with the intention of full digitalisation of terrestrial audio broadcasting around 2015;
- preparation for transmission of digital radio programmes by the DRM systems;
- full transition of the network below 30 MHz to a unified standard for digital audio broadcasting DRM in the period 2015-2020.

The development and implementation of digital television and audio broadcasting in most European countries and globally demonstrates unambiguously that the Republic of Bulgaria should also make the necessary efforts for its incorporation in this process. The distribution and reception of video and audio information in a digital form, as well as data, reveals new possibilities for reception and application of information in real time (or with a tolerable delay), including a wide range of multimedia services, interactivity, services on demand, etc.

## **8. UNIVERSAL SERVICE PROVISION**

The main issue under conditions of full liberalisation is the universal service provision.

The first step in this direction is the determination of its scope depending on the political, economical and technical conditions in the country.

The scope of the universal service, specified in the Telecommunications Act, complies with the requirements of the European directives. When the scope of the universal service is reconsidered in the future, the dynamic changes in the field of information and communication technologies and the processes of convergence of networks and services should also be taken into account.

One of the components of the universal service is the provision of directory services for the subscribers' telephone numbers. Presently, only BTC plc. is legally bound to provide them. According to the European directives, however, the provision of this service is required from all telecommunications operators on the market. Since this issue is not solved in Bulgaria yet, the way in which the general telephone directories are compiled and maintained, which also include the numbers of the mobile subscribers, is to be provided for by law.

The service "operator-assisted call" is not included in the scope of the universal service. Naturally, every telecommunications operator should exhibit commercial interest in the provision

of this type of service, but in case that this is not clearly stipulated, it may lead to an increase in the prices of the provided services.

The market of public payphones is liberalised. Nevertheless, the main telecommunications operator is obliged to provide public payphones as a component of the universal service. There should be free access to the services of urgent aid through the public telephone sets. However, presently, this requirement is respected only by the systems of public phonocard-operated phones.

The issue of providing the universal service to disabled people and people with specific needs demands detailed consideration, taking into account the needs of the disabled people and the possibilities of meeting them. Since this is a complex issues it should be discussed jointly by all interested institutions.

The new formulations in European legislation refer to the provision of Internet access. Their application in Bulgaria imposes acceleration of the telecommunications network digitalisation. Since the transmission data rate over the analogue telephone network is comparable with the throughput of the dial-up modems of the computers, supporting Internet connection, the quality of the connection is not at the desired level. At present, Internet access is not included in the scope of the universal service.

The legal arrangement of the users' rights protection and their personal data is another issue that has to be solved.

An important step towards the provision of the universal service is the development of rules and criteria for assessing the term "affordability of prices". Although the existing Methodology for determination of the prices of the ordinary telephone service (following the amendments of the Telecommunications Act - fixed voice service) binds those prices with the gross domestic product, it should be replaced by methodologies complying with the requirements for regulation of the prices of certain services under conditions of liberalised market.

At present, special social packages are offered to users with low incomes, social houses and hospitals that are specified in the applicable tariffs of BTC plc. However, the principles of drafting such tariffs should be provided for by law.

The authorities of the regulator to impose on the telecommunications operators the provision of tariff packages, different from those, provided under normal commercial conditions, should also be arranged by the law. What is also necessary is to specify the regulator's authorities over the control of the retail prices (whether they are cost-oriented) of the telecommunications operators with significant market power.

An issue of primary importance is the funding of the universal service. Bearing in mind the conditions of its compensation set forth in Directive 97/33/EC, it turns out that only telecommunications operators providing the voice telephone service can be obliged to assist in the universal service provision.

Possible methods of compensation are by a special fund or by state funding. The most appropriate method for application in Bulgaria will be selected after detailed studies.

On the other hand, the costs of the telecommunications operators could be compensated only if they can be proven and only for the part of proven losses. For that purpose, every telecommunications operator is obliged to evaluate the net costs on the universal service provision, using a methodology whose principles are determined by the regulatory authority. The obtained results are subject to auditing by the regulator.

There is a possibility for the determination of more than one telecommunications operator for the universal service provision. This, however, suggests the presence of criteria for the operator's selection. If, after the announcement of a contest or tender, as provided for in European legislation, there is no candidate willing to provide the universal service, this obligation may be imposed on the telecommunications operator with a significant market power.

To enable the customers to track and control their expenses and to prevent the forceful termination of the service, a number of services of the following type are to be launched:

itemised billing, selective ban on outgoing calls, free-of-charge services, prepayment systems, deferred payment of the subscription fee and due bills. Parts of those specific possibilities are even offered at the moment, but the rest depend entirely on the degree of digitalisation of the network and for this reason they cannot be imposed as obligations.

The access to published information regarding the universal service is very essential. The general conditions of the contract between BTC plc. and the customers contain part of the information, specified in the European directives, but they should be revised in order to ensure maximum transparency in the relations between the telecommunications operator and the customers.

The problem with the introduction of the single European emergency call number also needs to be solved. There are no purely technical obstacles for the provision of access to number “112”. What needs to be done is to provide the legal arrangement of the institutional, technical and financial issues related to the introduction of this number.

The following needs to be done **in the short term**:

- selection of a method of determining the scope of the universal service;
- preparation of telephone directories common for the subscribers of all networks;
- provision of free access to first aid by public token-operated payphones;
- legal arrangement of personal data protection in communications.

The following needs to be done **in the medium term**:

- development of rules and criteria for assessment of the term “affordability of prices”;
- drafting an overall concept on the provision of the universal service to disabled people and to people with specific needs;
- definition of the principles of evaluation of the net costs of the telecommunications operators with obligations for universal service provision;
- selection of methods of funding;
- development of criteria for the selection of a telecommunications operator to provide the universal service;
- introduction of the single European emergency call number 112 by building a national system for emergency calls.

The following needs to be done **in the long term**:

- provision of itemised billing and free-of-charge selective ban on outgoing calls, prepayment systems, deferred payment of the subscription fee and overdue bills;
- provision of number portability.

## **9. LIBERALISATION OF THE TELECOMMUNICATIONS MARKET**

The process of liberalisation of the telecommunications market in Bulgaria started in 1992. It is based on the European policy and, in particular, on the recommendations of Directive 90/388/ECC on competition in the markets for telecommunications services, and its subsequent amendments leading to gradual opening of the telecommunications market. Liberalisation is one of the processes of the ongoing structural reform in the sector. It has its legal and regulatory framework, reflected in the Telecommunications Act and in the existing secondary legislation. Liberalisation is not a one-off act, but a series of measures for gradual introduction of the relevant telecommunications services.

As a result, presently, **all telecommunications services, except the fixed voice service and the leased lines are liberalised.**

According to the liberalisation policy, reflected in the Telecommunications Act, and the commitments under the accession negotiations under Chapter 19, full liberalisation will be introduced after 31 December 2002 which will cover the fixed voice service, the leased lines and the trans-border real-time voice transmission. Generally, the introduction of full liberalisation implies (according to the basic formulations of Directive 96/19/EC) that any entity (natural or legal), intending to provide any service on the market, has the right to be granted the relevant permit depending on the type of the service. That means that all restrictions to the access to the market are eliminated, except on the grounds of objective, transparent, proportional and non-discriminating criteria, relating to the use of the scarce resources. Rejection is allowable only under publicly known conditions specified in a normative act.

The realisation of this last stage of the liberalisation requires serious preparation, since the existing market has a traditionally strong monopoly. European practice shows that it will take more than a year and a half, needed not only for the establishment of the relevant legal and regulatory framework, but also for its broad public discussion, especially within the existing and new market players, with the users of telecommunications services, and for development of certain additional rules and procedures facilitating the practical introduction of the new normative basis.

### **9.1. Basic factors and conditions for full liberalisation**

**Competition** in the sector could be strengthened by:

- establishment of principles for licensing regimes based on balanced rights and obligations;
- absence of whatever restrictions to access to the market, except on grounds of objective, transparent, proportional and non-discriminating criteria, relating to the use of scarce resources (frequencies, numbers, orbital positions and rights of way);
- application of objective, transparent and non-discriminating procedures and criteria for assessment of tenders on the part of the national regulatory authority;
- efficient management of scarce resources aimed at the provision of impartial treatment of the various market players.

**Maintenance and development of the universal service** under conditions of a liberalised market in accordance with the principles of transparency, proportionality and non-discrimination through:

- imposing obligations to certain telecommunications operators for the provision of a defined minimum scope of telecommunications services with a specified quality and at reasonable prices;
- determination of principles of financial compensation of the telecommunications operators, charged with those obligations, giving the highest priority to the achievement of high productivity during the universal service provision;
- determination of principles of evaluation of the net costs and of a mechanism for their distribution among the market players under the supervision of the regulatory body.

Creation of conditions for the accomplishment of calls between end users by specific regulation of **interconnection** by:

- assigning obligations to telecommunications operators within their licences to accept reasonable requests for interconnection in a non-discriminating way in accordance with the essential requirements;
- assigning additional obligations to certain telecommunications operators, depending on their strength, market position and state of the competition, to publish in an

- appropriate way a Reference Interconnection Offer, as well as to introduce a suitable system for cost-oriented accounting of the individual expenditures;
- writing a Guide for commercial negotiations over the Reference Interconnection Offer in which the main conditions of the negotiations are highlighted;
- enabling all participants to refer to the national regulatory authority for settling disputes over the agreement, reached as a result of the negotiations (or during the negotiations, commercial and/or technical);
- enabling the CRC, as the highest instance, to impose interconnection in order to protect essential national interests in accordance with the principles of proportionality.

### **Problems in the development of the process of liberalisation**

Priority should be given to the regime of issuing permits by general licence rather than by individual licences for the greater part of the telecommunications activities. Thus, in Bulgaria it is necessary:

- to reduce the number of activities subject to individual licensing, to simplify the procedures for licence issuing, to reduce the licence fees in terms of their cost-orientation;
- to improve the feedback through the CRC regarding the obstacles of legal and regulatory character after the Telecommunications Act becomes effective, after its successive amendment and after coming into force of secondary normative acts;
- to ensure a longer period of public consultation on the legal and regulatory framework with the market players;
- to strengthen the surveillance on the part of the national regulators over the behaviour of the telecommunications market players.

### **Conditions for the introduction of full liberalisation**

The introduction of full market liberalisation demands undertaking legislative measures for encouraging the entry of new participants and maintaining fair competition by:

- implementation of Directives 90/388/EEC, 94/46/EC, 95/51EC, 96/2/EC;
- adherence to the guidelines of the EU regarding the competition policy in telecommunications, appended with the rules for access agreements;
- establishment and adherence to the agreements for interconnection;
- clear conditions for access to the infrastructures of the telecommunications operators competing with each other on the market;
- established schemes for funding of the universal service;
- normatively arranged access to the rights of way through state and municipal property;
- legal arrangement of the common ownership over the different networks and the shared provision of networks and services.

One of the conditions for the introduction of full liberalisation is related to the compliance with the requirements of Directive 96/19/EC that is necessary for the provision of a fully free market and as a guarantee of security with respect to the national legislation and to the rights and obligations of the market players under conditions of a liberalised telecommunications environment.

### **Liberalisation of the voice service**

In the EU, alongside with the term “**public fixed voice telephone service**” the term “**public fixed network functions**” was introduced, and both terms are defined as transmission and, if necessary, switching of voice, messages and signals over a telecommunications network.

Such may be, for example, network services for interconnection that are provided to other network telecommunications operators, to enable calls and the other functions, associated with them to pass through the interconnected networks, or sale of basic network functions that are sold to customers as end users or service providers.

The telecommunications operators can be network operators and service operators (service providers). The network operators are defined as operators that install, manage and operate their own (fixed or wireless) telecommunications transmission networks for the provision of public voice services or public network services. The services providers are defined as operators that provide telecommunications services, using predominantly networks of third parties. They can manage, operate and control leased capacity. These definitions can differ from those accepted in the national legislations, for example, in some legislations telecommunications operators of services deal only with activities on resale, while in others they can operate leased capacity.

The introduction of full liberalisation in telecommunications in Bulgaria will follow to a large extent the European experience, but will also take into account some national peculiarities, such as not fully upgraded infrastructure of the fixed telecommunications network, as well as the low consumption of services on the part of the residential subscribers.

The introduction of full liberalisation is related to:

- voice telephone service - local, long-distance and international;
- public fixed network services (for example, interconnection, network access, leased lines).

These services will be provided on a national and regional scale, as well as in each individual settlement, after they become legally arranged.

**The short term** envisages::

- improvement of the legal and regulatory framework in the sector for the conditions of a fully liberalised market on the basis of Directive 96/19/EC;
- clarification of issues related to those conditions, namely, licensing, numbering, obligations of SMP operators of networks and services, etc., paying special attention to the liberalisation of the voice telephone service.

**The medium term**, according to the National programme for the adoption of the acquis, envisages:

- establishment of the regulatory framework for the so-called “last mile”, i.e. local loop unbundling (LLU);
- ensuring stability of the regulatory framework, improvements being feasible on the basis of public consultation on any particular case that turns out to be insufficiently clarified by the legal framework.

**In the long term**, the market will be observed and analysed in order to remove the obstacles for the **development of competition**.

## 9.2. Licensing

Licensing shall follow the line of further relaxation of the regime of issuance of permits without overlooking the efficiency of supervision and monitoring of the market.

The general regulatory framework for the issuance of licences for telecommunications activities in Bulgaria follows the regulatory framework outlined by the EU in Directive 97/13/EC.

The basic principles of licensing under conditions of full liberalisation are reduced to:

- removal of the restrictions to the number of market participants except in the cases of using scarce resources;
- giving priority of the regime for issuing permits by a general licence over the regime of individual licensing;
- definition of principles, procedures and documents, related to licensing, including the establishment of the “one-stop-shopping” procedure.

In the present Ordinance on telecommunications activities subject to individual licensing, registration under a general licence and free regime the individual licences are prevailing. The reason for this is the early stage of self-regulation and the inefficiently acting competition mechanisms.

The formulations outlining the future direction of the licensing regimes for telecommunications activities are:

- simplification of the rules and conditions for licence issuance;
- coverage of all electronic communication networks and services, public and private;
- negotiations over the trans-border interconnection of public communication networks;
- ensuring transparency in assigning scarce resources.

The convergence of the various electronic communication networks and services and of the technologies used in them requires a system of permits issuance that can cover in one and the same way all comparable services, irrespective of the used technology.

Thus, a cable operator can provide simultaneously both electronic communication services, such as transmission and distribution of television signals, and other services, not covered by Directive 95/51/EC, for example, services for musical or television programmes, and hence, this operator can be charged with additional obligations as a service supplier or provider. The requirement for transparency suggests that the service providers, the users and the other interested parties get an easy access to any information regarding the rights, conditions, procedures, fees and decisions concerning the provision of electronic communication services.

### **9.3. Operators with significant market power (SMP)**

The term “significant market power” is defined in Directive 97/13/EC. The basic formulations from the European legislation are given in the following paragraphs and they should be reflected appropriately in the Telecommunications Act and in the secondary legislation, taking into account the fact that until now it was not possible to gain experience on working under conditions of a fully liberalised telecommunications market.

**The definition of significant market power** is valid when:

- a telecommunications operator has significant market power if, alone or jointly with others, he takes advantage of the position of economic power, expressing itself in the possibility of following a behaviour which is to a significant extent independent of competitors, buyers and users;
- a telecommunications operator has significant market power on a certain market, it may be suggested that it has significant influence on the market and on closely related markets, when the links between the two markets are such, as to allow the market influence on one of them be felt as an advantage for the other market, at that, the operators’ influence on the market becoming stronger.

The basic issue is the definition of the markets of products and services in telecommunications. For that purpose, the national regulatory authorities conduct analyses on the markets of products and services in accordance with “Guidelines on market analysis and the calculation of significant market power”, published in March 2001 by the European Commission, which will also be used for market analysis in Bulgaria. The manual defines the principles that the national regulatory bodies are expected to follow when evaluating the competition efficiency on the market or the presence of significant market power. These guiding principles also concern the problems of newly-emerging markets where the market leader seems to have an essential market share but he should not be subject to inappropriate obligations. The analyses of every market conducted by the national regulatory authorities should be published. The national bodies in charge of the competition are also involved in those analyses.

On the basis of the analysis conducted in accordance with the manual, the national regulatory authorities express their opinion whether the market in a given geographical region is really competitive. When the national regulatory authorities decide that:

- the market is really competitive, they do not impose obligations specific for the sector. If such specific obligations already exist, they withdraw them with respect to the telecommunications operators on this specific market. The parties affected by this withdrawal of obligations are given a suitable period for response;
- the market is not really competitive, they impose obligations, specific for the sector, or prolong the existing obligations.

When evaluating the competitive forces on a given market, an assessment is also made of the price behaviour of manufacturers, telecommunications operators and users - a fundamental criterion for defining the competitive market. Two basic principles are followed:

- possibility of interchangeability in terms of demand;
- flexibility in product interchangeability in terms of supply.

From the viewpoint of demand of consumption, an assessment is made whether the users are in a position to replace some products or services with others.

From the viewpoint of supply, an assessment is made whether there are competitors that can offer an alternative product or service, and if yes, to what extent the additional costs related to entry into the market can be avoided.

When evaluating an operator with significant market power, the market is examined in terms of services and in terms of territorial coverage:

- market for telecommunications services: fixed telephone services, mobile telephone services, provision of leased lines, interconnection, etc.;
- coverage of telecommunications markets: national, regional, local.

Within the EU, a telecommunications operator is assumed to have significant market power if he possesses more than 25 per cent of the corresponding telecommunications market in the geographical region in which he is authorised to operate. The national regulatory authorities may decide that an operator with a market share of less than 25 per cent of the corresponding market has significant market power, and an operator with a market share of more than 25 per cent of the corresponding market does not have significant market power.

When making the decision, the following criteria are taken into account:

- capacity of the telecommunications operator to influence the market conditions;
- his turnover relative to the size of the market;
- control over the access to the end users;

- access to financial resources;
- experience in service provision on the market.

Besides these basic criteria, some additional criteria are also defined, related to the capacity of the telecommunications operator to influence the market conditions:

- number of users;
- degree of saturation of the market;
- number and strength of competitors;
- thresholds for selection or rejection of a supplier;
- thresholds for passing from one supplier to another;
- degree of vertical integration or diversification;
- pricing mechanisms on the market.

The obligations imposed on the telecommunications operators with significant market power are defined in Directive 97/33/EC on interconnection in telecommunications with regard to ensuring universal service and interoperability through application of the principles of open network provision (ONP), Directive 98/10/EC on the application of ONP to voice telephony and on universal service for telecommunications in a competitive environment, and Directive 92/44/EEC on the application of ONP to leased lines, and they are based upon:

- transparency;
- non-discrimination;
- separate accounting;
- access to the network infrastructure;
- control over prices, including in terms of cost orientation and in terms of accounting systems.

In Bulgaria, according to the Competition Protection Act (Chapter IV), a telecommunications operator has a dominant position, if he, in view of his market share, financial resources, capacity for access to the market, technological level and business relations with other operators, can hinder competition on the corresponding market, since he is independent of his competitors, suppliers or buyers. An operator is assumed to have a dominant position if he has a market share higher than 35 per cent of the corresponding market, unless the requirements specified above are present.

Based on the EU documents and the European practice:

**In the short term** the national regulatory body is expected to start preparing for the development of a “Methodology for market analysis and determination of telecommunications operators with significant market power”.

Actions **in the medium term** include:

- legal arrangement of the specific obligations of the telecommunications operators with significant market power;
- approval of “Methodology for market analysis and determination of telecommunications operators with significant market power”;
- determination of the existence on the market of telecommunications operators with significant market power;
- provision of conditions for entry of new telecommunications operators on the market.

**In the long term** on the basis of market analysis, to adhere to the principles of fair competition.

#### **9.4. Co-location**

In the process of liberalisation and entry of new players on the market, co-location will be encouraged in the cases when there is a lack of technical capacity for independent use, there is a need of preservation of the environment, health and safety of the people, or compliance with the objectives of the territorial public works.

In principle, the contracts for co-location are a matter of commercial and technical negotiations between the interested parties.

The national regulatory authority can determine conditions for co-location of telecommunications operator, so that:

- third parties are given access to specific network elements and/or possibilities;
- access that has already been given is not deprived;
- resale of certain services is offered;
- open access is given to technical interfaces, protocols or other key technologies that are vital for the functional interoperability of the services;
- possibilities are offered for co-location, including co-location of underground ducts, buildings or towers;
- specific services are offered, necessary for the provision of functional interoperability of the services from end to end for the users, including possibilities for intelligent networks or roaming for mobile networks;
- access is offered to systems for operational support or other similar software systems, necessary for ensuring fair competition in service provision;
- interconnection or network capacity are offered.

When determining the conditions for co-location, the national regulatory authority should take into account:

- the technical and economical expedience of co-location;
- the expedience of the offered access in terms of available capacity;
- the initial investments for building the facilities and the risk of investments;
- the necessity of preserving competition in the long term;
- safeguarding intellectual property rights.

#### **9.5. Access to telecommunications networks and interconnection between them**

Building a competitive pan-European telecommunications market is unthinkable without the introduction of common harmonised principles and conditions for ensuring open and efficient access to the telecommunications networks.

##### **Open network provision (ONP)**

The conditions for open networks in the modern liberalised telecommunications market guarantee free and efficient access to the telecommunications networks in accordance with harmonised conditions within the EU in terms of: technical interfaces, including definition and use of terminal points of the network, if necessary; conditions of use; tariff principles and access to frequencies and numbers/addresses/names, if necessary in connection with the scope specified in Directive 97/51/EC.

In connection with the open network provision, Directive 97/51/EC introduced the requirement that all **standards** for harmonised technical interfaces and/or characteristics of services, appropriate for open network provision (ONP), should be published and updated periodically.

### **Access to telecommunications networks**

In European legislation “access” is a generic term, covering all forms of access to telecommunications networks and services, offered to the telecommunications operators or service providers who use the networks as a transport medium. Interconnection is considered a specific access ensuring interconnection (physical and logical) of two telecommunications networks.

In the draft directive on interconnection “access” implies making accessible, under specific conditions, the services of every operator through the so-called access providers. This term covers for example: access to network elements (access points, points of presence) and the services related to them that can encompass the connection with equipment by wire or by wireless means; access to a physical infrastructure, including buildings, ducts (for cable routes), etc.; access to software systems, including operational support SW systems); access to systems for number translation or systems of similar functionality, etc.

### **Leased lines**

Access to telecommunications networks can also be accomplished by leased lines. Directive 92/44/EEC will be still valid under conditions of full liberalisation.

### **Interconnection**

Interconnection of telecommunications networks is considered as one of the key factors for open network provision. Interconnection requires application of the principles of open networks - transparency, objectiveness, non-discrimination, proportionality, and gives priority to commercial agreements between the parties, interconnecting their networks, within rules established by the national regulatory authority.

The goal of the telecommunications Sector Policy with respect to the **open network provision, access and interconnection** of telecommunications networks is to encourage this activity by establishing a stable regulatory framework, facilitating the access and interconnection of telecommunications networks. This is one of the ways to ensure efficient competition between the interconnected networks and to create suitable conditions for attracting investments.

An efficient system for interconnection is a prerequisite for investments, especially under conditions of full liberalisation of the telecommunications market.

The measures for the provision of access and interconnection are based on maximum elimination of the bureaucratic barriers and are related to application of the necessary secondary normative basis and its procedures, such as conditions for the provision of access and interconnection, holding commercial negotiations between the parties leading to the conclusion of an agreement on the basis of a Reference Interconnection Offer (RIO), efficient and fast dispute settlement, and supervision, if necessary. Thus, the result of the implementation of this goal will be, above all, to the benefit of the users, but also to the benefit of the economic development of the sector.

Presently, based on the Telecommunications Act, interconnection exists between the fixed public telecommunications network of BTC plc. and the networks of the mobile operators. These requirements are set forth in the licence of BTC plc.

In a competitive market, access and interconnection are based on the principle of commercial negotiations between the interested parties. However, even now a number of factors continue to hold in subordination the competitiveness of the market.

As mentioned earlier, this is the existence of the former monopolist, that, even after the introduction of full liberalisation, will continue to provide most connections as an operator with significant market power, more than any of its competitors.

The basic task **in the short term**, contributing to the introduction of **full liberalisation** will be the development and adoption of an **Ordinance on the terms and procedures of interconnection**, that will make easier the provision of new services from the new market players to a wider circles of users. Another task is the development and adoption of an **Ordinance on terms and procedures for the provision of leased lines** under the conditions after 31 December 2002.

#### **Local loop unbundling (LLU)**

Under conditions of full liberalisation it is very important to provide access of more telecommunications operators to the subscribers on the basis of the deployed local loop of the former monopolistic telecommunications operator. This service is provided by the telecommunications operator with significant market power (SMP) and is called Local Loop Unbundling. According to Regulation No. 2887/2000 of the European Parliament and the Council of the EU, **unbundling of the local loop** implies full or shared access to the subscribers through their subscriber lines, which are owned by the operator with significant market power. Two methods of local loop unbundling are possible - full and shared use.

The unbundling of the local loop enables the new telecommunications operators to offer the subscribers entirely new services by means of digital technologies, such as xDSL (Digital Subscriber Lines) over the existing transport medium (copper pair). There are several versions of xDSL (ADSL, SDSL, HDSL, VDSL). Local access is also possible by radio from the subscriber to the base station which is part of a point-to-multipoint network, working in the frequency ranges 2.6 GHz, 3.5 GHz, 26 GHz, etc. The Regulation mentioned above determines the conditions for the introduction of competition in the local loop. An important issue in this Regulation is the obligation of the telecommunications operator with significant market power to provide access (full or shared) to other telecommunications operators, requesting it, under the same conditions as they or their affiliates provide such services.

The telecommunications operators with significant market power are obliged, after coordination with the national regulatory authority:

- to publish and update Reference offer for unbundling of the local loop;
- to provide local access at cost-oriented prices.

The Telecommunications Sector Policy sets the following goal with respect to local loop unbundling:

**In the short term** to include formulations in the Telecommunications Act for legal arrangement of the local loop unbundling.

**In the medium term** to develop an **Ordinance on local loop unbundling**.

**In the long-term** harmonisation of the access and interconnection of electronic communication networks should continue, taking into considerations the formulations, set forth in the corresponding draft-directive from the new regulatory framework of the EU.

The new regulatory framework of the EU deals with electronic communication networks and their interconnection for the provision of **electronic communication services**. The definition of electronic communication networks and services is to a large extent independent of the rapidly developing technologies in the sector.

The networks that are considered in the new regulatory framework comprise all communication networks providing publicly accessible communication services, such as fixed and mobile telecommunications networks, cable television networks, terrestrial broadcasting networks, satellite networks, Internet networks, irrespective of whether they are used for voice, fax, data or images. The measures undertaken in this draft-directive are meant to create a framework, promoting competing network infrastructures and interoperability of the services provided via those infrastructures, which is to the benefit of the users.

The rules for access and interconnection of the electronic communication networks, including the future broadband networks, will modify the business models of all companies, operating in the sector, and hence, will modify the competitive dynamics of the future market space. The next generation of communication services - fixed and mobile - will be increasingly provided on wideband platforms or via transmission networks for delivery of multimedia services.

The new broadband environment will be entirely different from the present voice-concentrated market, using narrow-band transmission technologies.

## **9.6. Telegraph and telex networks and services**

### **Telex networks and services**

In 1998 the ITU Plenipotentiary Conference conducted a study on the decreasing usage of international telex services in order to:

- determine the prospects for continuation of the usage of international telex services and adoption of a decision on their replacement with other alternative solutions, for example IP-networks or other data networks;
- study the feasibility of (temporary) interaction between telex networks and other networks, in particular IP-networks.

Based on the study, ITU adopted the following decisions and findings:

- the number of customers and the traffic level have diminished;
- telex-machines are used primarily in towns - in financial, governmental and business institutions;
- telex-machines have little or no access to other types of services and networks. Electronic mail is preferred over telex as an alternative service;
- telex services should not be withdrawn;
- more than 75 per cent of the countries with new market players use alternative services, for example electronic mail;
- the service should be supported at least for the next five years.

As a result, at the latest World Telecommunications Standardisation Assembly in 2000, the Study Group of ITU-T whose work was related to telegraph services was closed down and its activity was transferred to SG7 "Data networks and telecommunications in open networks".

At present, Europe continues to use the telex mainly in radio networks. Relevant standards are developed for that purpose.

### **Telegraph network and services**

There is no special study on the utilisation of telegraph services at an international level. In recent years, new standards are drafted related to telegraphy in the field of meteorological and navigational information exchange. Some of those standards are harmonised with Directive 99/5/EC implying that the telegraph and the telex will be used in the future.

Telegraph and telex services are provided solely by the main operator for business purposes. During the last five years the number of telegraph channels, telegraph equipment and telegraph density are continuously diminishing, but still the number of subscribers is relatively high. In the open international market telex services are used by principals of Bulgarian firms operating abroad.

Under conditions of full liberalisation of the telecommunications market for civil needs in Bulgaria, the telex and the telegraph should be used until the costs for their maintenance exceed the revenues from their operation. That means that with the growing digitalisation of the telecommunications network of BTC plc. and with the use of the electronic signature the use of the telex and telegraph network for public services in the next several years will subside. The technology, however, will continue to be used for special needs.

## **10. HARMONISATION OF TELECOMMUNICATION STANDARDS**

Presently, the field of telecommunications standardisation is regulated by the National Standardisation Act and the Technical Requirements to the Products Act. The National Standardisation Act introduced the voluntary application of standards and is a great step towards putting standardisation on public lines. The national programme for adoption of the acquis includes transposition of both European directives and standards harmonised with them.

Nowadays, standardisation is applied in all spheres of public life. It is a voluntary process, based on consensus between different economically and socially related subjects - manufacturers, users, public institutions, groups of common interests. The activity is carried out by independent bodies, working at national, European and international level.

The goals of standardisation may be summarised as follows:

- improvement of the quality of goods and services;
- improvement of the quality of life - healthcare, safety and environment;
- efficient use of resources;
- improvement of the conditions for trade.

The basic formulations for the development of standards are:

- to provide basis for assessment of the product, process or service, primarily in terms of safety;
- to propose clear technical criteria on legal issues and on contracts;
- to be globally recognised and used.

Telecommunications liberalisation and globalisation, technologies convergence, network migration to ATM and IP, and the endeavour to an ever greater mobility of telecommunications lead to strengthening of the role of standardisation as a technical normative basis for regulation and provision of services in a competitive environment. The introduction of standards for services, terminal and network equipment facilitates the commercial negotiations between the telecommunications operators and users of access and services.

The European standards in the legally non-regulated area (for example, the internal inter-block interfaces of the products) can be introduced as Bulgarian without translation (with a title page in Bulgarian) by confirmation for implementation as Bulgarian standards. The application of the European standards from the series BSS EN ISO 9000 and BSS EN 45 000, BSS EN ISO/IEC 17025 and their introduction by the State Standardisation and Metrology Agency as Bulgarian (with translation) will help make the Bulgarian certification system identical to the European ones. In the future, this would be a prerequisite for signing contracts with the European

Union for mutual recognition of the conformity assessment results of equipment and services in the field of telecommunications with the requirements set forth in harmonised standards.

**In the short term** it will be necessary to introduce as Bulgarian standards the standards, harmonised with Directive 99/5/EEC, related to the radio equipment and the terminal telecommunications equipment, as well as the relevant standards, related to the requirements for electrical safety and electromagnetic compatibility. All standards related to the television system PAL, as well as those related to the introduction of digital television and digital broadcasting, have to be introduced as Bulgarian standards. Similarly, in this period the European standards, bearing on the other telecommunications activities regulated by the Telecommunications Act and the secondary normative acts, adopted for its implementation, have to be transposed. The introduction of those standards has to be completed before the corresponding secondary normative acts come into force.

**In the medium term**, in view of the abolition of BTC plc. monopoly after 31 December 2002, and the possibility of other telecommunications operators appearing on the market, related to voice telephony, priority should be given to the transposition of the European standards, harmonised with the Directives on open network provision and related to the requirements for analogue and digital leased lines (Directive 92/44/EEC), public telephone networks (Directive 98/10/EEC), packet-switched data services (Recommendation 92/382/EEC), ISDN (Recommendation 92/383/EC), network interconnection (Directive 97/33/EEC).

**In the long term**, all ETSI standards and recommendations of ITU, bearing on the new telecommunications technologies and services have to be transposed consecutively.

## 11. PROTECTION OF THE USERS' INTERESTS

The Users Protection and Trading Rules Act regulates the protection of the users' interests in all sectors of the economy, including the telecommunications sector. This Act regulates the requirements in terms of:

- users' rights to information;
- inequitable clauses in the contracts with general conditions;
- right of claims;
- misleading and dishonourable advertising.

The relationship between users, telecommunications operators and regulatory bodies is necessary in order to improve and perfect quality.

The liberalisation of the telecommunications sector and the growing competition and choice of telecommunications services develop alongside the creation of a harmonised regulatory framework that guarantees the universal service provision.

The universal service provision obligations should be observed in the most efficient way, the service being provided to the users at affordable prices. The telecommunications operators of universal service should maintain the network integrity, as well as the continuity of the service and its quality. Quality and price are key factors on the competitive market. The national regulatory authorities should be in a position to control the quality of service, provided by the licensed telecommunications operators or by those to whom universal service provision obligations have been assigned.

The national regulatory authorities should stimulate an open and competitive market for electronic communication networks and the possibilities related to them, guaranteeing that the users will take full advantage of the quality/price ratio.

The development of telecommunications is characterised by orientation to market applicability and public perceptibility to the provided services. The introduction of new technologies makes possible new applications and stimulates the constantly growing needs of

new services. In order to survive under competitive conditions and to retain their customers, the telecommunications operators are expected to provide quality services and servicing at competitive prices.

Under conditions of a liberalised market, alongside the network development, the efforts should be also directed to the service users by fast response in the rapidly changing condition, active marketing policy and improvement of customer servicing in terms of:

- expansion of the list of provided services;
- provision of services in accordance with the specific needs of segments of the users' market - residential subscribers, small and medium enterprises, business and public users;
- pursuit of flexible tariff policy;
- compliance with European standards for quality of service;
- improvement of the quality of service in the relations with the customers;
- modernisation of operator-assisted services, harmonisation of short numbers for emergency call numbers (112), national telephone inquiries, etc.

The protection of the users' interests should be extended in a way corresponding to the new draft-directives of the European Commission.

## **12. PERSONAL DATA PROTECTION IN TELECOMMUNICATIONS**

The Personal Data Protection Act, passed in the Republic of Bulgaria, is a general law. The telecommunications sector needs a specific regulatory framework, related to the protection of the personal data of telecommunications networks subscribers, and also guaranteeing the right of privacy. The work with personal data in relation to the provision of services over public telecommunications networks should be regulated, especially in the case of digital networks, and where possible without high expenses, for analogue networks subscribers. In this way the national legislation will be harmonised with Directive 97/66/EC.

The following principles should be observed: data should be processed lawfully, the subscribers' rights should be respected, the data should be collected for specified purposes and used as intended, they should be adequate and not excessive with respect to the purposes for which they are collected, be accurate and up to date, be in a form allowing the identification of persons for not longer than necessary.

The specific regulatory framework should cover the following:

- obligations for undertaking relevant technical measures for ensuring security of the networks and services on the part of the telecommunications operators and for informing the users if security is at risk;
- guaranteeing the confidentiality of the messages and prohibition of unauthorised interception or other forms of unsanctioned surveillance by third parties;
- confinement of the scope of processing and time of storing traffic data and billing data, prohibition against using the traffic data for purposes other than billing and entitling the subscribers to receive general or itemised bills;
- giving the right to the user to present or restrict the identification of the calling line or connected line, for which he does not have to pay additional price, as well as access to such blocked information in extreme circumstances and for tracing malicious calls;
- guaranteeing the right of the mobile subscribers that the data regarding their location will be processed only with their consent, and possibility to refuse the processing of such data about a connection or message transmission by a simple means;

- giving the subscribers rights and means to reject and return calls forwarded to their line;
- giving the users the right to refuse to be included in publicly accessible printed or electronic directories or to omit part of their address, free of charge;
- giving the users the right to reject unsolicited communications for direct marketing purposes.

The enumerated rights and restrictions should not contradict the requirements for the national security and impede the legal measures for fighting crime, terrorism and keeping the public order.

### 13. PRICING POLICY

The pricing policy is an essential element of the telecommunications sector policy, especially when the market competition is limited. So far, the pricing policy was governed in accordance with the temporary restrictions, stemming from the state monopoly over the telecommunications activities, on one hand, and the achieved degree of liberalisation, on the other. In this sense the aim of the pricing policy is: **gradual achievement of balance between the interests of the main players on the developing market - service providers and users.**

This aim is achieved through regulation of the prices of the monopolistic telecommunications services by a suitable mechanism for control over the level of the prices and in the case of significant market power with respect to a given service in order to protect the users' interests.

The new trends in the pricing policy are determined by the practical implementation of the basic principles:

- equal treatment of users with respect to access to and use of the universal service;
- establishment of cost-oriented prices by gradual re-balancing;
- non-intervention in the market behaviour of the telecommunications operators under conditions of a liberalised market;
- sector development through investment in new technologies and services;
- development of a suitable regulatory framework and its practical implementation;
- drafting methodologies and practical models for determination and distribution of the costs by services;
- development of fair (from competition viewpoint) mechanisms for funding the universal service provision;
- drafting methodologies for determination of interconnection costs;
- offering a wide range of information services, making possible comparisons between the various tariffs, tracking of bills, in order to achieve transparency of the prices of the telecommunications services and help the users understand the tariff proposals of the telecommunications operators.

The application of concrete measures and mechanisms that will convincingly ensure fair and secure financial returns on investments is of extreme importance in the telecommunications sector, demanding substantial investments. The investments are provided mainly by the telecommunications operators in accordance with their commercial interests.

#### Price regulation

In order to reach a reasonable balance between the interests of the major participants on the market - the telecommunications operators, on one hand, and the users, on the other, regulation of prices and pricing of telecommunications services are introduced. It is effected by the use of a suitable control mechanism that:

- prevents abuse of significant market power;
- prevents unfair competition in the sector;
- protects the users' interests.

Price regulation and pricing of telecommunications services are carried out by the Communications Regulation Commission (CRC) and the Competition Protection Commission (CPC). Different degrees of regulation exist depending on the market position of the telecommunications operators.

### **Regulation of prices and pricing of telecommunications services, provided by operators that do not have monopolistic position on the market in the sense of the Competition Protection Act**

In connection with BTC plc. monopoly, a Methodology for regulation of the prices of the ordinary telephone service, provided through the fixed telephone network of BTC plc., and for the provision of leased lines under publicly known conditions, has been developed.

Price regulation is effected on the basis of a control mechanism built on the principle of the "price basket" for determination of the maximum annual increase in the prices, the increase being determined in accordance with the user price index and other factors.

The price change index within the user price baskets is determined in accordance with the user price index and the growth index of the gross domestic product for the relevant period.

The price correction factor is developed by the CRC and is approved by the minister of transport and communications, taking into account:

- the effect of the economic changes on the change of the annual operating costs of BTC plc. and the profitableness of the period;
- the differences between the price change index approved by the CRC after their latest change and the tolerable value determined by the conditions of the methodology.

The subscription fees of the main operator, the prices of the local calls and the prices of the international calls should be mutually dependent. This requires re-balancing of the prices that should be carried out by stages.

The lack of re-balanced tariffs before 2003 will bring about two major consequences:

- retention of high demand on the part of the users that could afford a telephone line at the existing prices, but could not do so at balanced tariffs;
- emergence of competitors that will propose considerably lower prices than those of the main operator for long-distance and international calls, making a large part of the subscribers to accept their services, simultaneously with the local calls via the main operator.

The line of tariff re-balancing should continue with:

- acceptable return-on-investment;
- compliance of the price changes with the economic situation in the country (inflation level and economic growth);
- preservation of price packages for users with reduced consumption.

A major problem that the CRC has to solve before 2003 is the determination of the way and mechanism for price control of the main telecommunications operator BTC plc. after the end of the monopoly. The solution of this problem is of high priority and it is related to the process of privatisation of the main telecommunications operator.

### **Prices of telecommunications services that are not regulated by the Communications Regulation Commission**

The prices of telecommunications services that are not regulated by the Communications Regulation Commission will be determined by the telecommunications operators in accordance of the internal market supply and demand. The prices are published by the operator in a central daily newspaper.

An important task of the CRC is to monitor the market shares of the market players and to apply price regulation when the CPC finds a dominant position.

**In the short term** the CRC is expected to start preparation for:

- development of a methodology for price regulation of operators with significant market power;
- development of a methodology for determination of the prices of the universal service and the specific values of the parameters.

**In the medium term** the CRC will have to monitor the mechanism for price control of the main telecommunications operator BTC plc. after the end of the monopoly.

## **14. PROVISION OF TELECOMMUNICATIONS FOR THE NEEDS OF THE NATIONAL SECURITY, DEFENCE OF THE COUNTRY AND IN EMERGENCY SITUATIONS**

Telecommunications attend to a number of vital activities of society, including some functions related to the installation and maintenance of reliable national systems for prevention and management of crises.

The system for crisis management in the state is in the focus of the system for national security.

Crisis management is a part of the state governance and is impossible without a reliable system for early warning.

The high quality of the timely reception and transmission of information is a consequence of the quality of the telecommunications networks.

The state and development of the telecommunications networks should comply with the requirements for stable functioning, creating conditions for interconnection of the professional networks of the central and territorial administration with the public telecommunications networks in the country.

The requirements with respect to the telecommunications operators' obligations in conditions of emergencies, disasters and accidents are formulated in the Telecommunications Act and in the licences issued to the telecommunications operators and comply with the requirements of the EU.

The provision of telecommunications services during peace-time to the state bodies and institutions, that are in charge of the national defence and security, is carried out under contracts with relevant telecommunications operators and in accordance with the act of the Council of Ministers on the requirements, related to the national defence and security.

The Minister of Transport and Communications, in co-ordination with the defence minister and the Head of the General Staff of the Bulgarian army, determines the terms and procedures for the use of the telecommunications networks in emergencies, disasters and

accidents, and the legal arrangement of the management of telecommunications for the national security and the public order in peace-time has to be improved.

Planning and organisation of the use of the telecommunications infrastructure during emergencies is carried out jointly by the minister of transport and communications, the defence minister, the minister of the interior and the Head of the General Staff of the Bulgarian army, as well as by central and territorial bodies of the executive power and includes the following formulations:

- building of departmental situation centres in the Ministry of Transport and Communications, Ministry of the Interior and Ministry of Defence, that are part of the National system for action in crisis situations. They will be connected to the similar centres from the other departments and regions via the optical cable of the State administration and the existing telecommunications network of Economic Enterprise “Telecommunications sites”;
- creation of the necessary conditions for timely transmission of large volumes of information by further digitalisation of the network of Economic Enterprise “Telecommunications sites”;
- acceleration of the establishment of regional situation centres in the towns of Plovdiv, Stara Zagora, Bourgas, Varna, Gorna Oryachovitsa, Rousse and Pleven. By means of these centres the system will be in a position of permanent preparedness for early warning and for supplying daily information for reaching the necessary preparedness and potential of material and non-material resources and their efficient use for putting under control crisis situations;
- acceleration of further introduction of satellite communications that will make the network fully autonomous;
- acceleration of the improvement of the encryption components of the management systems;
- acceleration of the introduction of a single software package for all departmental situation centres.

The **continuous monitoring of the efficient operation of the network** by the specialised bodies of the Ministry of Transport and Communications should be improved.

## **15. STATE PROPERTY MANAGEMENT AND PRIVATISATION OF BTC PLC.**

The Minister of Transport and Communications is entitled with the right to own and manage public and private state property, as well as to exercise the rights of one-man owner of capital in one-man trading companies, related to the telecommunications sector.

The pursuit of the strategic goal of separation of the state from the management of the trading companies resulted in an intense process of:

- improvement of the market behaviour of BTC plc. in view of the process of its privatisation;
- promotion of the development of a competitive telecommunications market;
- privatisation in the telecommunications sector retaining a certain minimum share;
- attracting investors with traditions and good reputation in the sector.

A legal framework is needed for:

- promotion of efficient competition;
- creation of mechanisms for restriction of arbitrary intervention in the regulation process;

- ensuring conditions for the creation of transparent mechanisms for pricing of telecommunications services;
- establishment of rules for the provision of open and non-discriminating access to the infrastructure;
- development of transparent and clear mechanisms for funding of the universal service.

This process is also bound with the accomplishment of constant **post-privatisation control** over the new owners' obligations in accordance with the privatisation contracts.

#### **Privatisation of BTC plc.**

A privatisation strategy of BTC plc., corresponding to the new environment in telecommunications, both at a national and global level, was approved by the National Assembly. Presently, a procedure is under way for the selection of a strategic buyer of BTC plc. by a contest.

### **16. HUMAN RESOURCES DEVELOPMENT**

In conditions of building the information society and laying the foundations of *e-culture*, human resources in telecommunications play a key role for achieving the goals of the sector policy.

The rapid changes in the telecommunications and education sector necessitate a new vision and special attention when planning the creation and maintenance of a sufficient contingent of well-trained and versatile specialists. For this purpose, close interaction is necessary between the telecommunications market players, on one hand, and the educational institutions teaching specialists in the field of telecommunications, on the other hand. This imposes commitment and synchronisation of the goals and tasks, set in the Telecommunications Sector Policy and the "Programme for realisation of the national education strategy in information and communication technologies".

The efforts should be directed to:

- continuous updating of the syllabi in accordance with the development of the technologies and *e-culture*;
- maintenance of a highly efficient and high-quality training process with the aim of acquiring versatile technical and marketing knowledge;
- improvement of the linguistic training;
- training in management and communications in a corporate environment;
- improvement of the quality of the acquired knowledge in computer technologies and telecommunications;
- development and offering of multimedia products for e-learning, encouraging self-preparation and cutting the costs of education of human resources;
- further development of the information society.

For those working in the telecommunications sector, the following requirements become very important:

- ongoing and continuous training in the telecommunications field;
- training of civil servants from the administration structures, involved in telecommunications policy and regulation, in the Institute of public administration and European integration and other educational organisations in accordance with the "Strategy of education of employees from the state administration" that is in the process of development;

- training of leading specialists for implementation and development of e-culture in the state bodies and the telecommunications operators;
- enlist in qualification courses, seminars, offered by ITU and other outstanding international and Bulgarian organisations;
- taking advantage of the opportunities offered by the Virtual Institute of Education (VTI) of the ITU;
- development of a project for a Regional centre of excellence and seeking funding for its building.

The dynamic development and the prospects for ownership restructuring in the sector also influence the employment structure. In this connection, the work on development of a Concept of alternative employment in telecommunications and a Handbook of jobs for aiding telecommunications employees subject to dismissal will continue. The first steps in this field have already been made by funding scientific and applied developments on such topics at the initiative of the Ministry of Transport and Communications.

A positive trend is the entry of foreign investments in the sector that create prerequisites for opening new jobs. This will make possible efficient and socially justified redirecting of the work force, caused by restructuring of the sector.

Extreme attention should be paid to **young specialists' motivation** when starting work in the telecommunications sector in view of their full integration and realisation in the sector.

## 17. SCIENTIFIC AND APPLIED SERVICING

The activities related to the scientific and applied servicing of the telecommunications sector acquires an increasingly greater importance, especially in connection with the ongoing reform in the sector.

The scientific and research activity with applied character should be performed primarily by the manufacturers of telecommunications equipment and by the operators of telecommunications networks and services which are predominantly private, with the state taking care of creating the necessary prerequisites for that.

The ICT Development Agency, founded to the minister of transport and communications, will finance telecommunications projects and **scientific investigations of national importance**, while respecting the principles of competitiveness, transparency and equality.

In order to consolidate the link between economy and science, the Ministry of Transport and Communications drafts annual programmes for research and development activity of applied character, which reflect the goals set before the national economy and the goals of the state policy in the field of telecommunications.

The elaboration of the specific topics and problems, included in these programmes, is carried out by various contractors, adhering to the requirements of the Public Procurement Act. These are:

- institutes, such as: Scientific and Research Institute on Communications, Centre of Information Technologies in Communications, Centre of Telematic Services, etc.;
- institutions of higher education;
- Bulgarian Academy of Sciences;
- mixed programme teams;
- companies, foundations and others, associated with specific topics;
- foreign companies, offering consulting activities.

Within the restructuring of the sector, for the needs of the state policy and the national economy, it is reasonable to consider the **establishment of a structure**, together with the possibilities of its funding by the state, that would perform scientific and applied servicing of the telecommunications sector, assist the specialised administration of the Ministry of Transport and Communications in formulating and developing specific issues of the sector policy, and draft the programmes for research and development with applied character.

## **18. INVESTMENT POLICY**

The growing liberalisation, competition and dynamically developing technologies on the telecommunications market demand adequate investment policy leading to the realisation of the strategic goal of the telecommunications sector. The rate and direction of this policy create possibilities and certainty in the capacity of the public and professional telecommunications operators to manage technologies and perform changes.

In accordance with the commitments taken in the negotiations with the EU, the degree of digitalisation of the telecommunications network should increase during the coming years. The investment plan of BTC plc. includes projects for extension of the digital switching on the basis of EWSD and AXE exchanges. In order to implement these projects, funding is provided for extension of the local access networks and integration with the analogue network. Until the monopoly period of BTC plc. expires, the digital transmission network at a national and transit level, as well as the networks of the big towns, will be completed, in order to provide infrastructure capacity. Investments in wideband systems are planned, the projects including integrated platforms both for narrow-band and broadband services on the basis of xDSL technologies over the existing symmetric cables, as well over optical cables where the relevant infrastructure is not available. The great users' interest in digital leased lines 64 kbit/s, 128 kbit/s up to 2 Mb/s and Frame Relay is taken into account and efforts are made to extend the network for leased digital channels.

Investments are also planned for the field of information technologies implemented by BTC plc., reflecting the new approach in network design - convergence of technologies and services. This approach is also expressed in the development and implementation of the New Generation Network (NGN) architecture as a real alternative to the traditional telephone services.

The state is making efforts to create conditions for investment in the new technologies and new kinds of services.

**In the short term** the barriers for investment should be analysed from the viewpoint of the legal and regulatory framework of the sector, and a plan for their phased elimination should be prepared. The state will continue to invest both in the development of the main telecommunications operator, reinvesting part of its dividends and possible earnings from selling stocks, and in the development of the telecommunications networks of the state governance, defence and security.

## **19. EUROPEAN AND EURO-ATLANTIC INTEGRATION AND INTERNATIONAL COOPERATION**

### **19.1. European and Euro-Atlantic integration**

Bulgaria's accession to the European Union (EU) is one of the consensus objectives of the society. In order to contribute to the achievement of this objective, the sector policy seeks balance between the EU requirements to the legal and regulatory framework in the field of telecommunications, on one hand, and the potential of the administration and the sector for its realisation, on the other hand, at the present moment and in the future.

A substantial success for the development of the telecommunications sector is the close-down (according the negotiation procedures, temporarily) of Chapter 19 “**Telecommunications and Information Technologies**”, resulting from the conducted negotiations and the serious commitments undertaken for the telecommunications market development and the harmonisation of Bulgarian legislation with the European legislation (Appendix 2).

**Extreme attention should be paid to the process of implementation of the commitments** resulting from the negotiations.

After it took the political decision to join NATO, the Republic of Bulgaria should continue to undertake measures for improvement of its communication infrastructure, so that operability becomes possible in the field of telecommunications with NATO nations.

## **19.2. International co-operation**

In the field of telecommunications the Republic of Bulgaria is a member of the International Telecommunication Union (ITU), of the European Conference of Posts and Telecommunications (CEPT) and of NATO Civil Communication Planning Committee in PfP/EAPC (Partnership for Peace/Euro-Atlantic Partnership Council) format. Bulgarian institutions are members of the European Telecommunications Standardisation Institute (ETSI). The membership in these organisations and the active participation in their work is Bulgaria’s contribution to the creation of pan-European standards.

Bulgaria is a member of the ITU Council (mandate till 2002), the governing body of the Union. Bulgarian experts give their professional contribution in the working and study teams, developing document on the shaping and realisation of ITU policy in the field of standardisation, communication development, taking into consideration the national interests.

The participation and the work in the working bodies of CEPT, on one hand, enable Bulgarian experts to contribute to the creation of common European norms and recommendations, and on the other hand, make possible the harmonisation of the national policy and regulation in the field of telecommunications with the requirements of European legislation.

The active participation of the country in the inter-governmental satellite organisations EUTELSAT, INTERSPUTNIK and INTELSAT, and in the international organisations, such as INMARSAT, extends Bulgaria’s possibilities to influence their activity and receive dividends as a shareholder in the newly-created companies, as well as to use the provided satellite services.

**In the short term** the participation of representatives of the Republic of Bulgaria in the study groups of ITU should be intensified, especially regarding issues on tariff regulation and payments between the telecommunications operators, development, allocation and management of scarce resources - frequency and numbering, the organisation of the World Summit on Information Society in 2003 and 2005 under the auspices of the Secretary General of the United Nations. At the same time, in view of the restructuring of CEPT and ITU, associated with the dynamic entry of information technologies, building of the global information society, the social political and economic effects associated with them, intensification of the international co-operation and partnership, as well as exchange of experience with the European administrations in the field of policy and regulation of telecommunications becomes vital. This dictates the necessity of continuous harmonisation of the national policy with the European policy. Bulgarian representatives should take part in the preparation and the work of the World Radiocommunication Conference in 2003, where major issues related the radio frequency spectrum allocation will be considered.

**In the medium and long term**, participation of representatives of the country should be extended in various forums related to topical issues and to the development of new technologies for mobile telecommunications - 3G mobile communications, digital television and digital radio.

The issues on the development of telecommunications should occupy an important place in the **relations with the Balkan states**. The bilateral agreements should include formulations on the basis of pan-European agreements for co-ordination of documents of common interests, such as:

- methodologies for measurement of trans-border contamination;
- procedures for co-ordination of the parameters of stations from the broadcasting, fixed, fixed satellite and mobile service;
- procedures for co-ordination of the national frequency allocation plans for efficient usage of the radio frequency spectrum by the different radio services.

The successful implementation of the Telecommunications Sector Policy will contribute to the improvement of the quality of life of the Bulgaria society/

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## List of used abbreviations

|                 |  |
|-----------------|--|
| <b>ADSL</b>     | Asymmetric Digital Subscribers Line  |
| <b>AXE</b>      | Type of telephone exchanges manufactured by Ericsson.  |
| <b>BVSAT</b>    | Broadband VSAT   |
| <b>CEPT</b>     | Conference Europeenne des Postes et Telecommunications   |
| <b>DAB</b>      | Digital Audio Broadcasting   |
| <b>DAB-T</b>    | Digital Audio Broadcasting Terrestrial   |
| <b>D-SAT</b>    | DAMA Satellite Services  |
| <b>DAMA</b>     | Demand Assignment Multiple Access  |
| <b>DAMA-STS</b> | DAMA Suitcase Terminal Service   |
| <b>DECT</b>     | Digital European Cordless Telecommunications   |
| <b>DNS</b>      | Domain Name System   |
| <b>DRM</b>      | Digital Radio Mondial  |
| <b>DSL</b>      | Digital Subscribers Line   |
| <b>DTH</b>      | Direct-To-Home   |
| <b>DVB-C</b>    | Digital Video Broadcasting – Cable   |
| <b>DVB-S</b>    | Digital Video Broadcasting – Satellite   |
| <b>DVB-T</b>    | Digital Video Broadcasting– Terrestrial  |
| <b>DVP/IP</b>   | Digital Video Package/IP   |
| <b>EC</b>       | European Commission  |
| <b>ECC</b>      | Electronic Communications Committee  |
| <b>EDGE</b>     | Enhanced Data GSM Environment  |
| <b>EDP</b>      | A kind of a satellite service  |
| <b>EN</b>       | European Norm  |
| <b>ENUM</b>     | Acronym of the protocol integrating the international numbering system under Recommendation E.164 of ITU-T with a recommendation of DNS. |
| <b>ERMES</b>    | European Radio Message System  |
| <b>ERC</b>      | European Radiocommunication Committee  |
| <b>ETNS</b>     | European Telephony Numbering Space   |
| <b>ETS</b>      | European Telecommunications Standard   |
| <b>ETSI</b>     | European Telecommunication Standardisation Institute   |
| <b>EWSD</b>     | Type of telephone exchanges manufactured by Siemens  |
| <b>GPRS</b>     | General Packet Radio System  |
| <b>GSM</b>      | Global System Mobile   |
| <b>HDSL</b>     | High Speed Digital Subscribers Line  |
| <b>HSCSD</b>    | High-Speed Circuit-Switched Data   |
| <b>IBS</b>      | Intelsat Business Services   |
| <b>ICANN</b>    | Internet Corporation for Assigned Names and Numbers  |
| <b>IDR</b>      | Intermediate Data Rate   |
| <b>IEC</b>      | International Electrotechnical Commission  |
| <b>IETF</b>     | Internet Engineering Task Force  |
| <b>IP</b>       | Internet Protocol  |
| <b>ISO</b>      | International Standardisation Organisation   |
| <b>ITU</b>      | International Telecommunication Union  |

|                  |   |
|------------------|---|
| <b>ITU-R</b>     | International Telecommunication Union<br>Radiocommunications Sector               |
| <b>ITU-T</b>     | International Telecommunication Union<br>Telecommunication Standardisation Sector |
| <b>LAN</b>       | Local Area Network  |
| <b>LLU</b>       | Local Loop Unbundling   |
| <b>MPEG-2</b>    | Motion Picture Expert Group 2   |
| <b>NMT</b>       | Nordic Mobile Telephone   |
| <b>OPEN-SKY</b>  | EUTELSAT's wideband platform for satellite multimedia applications                |
| <b>PAL</b>       | TV colour system  |
| <b>PMP</b>       | Point to Multipoint   |
| <b>POCSAG</b>    | Post Office Code Advisory Group   |
| <b>RDS</b>       | Radio Data System   |
| <b>RIO</b>       | Reference Interconnection Offer   |
| <b>SCPC/DAMA</b> | Single Channel per Carrier/Demand Assignment Multiple Access                      |
| <b>SDSL</b>      | Symmetric Digital Subscriber Lines  |
| <b>SG</b>        | Study Group   |
| <b>SMP</b>       | Significant Market Power  |
| <b>SMS</b>       | Short Message Service   |
| <b>SSB</b>       | Single Side Band  |
| <b>TDMA</b>      | Time Division Multiple Access   |
| <b>TETRA</b>     | Trans European Trunked Radio  |
| <b>TFTS</b>      | Terrestrial Flight Telecommunications System                                      |
| <b>TRTS</b>      | Terrestrial Road Telecommunications System  |
| <b>UMTS</b>      | Universal Mobile Telecommunications System  |
| <b>US</b>        | Universal Service   |
| <b>VDSL</b>      | Very High Speed Digital Subscriber Lines  |
| <b>VHF</b>       | Very High Frequency   |
| <b>VSAT</b>      | Very Small Aperture Terminal  |
| <b>VSAT-IBS</b>  | Very Small Aperture Terminal-Intelsat Business Services                           |
| <b>VTI</b>       | Virtual Training Institute  |
| <b>WLL</b>       | Wireless Local Loop   |
| <b>WRC</b>       | World radio communication conference  |

**Commitments taken by the Republic of Bulgaria, according the negotiation positions under Chapter 19 “Telecommunications and Information Technologies”**

| <b>Action</b>   | <b>Term</b> |
|---|-------------|
| <p>Amendment of the Telecommunications Act in order to achieve full compliance with the EU legislation by 2000 in the following directions:</p> <ul style="list-style-type: none"> <li>• Full liberalisation of the telecommunications market as of 1 January 2003;</li> <li>• Efficient licensing procedures - reduction of terms, ensuring information and holding consultations with the parties concerned;</li> <li>• Definition of operators with significant market power and their basic rights and obligations - introduction of separate accounting, requirement for accounting systems for determination of the costs for the separates services, cost orientation of prices of services, including provision of leased lines;</li> <li>• Interconnection, principles, adoption of an ordinance, regulating the issues of separate accounting, cost orientation of prices, requirements to the Reference Interconnection Offer;</li> <li>• Liberalisation of the local loop - local loop unbundling, Reference Offer for local access;</li> <li>• Universal service - scope, provision obligations, principles and conditions for net costs compensation;</li> <li>• Users’ rights protection and procedures for dealing with complaints of subscribers and users;</li> <li>• Principles of co-location;</li> <li>• Principles of cost-orientation of licence fees;</li> <li>• Introduction of requirements for the provision of possibilities for selection of a long-distance operator (on the basis of each call and on subscription);</li> <li>• Preparation for the introduction of number portability;</li> <li>• Regulation of issues related to rights of way.</li> </ul> | End of 2002 |
|   |             |
| <b>Implementation of:</b>   | <b>2003</b> |
| Full liberalisation of the telecommunications market.   | 01.01.2003  |
| Requirement to network operators, intending to enter the market of cable television networks and services, to be registered as independent legal entities.  | 01.01.2003  |
| Obligations of operators with significant market power:   |             |
| <ul style="list-style-type: none"> <li>• Publication of a Reference Interconnection Offer;</li> </ul>   | 01.07.2003  |
| <ul style="list-style-type: none"> <li>• Application of relevant prices for interconnection;</li> </ul>   | 01.07.2003  |

|   |             |
|---|-------------|
| • Provision of selection of long-distance and international operator;   | 31.12.2003  |
| • Operators providing only networks with basic transmission or voice services shall adhere to the principles of cost-orientation of the prices of those services and shall publish data proving the cost-orientation reached; | 31.12.2003  |
| • Implementation of separate accounting for interconnection services (for internal needs and for third parties) from the other telecommunications activities;   | 31.12.2003  |
| • Publication of a review on the conformity with the principles of cost-orientation and on proving the applicability of separate accounting for services provided by operators with significant market power;                 | 31.12.2003  |
| • Implementation of requirements with respect to leased lines – provision of a minimum set, separate accounting, cost-orientation of prices.  | 31.12.2003  |
| Continuation of the deregulation process and the transition to cost-oriented licence fees.  | 31.12.2003  |
|   |             |
| <b>Implementation of:</b>   | <b>2004</b> |
| Requirements for data protection and privacy in telecommunications (including legal arrangement).   | 01.01.2004  |
| Cost-oriented prices for the relevant services, provided under conditions of significant market power.  | 01.01.2004  |
| Cost-oriented licence fees.   | 01.01.2004  |
|   |             |
| <b>Implementation of:</b>   | <b>2005</b> |
| Actual provision of local access by operators with significant market power.  | 01.01.2005  |
| Provision of selection of long-distance and international telecommunications operator by BTC plc., also with a possibility on subscription basis.   | 01.01.2005  |
| Legal arrangement of dispute settlement by the National regulatory authority in telecommunications.   | 31.12.2005  |
| Elimination of the share of the Ministry of transport and communications in the ownership of BTC plc. (if there remained such share, it should be transferred).   | 31.12.2005  |
|   |             |
| Provision of number portability by the operators of significant market power and other operators of fixed voice services over the fixed networks.   | 01.01.2009  |

I, the undersigned Ceca Boteva Mihaylova, National Identity Code: 5108296273, herewith, certify the fidelity of the translation from Bulgarian into English of the enclosed document, **Telecommunications sector policy** May, 2002. The translation consist of 49 pages.

Translator: