

Comments on the legislative bill

I. General

This legislative bill was introduced at the last session of Parliament but was not discussed in full.

The Government's primary objective in electronic communications and information affairs is that Iceland be at the vanguard of technologically equipped nations, with inexpensive, accessible, high-quality electronic communications services. In order to achieve this objective, it is necessary to promote genuine competition and to guarantee that the average citizen has access to certain minimum services on fair terms. This objective is a guiding principle in selecting methods for the allocation of frequencies for electronic communications services. In allocating limited frequency ranges, it is important to steer access to the frequency spectrum according to impartial criteria.

In order to achieve this objective, it is recommended in this legislative bill that frequencies be allocated following a tender wherein tenderers have the option of submitting proposals, including proposals relating to distribution of mobile phone network and services, speed of network development, and reception strength of transmissions. Because the frequency spectrum is a limited resource, it is important to use impartial criteria to evaluate applications. It is also important that the conditions that must be fulfilled be decided in advance and stated clearly in the tender description.

Various other rationale lent support to the selection of the tender offer method, including the following:

- There is extensive experience with this method in Iceland.
- Predetermination of conditions and methods for evaluating tenders guarantees impartiality in the selection of tenderers.
- It is not necessary for a successful tender that the number of tenderers exceed the number of frequencies allocated.
- The authorisation of roaming agreements increases efficiency and provides a means for avoiding unprofitable investments despite significant distribution.

II. Third-generation mobile telephones

In recent years, the number of mobile phone users has increased dramatically the world over. At present, there are two mobile phone systems in operation, which provide voice call services and, to some extent, low-speed services. These are the analogue systems (NMT), on the one hand, and the digital systems (GSM 900 and DCS 1800), on the other.

Analogue systems are defined as first-generation systems, while digital systems are defined as second-generation systems.

GSM mobile systems can be found in 195 countries, with 500 mobile networks that serve nearly 1.200 billion persons. This is a tenfold increase since the year 1997. Roughly a half-million new users are added every single day, and forecasts indicate that this figure will have risen to two billion by 2007 – 2010. On a global level, the promulgation of mobile phones is greatest in Northern Europe. In Iceland there are currently over 260,000 mobile phones, which is among the highest in the world per capita. The greatest increase in mobile phone use in recent years has taken place in Southeast Asia. Increased use in that region accounts for some 50% of total increases in mobile phone use.

At present, the number of mobile phone subscribers the world over exceeds the number of fixed-line subscribers. Among other reasons, this is because, in many developing countries, the mobile phone has become a quicker and cheaper solution than the laying of copper cables or fibre optic cables. Millions have access to electronic communications services by this means alone. Furthermore, telephone companies in Europe have begun encouraging users to move their voice call business from fixed-line systems to mobile systems in order to increase the transmission capacity of the local loops for high-speed connection (xDSL). This development also seems to be occurring in corporate operations, where mobile phone companies have begun offering fixed-line phone companies significant competition in the form of total solutions using mobile phones.

New times are ahead in electronic communications and information technology. Users demand diverse and inexpensive services that can be provided irrespective of time and space: high-speed wireless service.

With the new generation of mobile phones, the third generation (3G), increased emphasis is placed on data transmission, and new options are opening up for communications with high bit rates. Third-generation mobile phones are not bound to any specific technology; however, the European Union and its Member States have decided to use the Universal Mobile Telecommunications System (UMTS).

In order to be considered to belong to UMTS, a mobile phone system must be able to provide a variety of services. In addition to conventional base services such as high-quality voice calling, fax transmission, videophone, and data transmission at high speeds, UMTS must have multimedia capability and be able to handle service in various environments over and above second-generation systems such as GSM, no matter whether the service is provided via high-speed or low-speed equipment. It must provide effective access to the Internet, local networks, and other IP-standard services and must be able to handle service in various UMTS environments.

User equipment for 3G mobile phones is already on the market. It is more advanced than the current GSM equipment, with emphasis on a large screen because of increased data transmission. As was the case for GSM phones, European standards will provide the foundation for the manufacture of 3G mobile phones; therefore, they will be used in all

countries that build up UMTS mobile phone systems. In addition, it can be expected that mobile phones will be manufactured that can be used in all IMT-2000 mobile systems.

The following table shows the differences in 1G, 2G, 2.5G, and 3G mobile phones:

Generation	Characteristics
1	NMT long-range mobile system, roughly 10 Kb/s analogue.
2	GSM, DCS 1800, 9.6 Kb/s digital.
2.5	GPRS, EDGE in GSM systems, 12-384 Kb/s digital.
3	IMT-2000, UMTS 64 Kb/s-2Mb/s digital.

In Europe, third-generation systems will, in general, be set up in connection with second-generation systems. If a 3G rights holder does not own a 2G system, it is desirable that he have a roaming agreement with a company in the area where he intends to operate. The interplay of the third generation with existing mobile systems is important because moving traffic that does not need much bandwidth over to the existing system will lighten the load on the 3G system, thereby increasing its capacity to accommodate traffic requiring significant bandwidth. Third-generation systems will be set up primarily in densely populated areas where a great deal of data transmission and simultaneous use can be expected. There is a need for roaming agreements in areas not reached by UMTS so that the equipment can be utilised as a GSM phone in locations where other services are not available. In this context, however, it is appropriate to mention that the International Telecommunication Union approved a new standard for high-quality voice communications on 31 January 2002. The new standard, Recommendation G.722.2, will significantly increase the integration of electronic communications equipment, including GSM, ISDN, voice call services via fixed network, and data transmission on IP traffic management systems. The standard will therefore move all communications nearer the technology on which the Internet is based.

It is expected that the price of equipment for 3G systems will drop rapidly in the next few years, or as soon as it is widely manufactured.

32 nations have already allocated approximately 120 third-generation licences. In Asia the promulgation of 3G mobile phones seems to be much more rapid than in Europe. Japanese mobile phone companies began operations around mid-year 2001 but experienced some difficulties at the outset. Recently, however, the region has seen dramatic increases in the number of users, who now number over 19 million. Development has also been rapid in South Korea, where there are now more than 6 million users. This increase can be traced, among other things, to drops in prices of user equipment and to greater diversity of services, which has met with the approval of consumers.

III. The situation in the EEA Member States

In June 2002, the European Commission issued a status report on third-generation mobile phones in the EU Member States. In the report, it is revealed that the Commission has great hopes for third-generation mobile phones with respect to the development of an information society and the creation of new employment opportunities. Despite the uncertainty now reigning in the 3G market, it is hoped that the coming of new technology will create the foundation for wireless broadband connections that provide users with a wide variety of wireless services. Frequencies have been allocated in all 15 Member States of the EU.

The requirements for frequency allocation vary, as the table in Appendix I indicates, and various methods have been employed: auction, tender, or a third method. The number of frequency allocations in Member States is four to six, and frequency fees range from ISK 0 – ISK 53,000 per capita. The total amount that has been paid for frequencies in these 15 countries is just over ISK 10.000 trillion, and similar expenses can be expected for investments. In order to finance these expenditures, electronic communications undertakings have looked to the investment market, which has compromised their credit rating. The period of validity for frequency allocations, the requirements for distribution, and the authority for roaming agreements all vary from one country to another.

The success of the third generation is therefore dependent on how the market itself responds. The system has seen very little use, and little is known about potential services. Time will tell. The implementation of UMTS systems in Europe has proceeded much more slowly than planned. Finland, Sweden, and the UK are farthest along, but the service is still limited and is based primarily on MMS; however, the possibilities are growing rapidly.

IV. Regulatory environment

1. The Electronic Communications Act.

The new Electronic Communications Act, no. 81/2003, entered into force on 25 July 2003. The Act stipulates general rules pertaining to the allocation of frequency rights to electronic communications undertakings, including frequency rights for mobile phone services. These rules also apply, as appropriate, to frequency allocations for third-generation mobile phones. Nevertheless, there is a need for special legislation concerning the allocation of these frequency rights, for the purpose of further defining various items and guaranteeing the authority to impose appropriate obligations on rights holders, including those regarding the distribution of services and the assessment of a special fee for usage rights. It is also considered appropriate to guarantee, even more than is done in

the Electronic Communications Act, that the selection of rights holders will be based as little as possible on subjective decisions made by the authorities.

Section III of the Electronic Communications Act discusses the authorisation to engage in electronic communications activities. The provisions in this section are based on the Directive of the European Parliament and of the Council, no. 2002/20/EC, of 7 March 2002, on the authorisation of electronic communications networks and services (the Authorisation Directive). This new directive abolished in its entirety the rule stating that electronic communications undertakings must apply for an operating licence. From now on, a simple registration is all that is required for a company to be permitted to offer electronic communications services. Electronic communications undertakings must conduct their operations in a manner consistent with the general conditions set by the Post and Telecom Administration. If electronic communications undertakings require frequencies or numbers, they apply to the Post and Telecom Administration for such rights, as is provided for in Section IV of the Electronic Communications Act. The Administration allocates frequencies and sets specific conditions governing their use in each individual instance. The conditions that may be set are listed in Article 10 of the Act. According to the Authorisation Directive, it is only permissible to limit the number of frequency rights for each type of service or electronic communications network to the extent necessary to guarantee efficient utilisation. In a decision to limit the number of rights holders, emphasis must be placed on user interests and the stimulation of effective competition. The frequency range that has been intended for use for third-generation mobile phones is limited; therefore, it is permissible, and actually necessary, to limit the number of rights holders.

Based on the provisions in the Electronic Communications Act, the Post and Telecom Administration has conducted tenders for the allocation of frequencies for the operation of TETRA, DCS 1800, GSM 900 electronic communications systems, and microwave user systems (fixed wireless access, or FWA). Applications have been solicited by advertisement, and the criteria that determine the choice from among tenderers — such as proposed distribution of services, speed of development, quality, experience in electronic communications operations, and others — have been published in advance. As regards 3G mobile phones, it is considered necessary to set special rules governing the tender process. In order to guarantee general public access to this important service, it is necessary to set certain requirements for minimum distribution and to stipulate terms that encourage companies to serve as much of the country as possible in excess of the set minimum.

Article 6 of this legislative bill states that the provisions of the Electronic Communications Act shall apply to third-generation mobile phones, as appropriate. Therefore, the provisions of the Act that pertain to revocation and re-allocation of frequencies are applicable, as are those pertaining to non-compliance; furthermore, the provisions governing access to networks and services, interconnection, and access to infrastructure controlled by electronic communications undertakings apply as well. The provisions of the Electronic Communications Act will therefore apply to the operations of third-generation mobile phone companies, as well as to other mobile network operators.

The companies will be subject to monitoring pursuant to the Act on the Post and Telecom Administration.

The granting of previous licences has tested the provisions concerning revocation and re-allocation of frequency licences. When the third licence holder for GSM 900 services received a licence, the two previous licence holders were required to return a portion of the frequency for which it was considered that they did not have sufficient use. It is conceivable that, during the last stages of the build-up of third-generation mobile networks and services, there will be further testing of these provisions. It is also quite likely that, due to the properties of wireless communications on such a high frequency band, network build-up will have to be very dense. Because of this, it is likely that there will be increased challenges relating to collaboration among rights holders for the build-up of networks, as well as increased testing of the rules stipulated in the Electronic Communications Act concerning access to electronic communications undertakings' networks and infrastructure.

2. The EEA Agreement.

When the time comes to allocate frequencies for the operation of 3G mobile phones, it will be necessary to consider not only the provisions of the Electronic Communications Act but also Iceland's obligations under the EEA Agreement. The regulatory instruments that are most important in this context are, first, the previously mentioned Authorisation Directive, no. 2002/20/EC, and second, Decision no. 128/1999/EC of the European Parliament and of the Council, on the coordinated introduction of a third-generation mobile and wireless communications system (UMTS) in the Community.

The Decision of the European Parliament and of the Council on the coordinated introduction of third-generation mobile systems (the UMTS Decision) became a part of EEA law by means of a decision of the EEA Joint Committee, no. 119/1999, of 24 September 1999. The decision was intended to facilitate rapid, integrated introduction of UMTS mobile networks and services within the European Community on business premises in line with the "four freedoms" principle of the EEA. Member States were to make arrangements to guarantee a coordinated and progressive supply of UMTS services in their territory no later than 1 January 2002. Rules concerning the allocation methods for each State were to be ready no later than 1 January 2000. Actually, many Member States have exceeded the deadlines for implementation of allocation rules, as the necessary equipment was not ready prior to 1 January 2002, when it was planned that the service would be launched. As is stated above, the Icelandic Government was obligated under the EEA Agreement to implement rules concerning the allocation of rights for third-generation mobile phones, as it is important that the regulatory environment be finalised by the time the market calls for allocation.

The UMTS Decision stipulated that frequencies for third-generation mobile phones should be allocated in accordance with the decisions of the European Conference of Postal and Telecommunications Administrations (CEPT), and that standards from the

European Telecommunications Standards Institute (ETSI) should be used. The Decision instructed that States should encourage licence holders to negotiate roaming agreements with licence holders in other Member States in order to facilitate uninterrupted service in the economic area, in addition to authorising them to adopt special measures in order to guarantee the distribution of services in sparsely populated areas. The Decision was temporary and expired at the end of January 2003, four years after it took effect.

The Authorisation Directive, no. 2002/20/EC, took effect in the European Union on 25 July 2003. The directive was incorporated into Icelandic law with the passing of the new Electronic Communications Act, but its entry into force in the EEA has been delayed, partly because of Liechtenstein's position. The entry into force in the EEA will take place on 1 November 2004. The new directive facilitates companies' access to electronic communications markets. As is stated above, upon the directive's entry into force, it will no longer be necessary to apply for a special operating licence in order to provide electronic communications services; instead, it will be sufficient to notify the authorities of the proposed activities. Frequencies for mobile phone services will continue to be allocated by means of special decisions, however. It will still be authorised to charge a fee for the allocation of frequency ranges, and allocations will continue to be subject to special conditions set by regulatory authorities.

Though the regulatory instruments of the EEA have, since 1997, created a given framework for the granting of licences, the actual arrangements in the EEA have differed somewhat from country to country. This applies, in particular, in those instances where it is necessary to limit the number of rights holders. Many nations use a comparison of applications as a means of determining the allocation of operating licences for a limited frequency range, while others have used the auction method and allocated licences to the highest bidders. Both options can actually be accommodated by the framework. The fundamental principles concerning an impartial, transparent allocation method that maximises the use of the frequency range do not make a formal distinction among selection methods, so long as the above goals are achieved.

The central rule embodied in the Authorisation Directive, no. 2002/20/EC, concerning the fees charged to electronic communications undertakings, is that the fees should only cover the necessary administrative costs related to the general authorisations and special rights of electronic communications undertakings. An exception is authorised in cases involving limited resources, in which instance it is permissible to charge a special fee for use of the frequencies. In charging fees, it is necessary to observe non-discrimination among rights holders and to consider viewpoints related to competition and the development of services. In addition to initial fees, this legislative bill provides for competition among tenderers for the distribution of services, which entails one form of repayment for frequencies.

3. International collaboration.

a. International Telecommunication Union (ITU).

For years, the International Telecommunication Union has worked on the preparation for third-generation mobile phones. The Union has been involved both in the co-ordination of standards and in matters concerning frequencies. ITU holds regular worldwide frequency conferences, where decisions are made concerning frequency use on a global level. The conference held in the year 1992, the World Administrative Radio Conference of 1992 (WARC-92), set aside certain frequency ranges for future use in a worldwide electronic communications system for terrestrial services, which in recent years has been known as IMT-2000. At WARC-92, the frequency ranges 1885- 2025 MHz and 2110–2200 MHz were chosen for IMT-2000 (to an extent, these frequency ranges must be used in different directions in communications). By way of comparison, it should be mentioned that in the GSM 900 mobile phone system, the frequency ranges 890–915 MHz/935–960 MHz are used, and in DCS 1800 (also referred to as GSM 1800) the frequency ranges 1725–1800/1805–1880 MHz are used. The frequency ranges that were selected for IMT-2000 are used for other purposes in many countries, such as for microwave channels or for military electronic communications, and measures must be adopted in order to move such use over to other frequency bands. Because of this, conflicts of interests could emerge, and it is clear, for example, that it will not be easy to free up the IMT-2000 frequency bands in the United States despite growing interest in 3G mobile phones in that country.

On the frequency bands that will be reserved for third-generation mobile phones in Iceland, there are a few fixed microwave connections in use. In effect are some 20 licences for the 1900–1980 MHz frequency band and over 30 for the 2110–2170 MHz range, as well as three licences for the 2010–2025 MHz range. The Post and Telecom Administration has notified licence holders that they can expect to have to move these connections to other frequency bands. At the worldwide frequency conference of 2000, it was decided to reserve the following supplemental frequency bands for third-generation mobile phones: 806–960 MHz, 1710–1885 MHz, and 2500–2690 MHz. These frequency bands are used for other purposes at present, but the long-term objective is to use them for 3G mobile phones.

The original goal of ITU was to introduce an international standard for 3G mobile phones. It has not proven possible, however, to conclude an agreement for one standard; therefore, the ITU draft of a standard for third-generation mobile phones will be a sort of umbrella that will cover a family of different 3G standards instead of being a single global standard.

Within IMT-2000 are several system deviations:

- IMT-DS, which is based on the W-CDMA modulation method and the UTRA FDD standard.
- IMT-MC, which is based on the CDMA2000 modulation method.

- IMT-TC, which utilises TD-SCDMA and is based on the UTRA TDD standard.
- IMT-SC, which is also called UWC-136.
- IMT-FT, also known by the name DECT (Digital European Cordless Telephone).

The term UMTS (Universal Mobile Telecommunications System) includes IMT-DS and IMT-TC. The former method is used when transmission capacity must be the same in both directions, and the latter is used when transmission capacity varies in each direction. UTRA stands for UMTS Terrestrial Radio Access and is the name of the standards that define wireless access to the mobile phone system.

b. European Telecommunications Standards Institute (ETSI).

Standards for GSM 900 and DCS 1800 have been set by the European Telecommunications Standards Institute, ETSI, in collaboration with the GSM Association of mobile phone manufacturers and network operators. The ETSI has also worked on the preparation of standards for UMTS mobile phones. There has been stiff competition among electronic communications equipment manufacturers seeking to have their proposals for technological implementation approved. A compromise has been achieved concerning technology that is supposed to form the foundation for UMTS. Despite the fact that most people have assumed that UMTS would be the standard used in Europe and in many countries outside Europe, attention has been drawn to the fact that, according to the World Trade Organization (WTO) agreement on electronic communications, it is prohibited to stipulate during the tender process that only one standard may be used. Thus it is prohibited to rule out the use of other IMT-2000 standards.

V. Tenders — Auctions

The allocation of rights to operate third-generation mobile phone systems in other countries has generally taken two forms: tenders and auctions. Both methods have their advantages and disadvantages. The primary tender methods, and those provided for in Act no. 65/1993 on Tender Offers, are public tenders, on the one hand, and closed tender offers that take place following a pre-qualification process, on the other. The distinction between these tender methods lies primarily in the possibilities for tenderers to participate.

A tender where an unspecified number of parties is, by advertisement, offered the option of submitting a tender offer is called a public tender offer. This is the most common tender offer method. All are permitted to participate, and the customer may accept any offer he likes or reject them all. Government authorities, however, do not have free reign in selecting from among tender offers and are required to accept the lowest bid in accordance with the rules of the tender.

In a closed tender offer, selected parties are given the option of participating. This arrangement is used when the preparation of tender offers is costly in terms of work and capital, or when the tenders are technologically difficult and complex. Participants in a closed tender offer are selected by a pre-qualification process that is advertised specially. The pre-qualification documents state what conditions potential tenderers must meet and what factors will determine the selection of participants. Those who are selected for participation in the tender are then supplied with tender documents. The regulatory framework governing government purchasing requires that pre-qualification be used to select participants in a closed tender offer.

In a tender offer, the choice is between a public tender and a closed tender with pre-qualification. In order for a tender offer to achieve the desired result, it is necessary to ensure that there is competition among tenderers and that tenderers have the incentive to submit their best offer. There is uncertainty concerning the number of interested tenderers, and it could be that there will be fewer tenderers than there are mobile phone licences, which could affect the quality of offers because there would be no need to submit a bid that was better than those submitted by other participants. For this reason, a public tender offer is more desirable than a closed tender because it would guarantee that the tenderers did not know about one another and would create the competition that is necessary to maximise the success of the tender.

Various countries have chosen to hold auctions for mobile phone licences. In an auction, competition is on the basis of price only. Interested parties that are considered suitable submit bids simultaneously in several rounds.

Given the discussion above, the public tender is considered the most beneficial method for achieving the stated goals concerning maximum distribution of economical mobile phone services. That method is chosen for this legislative bill. The tender description must set forth detailed information on the requirements concerning the eligibility of tenderers, including financial and technological considerations, requirements concerning frequency fees, distribution and promulgation speed, and other factors that guarantee quality service to users all over the country. Furthermore, the tender documents will state clearly what criteria will be used to evaluate tender offers.

VI. Processing of tender offers

The legislative bill proposes that up to four tenderers be allocated frequencies following the tender process. Selecting the tender method and publicising the conditions and evaluation process in advance represents an attempt to guarantee impartiality in the allocation of frequencies.

The process of allocating frequencies for the operation of third-generation mobile phones begins, from the standpoint of the tenderer, with the advertisement of the tender. The tender description will state exactly what information must be included with the offer.

Offers for frequencies will be evaluated using the methodology stated in this legislative bill and in the tender description.

In order to enhance impartiality in the evaluation of applicants, the processing of applications will be divided into two phases. First there will be a survey involving an assessment of whether the tenderer has the financial and technological strength to carry out the plans he outlines in the application, without in any way making a distinction among applicants. When this is done and the tenderers have been informed of whether they meet the minimum requirements for the tender, an assessment of distribution and speed of development in the tender offers will take place.

If there are four or fewer tenderers, they will be allocated frequencies provided that they meet the minimum requirements in the tender description. If there are more than four tenderers, an evaluation will take place, and those offering the greatest build-up in the shortest time will be allocated frequencies. The evaluation of the offers shall, in particular, take account of the following items:

- The distribution of UMTS services to the nation's inhabitants, through the tenderer's own electronic communications network based on the UMTS/IMT-2000 standard. The assessment of distribution shall take into account the population distribution in the country.
- When the applicant's subscribers will gain access to the UMTS network.

In evaluating tender offers, points will be awarded for estimated distribution and promulgation speed, according to specified rules, and it is assumed that tenderers will be able to calculate their points before submitting their tenders. The evaluation will take into account three different points in time, based on a phase division that will be specified in the tender description.

The assessment of distribution to the nation and its residents is comparable for all points in time. Points are awarded for build-up in each phase. Those receiving the most points will be allocated frequencies. Point awards will be based on information from Statistics Iceland.

Distribution.

The range of UMTS services at distances from the transmitter is less than with older mobile phone systems. Furthermore, the bandwidth of the service is reduced as the distance increases, and the transmission strength is reduced greatly. For this reason, there will be a minimum requirement that transmission strength from an outdoor transmitter must be at least 58 dB:V/m/5MHz at a height of 1.7 metres in order for the area to be considered as having UMTS service.

Rights holders will be permitted to collaborate concerning how they will meet distribution requirements according to their tender offers so that it will not be necessary to build up parallel electronic communications networks, as market conditions do not support such development. Rights holders will be obligated to build up their own

distribution system in accordance with minimum requirements if they cannot conclude roaming agreements, and they will pledge to do so in their tender offer.

The aim is to build up a powerful electronic communications system all over the country. In order to promote wide distribution of 3G mobile phone services, it is proposed that minimum requirements be set for distribution in specified areas. The division into areas aims at achieving comparable distribution of mobile phone services all over the country.

With increasing requirements for distribution in sparsely populated areas, the cost per user will also increase, as there will be fewer users per transmitter. It can be assumed that, in densely populated areas with more than 2,000 inhabitants, the market calls for distribution corresponding to 40-60% distribution in the regions.

It is proposed that the minimum distribution requirement be 60% for each area. If greater distribution requirements are made, there will be little room for tenderers to offer services in excess of the minimum requirement, and it will be difficult to choose from among the tenderers.

VII.

Assessment of the economic effects of the Act

As has previously been stated, up to four tenderers will be allocated frequencies for the operation of third-generation mobile networks, following a public tender. The period of validity of the frequency allocation will be 15 years, and the frequency fee has been set at ISK 190 million. The frequency fee will therefore generate considerable revenues for the Treasury and can be viewed as a fee for the use of the limited resources available for allocation. This fee is much lower, however, than those charged in many other places, as Figure 1 illustrates. It is appropriate to bear in mind, however, that it is not the tender itself that will generate revenues, and the frequency bands that are available for allocation pursuant to this Act are actually of no value in and of themselves. They will become valuable, however, because of business and marketing considerations, as they are a limited resource, and it can be assumed that demand for frequencies for electronic communications operations will exceed supply. This is dependent on various factors, primarily the frequency fee and the distribution requirements. The value of the frequency bands that are available for allocation is then finally deployed through the method that the authorities decide to use in allocating them. Because conditions in this country are different from those in other EEA countries — the market is smaller, and the geographical conditions are in many ways dissimilar — it is necessary to observe caution in all comparison of the revenues generated by frequency fees. In the end, the consumer pays the frequency fee. Thus it can be considered certain that in places where frequency fees are very high, the prices charged for the use of electronic communications equipment will reflect that fact. Furthermore, it could conceivably delay the development of third-generation systems if mobile phone companies were forced to incur significant debt in order to pay for frequencies. Such a conclusion is not consistent with the Icelandic

Government's policy of fostering an information society and stimulating all technological development in the country.

In determining the method that will be used for the allocation of frequencies, the above was borne in mind, and an attempt was made to take the middle course: that is, to guarantee that the Government would receive a suitable fee for permitting the use of the limited resources available for allocation while preventing a situation where the charging of fees would have a detrimental effect on the further development of 3G systems.

The third-generation mobile phone system will create a new service market using new technology and new methods for business communications, which can be expected, in general, to have a positive effect on the economy. It can also be assumed that the right to operate third-generation mobile phones and the promulgation of the 3G system will promote increased competition in the mobile phone market.

VIII. Developments in Iceland

The largest participants in the market for second-generation mobile phone systems are the electronic communications undertakings that have received licences to operate the systems. The experience of other countries in allocating frequencies for the operation of third-generation mobile systems has shown that the number of interested parties far exceeds the number of parties that provide conventional voice call services.

There has been substantial growth in the Icelandic electronic communications market in recent years, and a large number of companies have received operating licences from the Post and Telecom Administration. In all, three GSM 900, licences, six DCS 1800 licences, two TETRA licences, and one NMT licence have been issued.

In the year 2002, Iceland Telecom's (Síminn) three largest competitors in the electronic communications market commenced a merger. Halló! fjarskipti, which offered fixed-line phone services, merged with Íslandssími in August, and in October Íslandssími acquired a majority share in the mobile phone company Tal. These three companies formally merged to form Íslandssími hf. That company then changed its name and is now called Og fjarskipti hf., though it uses the name Og Vodafone in the marketing of its services, in accordance with an agreement with the international Vodafone Group.

This merger resulted in a company that, as of year-end 2002, had a roughly 40% share of the mobile phone market and a 20-25% share of the total electronic communications market. Following the merger, there are only two companies operating in this market in Iceland. That market has grown steadily, and by year-end 2003 the number of GSM users in the country had reached 255,768, which is an increase of more than 8% over the previous year.

This merger then led to the Post and Telecom Administration's determination that the company possessed significant market power in the market for mobile phone networks and services. In addition, the Rulings Committee for Electronic Communications and Postal Affairs later determined, in its ruling of last fall, that the company also had significant market power in the interconnection market.

In view of the experience from other countries, it is not unlikely that current GSM licence holders will be interested in operating UMTS networks or offering UMTS services.

At the beginning of the preparation of the legislative bill in the year 2001, the Ministry of Transport, Tourism, and Telecommunications sought the opinion of licence holders concerning several points related to 3G mobile phones, including frequency bands, period of validity for frequency allocations, distribution requirements, promulgation speed, technological characteristics, etc. In addition, their opinion was sought on the draft of the legislative bill prior to its introduction at the last parliamentary session. Their comments have been considered in the bill.

Comments concerning individual articles of the legislative bill:

Article 1

Paragraph 1 specifies the objective of the bill, which is to protect the interests of consumers and guarantee effective competition in the Icelandic mobile phone market in the allocation of frequencies for third-generation mobile telephones in this country. Substantively, the objective of this bill is in accord with the overall objective of the current Electronic Communications Act, no. 81/2003, cf. Article 1 of that Act. Because the terms of the tender offer entail a limitation of the operational freedom of the electronic communications undertakings that receive frequency allocations for third-generation mobile phones for a limited frequency band, it is important that the objective of the Act be clearly stated at the outset. The objective of Icelandic electronic communications legislation is based on the directives of the European Union that apply to the European Economic Area. Therefore, the overall objective of frequency allocations in electronic communications is stated in the introduction to the Authorisation Directive, no. 2002/20/EC. The objective of the legislative bill appeared in the introduction to the UMTS Decision of the European Parliament and of the Council, no. 128/1999/EC. The objective of Article 1 of the UMTS Decision differed, however, in that the Decision was intended to stimulate rapid co-ordinated introduction of integrated UMTS networks and services within the Community, according to internal market principles and in accordance with demand.

Paragraph 2 states that the legislative bill covers the allocation of frequencies for the operation of mobile phone networks on the frequency ranges 1900–1980 MHz, 2010–2025 MHz, and 2110–2170 MHz. As has been stated previously, it is expected that UMTS phones will be integrated within Europe, and the aim is that it be possible to use them all over the world. Frequency bands have been reserved for this technology on a global level. At the frequency conference of the International Telecommunication Union (ITU) in the year 2000, it was decided to add increased bandwidth to the frequency structure intended for third-generation systems. These frequency ranges are not listed in the provisions of Paragraph 2, as no decision has been made on an international level concerning when they will be available for 3G mobile phones.

In Paragraph 3, the term *third-generation mobile telephone* is defined as a wireless mobile telephone system according to the International Mobile Telecommunications-2000 (IMT-2000) standards of the International Telecommunication Union, including the Universal Mobile Telecommunications System (UMTS) standards.

Paragraph 4 defines the term *UMTS mobile telephone network* as a wireless mobile telephone network that offers broadband and multimedia services at greater speeds than do first- and second-generation mobile telephone networks, GSM and GPRS.

Article 2

According to Paragraph 1, the Post and Telecom Administration has the role of allocating frequencies pursuant to Article 1 of the bill, by means of a tender offer.

Paragraph 2 states that the allocation of frequencies shall take place following a public tender pursuant to Article 5 of the legislative bill. Concerning the meaning of the term in the sense of this bill, reference is made to the comments on the cited provision. If all frequencies are not allocated in the tender offer, or if rights to frequency usage are returned, it is permissible to conduct a new tender offer pursuant to this Act.

Paragraph 3 states that it is permissible to revoke an allocation if the frequency is not brought into use within a suitable length of time. The aim is to prevent parties from hoarding unused frequencies sought by other parties. Furthermore, it states that the right to use frequencies shall be linked to one name and shall be non-transferable. This means that the allocation of frequencies and the authority to transfer allocations shall be treated in the same manner as has been done previously, and as is provided for in Article 7 of the current Electronic Communications Act.

Paragraph 4 sets the period of validity for frequency allocations for UMTS services at 15 years. This proposes that frequency allocations be temporary, as is customary in other countries. The period of validity varies in other European countries. In determining the period of validity, it is necessary to consider the considerable expense involved in building up a network for UMTS services. Thus it is appropriate that the period of validity for operating licences be longer rather than shorter, in order to enhance the likelihood that investments in UMTS network development will be recouped.

Article 3

In determining a method for frequency allocations pursuant to this legislative bill, special emphasis is placed on the UMTS system's achieving the widest possible distribution. It is unlikely that the build-up of UMTS services in smaller densely populated areas is financially feasible, but in order to promote extensive build-up of services, there is a fairly stringent requirement concerning the development of the system on a national scale. Frequency fees and roaming authorisations take account of distribution requirements.

In this provision, it is recommended that the service must reach 60% of the areas defined in the provision. If it is assumed that market conditions will result in 95% distribution in the Reykjavík area, the requirement concerning distribution in other areas results in 82% national distribution. This guarantees that there will be general distribution all over the country and that high-speed mobile phone services will be accessible all over Iceland.

In the Article, the following areas are specified:

- a. The greater Reykjavík area;
- b. West Iceland, the West Fjords, and Northwest Iceland;
- c. Northeast Iceland and East Iceland;
- d. South Iceland and the Sudurnes peninsula.

It is assumed that further provisions and requirements will be stipulated in the terms of the tender. In preparing the terms for the tender, the Post and Telecom Administration is

expected, among other things, to take account of market conditions as regards the requirements for promulgation speed and distribution.

In other respects, reference is made to Section VI of the general comments on this legislative bill.

Article 4

It is proposed that the frequency fee be set at ISK 190 million, which must be considered very reasonable in comparison with the rest of Europe (see Figures 1 and 2), where fees vary greatly from country to country. It is assumed that the allocation holder will remit earnest money in the amount of ISK 5 million at the time the frequency is allocated, and the balance of the frequency fee will be remitted to the State Treasury in four equal payments, beginning at the time the frequency allocation takes place and ending two years thereafter.

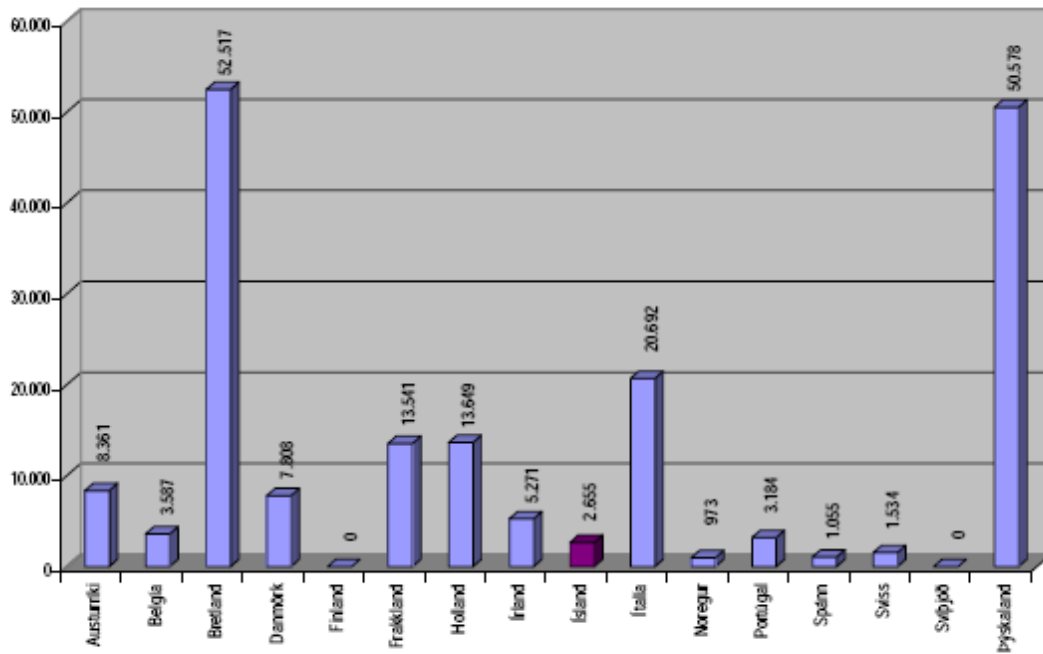


Figure 1. UMTS licence fees per inhabitant.

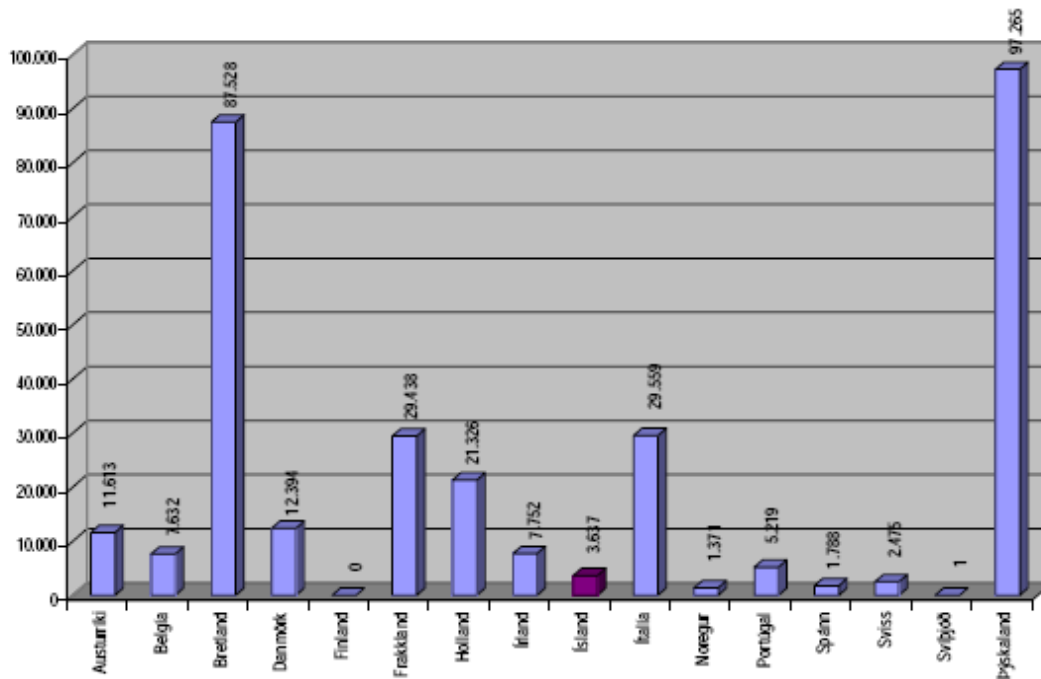


Figure 2. UMTS licence fees per GSM user.

Comparison of licence fees at the beginning of allocation in Europe.

Country	Population (million inhabitants)	Licence fee ISK millions	Licence fee / inhabitant	Percentage GSM subscribers (% of population)	Licence cost per GSM subscriber
Austria	8.1	68,060	8,361	72.0%	11,613
Belgium	10.3	36,916	3,587	47.0%	7,632
United Kingdom	60.1	3,154,950	52,517	60.0%	87,528
Denmark	5.4	41,910	7,808	63.0%	12,394
Finland	5.2	0	0	76.0%	0
France	59.3	803,600	13,541	46.0%	29,438
Holland	16.1	219,760	13,649	64.0%	21,326
Ireland	3.9	20,418	5,271	68.0%	7,752
Iceland*	0.3	760	2,655	73.0%	3,637
Italy	58.0	1,200,480	20,692	70.0%	29,559
Norway	4.5	4,408	973	71.0%	1,371
Portugal	10.3	32,800	3,184	61.0%	5,219
Spain	40.4	42,640	1,055	59.0%	1,788
Switzerland	7.3	11,136	1,534	62.0%	2,475
Sweden	8.9	4	0	70.0%	1
Germany	82.4	4,165,600	50,578	52.0%	97,265
Total	380.5	9,803,442			
Average			25,766		19,937

* Calculations for Iceland assume a fee of ISK 190 million for each licence and the allocation of four licences.

Given the experience gained in auctioning frequency ranges, it is clear that pricing is closely based on the general outlook in the securities market. It is also clear that the tender terms, the number of tenderers, and the size of the market determine the market value of the frequency. It is interesting to note that auctioning in Italy generates less revenue for the Treasury than does allocation on the basis of assessment in France. From this it must be assumed either that access to the frequency spectrum is more valuable in France than it is in Italy, though these markets are not dissimilar, or that the authorities in France have overestimated the value of the frequency in the wake of the auction in the UK. At the same time that the French rendered a decision on the amount for the frequency fee, UMTS frequencies were allocated in Holland on the basis of an auction. Despite the fact that it could be expected that Holland would be better suited to the build-up of mobile networks than France, access was priced similarly by the market, which is an indication of excessive pricing in France. From this, it can be seen that the price of UMTS licences in Europe is quite variable, and for this reason, it is not possible to base frequency fees on an average of the fees charged in other countries.

In addition to the fee that will be charged pursuant to this provision, the Post and Telecom Administration is authorised to charge various other fees that are stipulated in general legislation. Pursuant to Article 14, Paragraph 4 of Act no. 69/2003, the Post and Telecom Administration now charges electronic communications undertakings an annual operating fee in the amount of 0.2% of their recorded turnover. Pursuant to Article 14, Paragraph 3 of the same Act, an annual fee is charged for allocated telephone numbers. Furthermore, electronic communications undertakings are required, pursuant to Article 22 of the Electronic Communications Act, no. 81/2003, to pay an equalisation fee. The equalisation is currently 0.12% of turnover. In addition, there could be various other fees in accordance with the Post and Telecom Administration price list, no. 313/2002. This list specifies annual operating fees that are paid to the Post and Telecom Administration for radio transmitters in wireless electronic communications networks where frequency authorisations have been issued to network operators. Price list items for transmitters in mobile networks apply to third-generation networks as well as to others. These fees defray the Post and Telecom Administration's costs for regulating the use of broadcast media for communications in accordance with the applicable European regulations, and for monitoring aimed at guaranteeing interference-free electronic communications on the frequencies in question.

In order to promote wide national distribution, it is assumed that rights holders will be granted a discount from the frequency fee if they pledge to carry out further distribution than the specified minimum. The discount will be in the amount of ISK 10 million for each one percent of population in excess of 60% distribution outside the greater Reykjavík area. The discount is based on distribution at the end of the third phase, but it is granted immediately.

In the conclusion of the Article is the authority to charge fees that are intended to defray the Post and Telecom Administration's expenses related to preparation, implementation, and processing of tenders pursuant to Article 5. It is considered appropriate to distinguish between fees that are based on the cost of preparing and processing tender documents and that are paid by all participants in the tender, on the one hand, and special fees that cover the cost of preparation, implementation, and processing of the tender by the Administration and are paid by those who receive frequency allocations. It is foreseeable that this expense will be considerable, and it is considered appropriate that it be paid to the Administration by those who receive allocations rather than being paid out of the Administration's operating revenues. The amount is based on the Post and Telecom Administration's estimate for this item.

Article 5

In Paragraph 1, those wishing to receive frequency allocations are given the option of submitting a tender offer for the operation of UMTS/IMT-2000 mobile networks on the basis of a tender description that will be prepared by the Post and Telecom Administration. Up to four tenderers will receive frequency allocations.

According to Paragraph 2, the Post and Telecom Administration will decide how the frequency band will be divided among individual rights holders. It is not a given that all rights holders will need equally large frequency bands. This is determined by several factors, including the build-up of the electronic communications network and the types of services that the rights holder intends to offer. A fundamental principle in the Electronic Communications Act is to promote the efficient use of the frequency spectrum; therefore, the frequency authorisation of each rights holder should be limited to his demonstrated need. If necessary, it is possible to increase the frequency authorisation of individual rights holders at a later time if their need increases and if there are frequencies available for allocation.

Paragraph 3 contains provisions pertaining to the preparation of the tender description. It assumes that there will be a detailed description of the terms of the tender, and emphasis is placed on impartiality and clarity. The tender description will list the criteria that will determine the selection from among tenderers and will specify the weight of those criteria. These criteria will be determined with the objective of the legislative bill as a guiding principle and will aim at, among other things, guaranteeing the best possible services in as many areas of the country as possible.

Paragraph 4 authorises the Post and Telecom Administration to determine minimum requirements that tenderers must meet in order to participate in the tender. It is necessary to set such conditions because it must be clear at the outset that a tenderer has the financial and technological strength to fulfil the promises that he makes in his tender offer. It is more beneficial to choose from among suitable tenderers at the beginning than to invest time and effort in evaluating unsatisfactory offers.

The provisions of Paragraph 5 do not require any explanation.

Paragraph 6 lists several items that must, without exception, appear in the tender offer; that is, plans for the build-up of tenderers' electronic communications networks. A tenderer must demonstrate that he has decided plans for such development and that he has the capability of implementing those plans. The list contained in Paragraph 6 of the items that must appear in the tender is in no way exhaustive, as it is necessary to set requirements concerning many other items in the actual tender description document, which will be prepared according to the provisions of Paragraph 3.

In order to guarantee effective competition, it is necessary to prevent one operator's acquiring more than one frequency allocation. For this reason, it is specified in Paragraph 7 that no more than one application will be accepted from a given tenderer, or from any tenderer with a controlling ownership share in another tenderer.

Paragraph 8 is a safeguard designed to prevent the allocation of the entire frequency range to tenderers that plan to use standards other than UMTS. UMTS is a subcategory of standards within IMT-2000. It was not considered permissible to limit the tender to UMTS standards, but it was these standards that were established in the EEA according to the previously mentioned Decision no. 128/1999/EC. If the unlikely should occur, and all tenderers were to choose to build using standards other than UMTS, it would be possible to withhold one frequency allocation in an attempt to implement Decision no. 128/1999/EC at a later time. It is unlikely that any tenderer will consider it beneficial to offer standards other than UMTS, but it was considered safer to provide this safeguard.

Article 6

Paragraph 1 states that the provisions of the Electronic Communications Act apply to third-generation mobile phones. Chief among these are the provisions of the Act that pertain to revocation of licences, re-allocation of frequencies, and non-compliance, as well as those pertaining to access to networks and services, interconnection, and access to infrastructure controlled by electronic communications undertakings.

Pursuant to Paragraph 2, the Post and Telecom Administration shall attach conditions to the allocation of frequencies in accordance with the legislative bill, the Electronic Communications Act, and the tender offer of each individual rights holder. These conditions involve, among other things, the distribution requirements set forth in the bill and the conditions stipulated in the Electronic Communications Act concerning efficient use of frequencies and the reduction of harmful interference and electromagnetic radiation.

Article 7

The provisions of this Article do not require any explanation.

Appendix I.

Licence allocations in several European countries.

Country	Licence allocation method	Total price for licences (EUR)	Population of country	Fee per capita (EUR)	Fee per capita (ISK)	Total licence fee restated based on population in Iceland (ISK)	Fee per licence in Iceland (assuming 4 licences)
Austria	Auction	830,000,000	8,139,900	102	8,361	2,393,626,027	598,406,507
Belgium	Auction	450,200,000	10,292,100	44	3,587	1,026,830,521	256,707,630
United Kingdom	Auction	38,475,000,000	60,075,300	640	52,517	15,034,187,282	3,758,546,821
Denmark	Closed tender	511,093,544	5,367,200	95	7,808	2,235,372,439	558,843,110
Finland	Comparison competition	4,000	5,194,900	0	0	18,075	4,519
France	Comparison competition	9,800,000,000	59,343,500	165	13,541	3,876,592,887	969,148,222
Holland	Auction	2,680,000,000	16,101,200	166	13,649	3,907,273,619	976,818,405
Ireland	Comparison competition	249,000,000	3,873,500	64	5,271	1,509,013,283	377,253,321
Italy	Auction	14,640,000,000	58,017,900	252	20,692	5,923,472,101	1,480,868,025
Norway	Comparison competition	53,760,000	4,528,400	12	973	278,683,819	69,670,955
Portugal	Comparison competition	400,000,000	10,302,900	39	3,184	911,376,409	227,844,102
Spain	Comparison competition	520,000,000	40,427,600	13	1,055	301,941,396	75,485,349
Switzerland	Auction	135,800,000	7,257,600	19	1,534	439,242,159	109,810,540
Sweden	Comparison competition	46,800	8,909,700	0	0	123,305	30,826
Germany	Auction	50,800,000,000	82,360,000	617	50,578	14,479,202,768	3,619,800,692
			Average	314	25,784	7,381,178,585	1,845,294,646

Appendix II.

Ministry of Finance, Budget Department

Comments on the legislative bill on third-generation mobile telephones.

The objective of the legislative bill is to grant the Post and Telecom Administration the authority to allocate frequencies for third-generation mobile telephones in this country. The allocation takes place following a public tender, and the period of validity of the frequency allocation is 15 years. The legislative bill proposes that the minimum requirement for the distribution of the mobile phone system be that it reach 60% of residents in the following four areas:

1. The greater Reykjavík area;
2. West Iceland, the West Fjords, and Northwest Iceland;
3. Northeast Iceland and East Iceland;
4. South Iceland and the Sudurnes peninsula.

For each frequency allocation, a fee of ISK 190 million shall be paid to the Treasury, and once allocations have been made, the rights holder shall remit earnest money in the amount of ISK 5 million. The remaining portion of the frequency fee shall be paid to the Treasury in four equal payments, beginning at the time the frequency is allocated and ending two years thereafter. A discount shall be granted for build-up of an electronic communications network over and above the minimum requirement. The discount is in the amount of ISK 10 million for each one percent of the population in excess of 60% distribution outside the greater Reykjavík area. The frequency fee shall never, however, be lower than ISK 40 million. In addition to the frequency fee, the Post and Telecom Administration is granted the authority to charge fees that are intended to defray the expenses related to preparation, implementation, and processing of tenders. The fees include, on the one hand, fees that are paid by all participants in the tender and are to cover the cost of preparing and processing tender documents, and on the other hand, special fees that are intended to cover expenses incurred by the Administration in the preparation, implementation, and processing of the tender. The latter fees are paid by those who receive frequency allocations.

If the legislative bill is enacted without amendment, the Treasury's revenues could range from ISK 40 million to ISK 760 million for the frequencies. The Post and Telecom Administration's expenses are determined by the number of parties participating in the tender and the number of parties that receive frequency allocations; the Administration's expenses will be covered by those parties.