Appendix 1

Report on Considerations of the Universal Service System during the Transitional Period to Universal Broadband Service Availability

(Provisional)

Information and Communications Council

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Considerations of the Universal Service System during the Transitional Period to Universal Broadband Service Availability

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Preface

Section 1: The Story So Far

A. Foundation of the Universal Service System

Two momentous events took place in the Japanese telecommunication industry in April 1985: the Nippon Telegraph and Telephone Public Corporation was privatized and entry to the telecommunications market was liberalized. In tandem with this, the newly formed Nippon Telegraph and Telephone Corporation (NTT) was obliged to ensure the universal and stable provision of telephone services that are indispensable to the lives of citizens throughout Japan.[1]

In the following years, as competition made inroads in regional telecommunications markets, fears mounted that the efforts of NTT's management alone could no longer sustain the provision of essential telephone services nationwide.[2] As the result of an investigation into unifying the aims of competition policy and universal service policy while also eyeing the promotion of further competition, a bill to amend the Telecommunications Business Law, etc. was tabled in the 151st Session of the National Diet. This bill included a new framework to ensure the provision of universal services through a special fund. The resulting law was passed and promulgated in June 2001 and went into force in June 2002.

After this development, the Information and Communications Council was asked to examine the design of a specific system for universal services. Based on the Council's deliberations, MIC, in June 2002, amended the Cabinet Order for Enforcement of the Telecommunications Business Law and the Regulations for Enforcement of the Telecommunications Business Law(Enforcement Regulations) and instituted the Regulations Concerning the Calculation of Subsidies and Contributions Connected to the Provision of Universal Telecommunications Services (Calculation Regulations).

These moves fulfilled the decision to seek appropriate cost-sharing to secure the provision of universal services from telecommunications businesses other than the Nippon Telegraph and Telephone East Corporation and the Nippon Telegraph and Telephone West Corporation (NTT East and West). Previously, NTT East and West had ensured universal services provision through regional transfers of revenues from profitable regions to unprofitable regions. But with rising competition in regional telecommunication markets, especially profitable ones in urban areas, it was becoming difficult to continue to provide universal services with cost contributions from NTT East and West alone. The decision to expand the collection of contributions to other telecommunications businesses was made out of concern

[1] This obligation was jointly assumed by the Nippon Telegraph and Telephone Corporation, the Nippon Telegraph and Telephone East Corporation, and the Nippon Telegraph and Telephone West Corporation after the reorganization of NTT with amendments to the Act Concerning Nippon Telegraph and Telephone Corporation in 1997.

[2] The Information and Communications Council's February 29, 1996 report "Approaches to the Nippon Telegraph and Telephone Corporation: Creating Telecommunication Dynamism" indicated it was necessary to examine a new system to ensure universal services.

that otherwise it would be impossible to underwrite the convenience of users living in unprofitable regions.

B. Universal Service System Operation and Revision of Calculation Methodology

The Information and Communications Council conducted a scheduled review of the universal service system about two years after its formation and, in October 2005, issued the "Review of the Universal Service Fund." The report made two major recommendations: that local calls be removed from the universal service scope and that the methodology of calculating costs associated with subscription telephones be changed from a revenue-cost offset methodology to a benchmark methodology (a methodology that calculates compensation amounts as the portion of costs per subscriber line that exceed the national average in areas with the most expensive 4.9 percent of subscriber lines).

The Enforcement Regulations and Calculation Regulations were amended in line with the report. The universal service system went into operation after NTT East and West's universal telecommunications services went about ¥51.8 billion into the red in FY 2005. Through the processes of designating universal telecommunications services assistance organizations (October 2005) and designating eligible telecommunication carriers (March 2006), the first subsidy amounts and methods and the first contribution amounts and collection methods were approved under the universal service system in November 2006.

A March 2007 report by the Information and Communications Council[3] recommended a prompt revision of the cost calculation rules for the universal service system starting in FY 2007 to curb the burden being placed on users. At the time, although the connection charges borne by telecom carriers was on the decline, it was expected that the monthly universal service cost per telecommunication number would rise from seven yen (the amount approved for FY 2006). In view that most contributing carriers were passing on the universal service cost to their users, the recommendation was made in the belief that it was appropriate to avoid, as much as possible, any further increases in the amount borne by users.

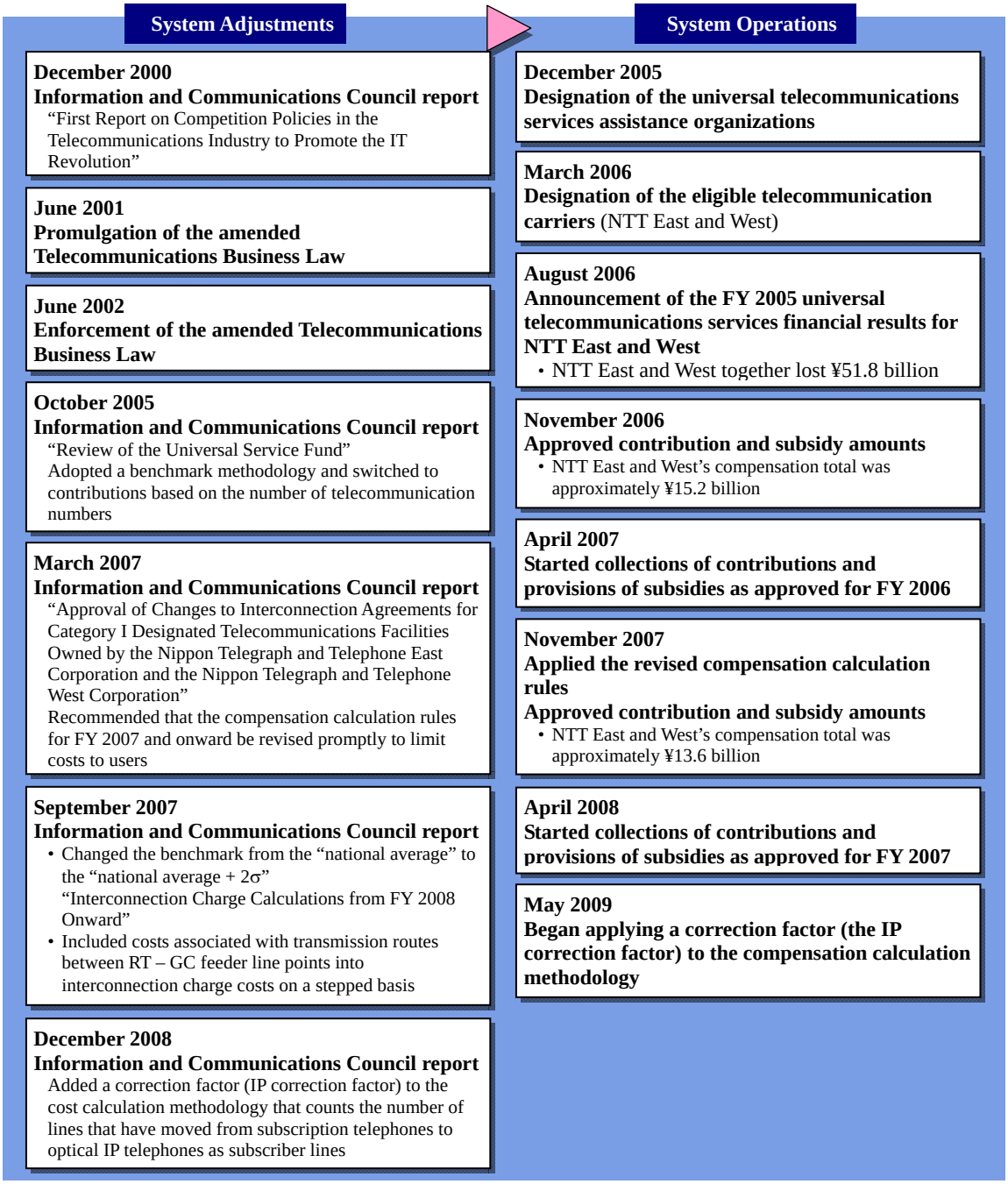
Based on this report, the cost calculation methodology for subscription telephones in the Calculation Regulations was amended to change the compensation calculation benchmark from the national average to the national average + two standard deviations.

A further amendment was made to the Calculation Regulations because of the impact of migration from public switched telephone networks (PSTN) to IP networks — causing the number of subscriber telephones to drop as people moved to IP telephones — driven by the proliferation of broadband access networks. The original universal service system was designed based on the premise of competition advancing into the telephone services market

[3] "Approval of Changes to Interconnection Agreements for Category I Designated Telecommunications Facilities Owned by the Nippon Telegraph and Telephone East Corporation and the Nippon Telegraph and Telephone West Corporation (Revision of Interconnection Charges, Etc. for FY 2007 Based on a Long-Run Incremental Cost Model)"

based on PSTN. The Information and Communications Council's December 2008 "Review of the Universal Service Fund" recommended a correction factor (IP correction) be applied between FY 2009 and FY 2011 in cost calculations to offset the declining compensation amounts for subscription telephones due to the growth of IP networks. The report's recommendation was used in the Calculation Regulations amendment.

Figure 1: The Course of Past Universal Service System Adjustments



Section 2: Examinations for This Report

The proliferation of optical IP telephones, provided over FTTH and other broadband access lines, has surged ahead in recent years as FTTH and other broadband services have become commonplace. The popularity of optical IP telephones is thought to be their ability to offer call quality on par with subscription telephones for a small additional fee to broadband service charges.

Based on with the appearance of optical IP telephones that are equivalent in charges to subscription telephones but do not require a broadband services contract, a transitional period is envisioned for the fixed-line telephone market until broadband services are available nationwide during which subscription telephones are being replaced by optical IP telephones with 0AB – J numbers[4] (optical IP telephones) even as both subscription telephones and optical IP telephones coexist.

In May 2010 the ICT Policy Task Force for a Global Era compiled a report entitled "Basic Course of Action on Implementing the *Hikari no Michi* [New Broadband Super Highway] Plan." This report noted the necessity as "a revision to the universal service system during the transitional period to the *Hikari no Michi* [the optical super highway]" of "changing the scope of universal services to include 'subscription telephones' and 'optical IP telephones with price levels equivalent to subscription telephones' in order to accelerate the migration from metal access to optical access." This eligibility change was expected "to avoid metal build-out in new residential/building developments and pave the way for the eventual removal of metal access lines, and, thus, to promote optical fiber build-out."

Following on these recommendations, the Information and Communications Council was requested in July 2010 to examine the best approach for the universal service system during the transitional period until broadband services are available nationwide, including such as aspects as the scope of the system and the workings of the universal service fund. The current examinations are a result of that request.

The Council has now finished collecting and organizing the direction of and issues for the universal service system during the transitional period until broadband services are available nationwide, as given above. The Council recommends that the necessary system adjustments as given in this report be put in place promptly and that the universal service system be operated in the short term according to these revisions.

The system adjustments in this report are expected to allow for the smooth operation of the universal service system during the transitional period and to contribute to the advancement of the *Hikari no Michi* plan.

[4] Defined as a telephone service that provides voice transmissions using the Internet protocol over an optical-fiber access line.

Chapter 1: Background to the Universal Service System Revision

Section 1. Intent of the Current Examinations

A. *Hikari no Michi* Plan

MIC launched the ICT Policy Task Force for a Global Era in October 2009 to study future ICT policies. The Task Force compiled the "Basic Course of Action on Implementing the *Hikari no Michi* [New Broadband Super Highway] Plan" on May 18, 2010, and put together the "*Hikari no Michi* [New Broadband Super Highway] Strategy Outline" on August 31, 2010.

The objective of the *Hikari no Michi* plan is give all households in the country access to broadband services by around 2015 by accelerating the construction and utilization of ICT infrastructure. In this way, the plan will create an abundant society in which everyone is assured the right to communications and can experience and enjoy the benefits of ICT quickly, fairly, and in sufficient quantity. At the same time, the plan is designed to help develop the nation's economy, create employment, and revitalize local regions.

The "*Hikari no Michi* [New Broadband Super Highway] Strategy Outline" sets out the three main pillars for promotion of the *Hikari no Michi* plan: (1) provision of incentives to accelerate the development of ICT infrastructure; (2) revision of competition policies, including a reconsideration of NTT's role and position; and (3) promotion of ICT utilization through regulatory reform and other measures. The plan sets out two further elements within the second promotion pillar: (i) creation of a universal service system suitable for the *Hikari no Michi* transitional period; and (ii) examination of a universal service system once the *Hikari no Michi* goals are realized.

One of the questions addressed at this time to the Information and Communications Council was the creation of a universal service system suitable for the *Hikari no Michi* transitional period. This report provides the Council's examination findings and current thoughts on this question.

Figure 2: Excerpts from the "Basic Course of Action on Implementing the *Hikari no Michi* [New Broadband Super Highway] Plan," May 18, 2010

1. Creation of a New Universal Service System after Realization of the *Hikari no Michi* [New Broadband Super Highway] Plan

(2) Revision of Universal Services

The realization of the *Hikari no Michi* plan will permit the provision of medical, education, government, and other services via broadband networks to households and allow all households to access broadband services. Therefore, it is thought possible to treat "broadband access" as a universal service, providing that national public consensus to do so can be obtained. If this consensus is reached, then, it is considered necessary to include "broadband access" in the universal service scope and assist broadband access from the universal service fund as required in order to ensure that all households have affordable access to broadband networks.

Note, however, that because the universal service system is intended to ensure broadband utility at 100 percent of households, it is premature to immediately start treating "broadband access" as a universal service at the present time because broadband household utilization rates have not yet reached 100

2. Revision of the Universal Service System for the *Hikari no Michi* [New Broadband Super Highway] Transitional Period

(1) Treatment of Optical IP Telephones

The current system that designates subscription telephones as a universal service is founded on the assumption that it is necessary for NTT East and West to sustain, on a continuous basis, the provision of subscription telephones in all areas, even in publically built, privately operated FTTH areas where "optical IP telephones" are provided at price levels equivalent to subscription telephones.

As stated in Section 1(2) above, it is not appropriate to immediately start treating "broadband access" as a universal service at the present time because broadband household utilization rates have not yet reached 100 percent; however, to expedite *Hikari no Michi* development, it is necessary to avoid any potential of obligations to provide metal access lines for subscription telephones impeding the establishment of optical-fiber lines, which is the core *Hikari no Michi* technology.

Therefore, it is felt appropriate, in order to accelerate the migration from metal access to optical access, to provide NTT East and West with additional flexibility and to avoid duplicate infrastructure investment by changing the universal service scope to include "subscription telephones" alongside "optical IP telephones with price levels equivalent to subscription telephones." This change is expected specifically to avoid metal build-out in new residential/building developments and pave the way for the eventual removal of metal access lines, and, thus, to promote optical-fiber development in areas where optical IP telephones are provided at rate schedules similar to subscription telephones.

Figure 3: Excerpts from the "Hikari no Michi [New Broadband Super Highway] Strategy Outline," August 31, 2010

Pillar Two: Revision of Competition Policies, Including a Reconsideration of NTT's Role and Position

(1) Basic Considerations
- Further stimulate fair competition among carriers in the interest of encouraging broadband take-up through lower prices and through advanced and diversified services.
- Change the current universal service scope from subscription telephones only to subscription telephones and optical IP telephones equivalent to subscription telephones in the interest of accelerating the migration from metal access to optical access during the *Hikari no Michi* transitional period.
- Include "broadband access" in the universal service scope and assist broadband access from the universal service fund as required in order to ensure that all households have affordable access to broadband networks once the *Hikari no Michi* goals have been attained.

(2) Direction of Initiatives

[1] Omitted

[2] Universal service system for the *Hikari no Michi* transitional period
- The Information and Communications Council has been asked in July 2010 to examine approaches to the universal service system during the transitional period until broadband services are available nationwide. After receiving the Council's response within the year, the necessary system adjustments will be carried out in FY 2011, including adding optical IP telephones equivalent to subscription telephones to the universal service scope.

[3] Universal service system once the *Hikari no Michi* goals are realized
- Examinations will be made into including "broadband access" in the universal service scope and assisting "broadband access" from the universal service fund as required while giving due consideration to progress of the *Hikari no Michi* goals and the state of national public consensus on the issue

B. *Hikari no Michi* Plan and the Universal Service System

The first problem in the relationship between the *Hikari no Michi* plan and the universal service system is that the current system that designates subscription telephones as a universal service is founded on the assumption that it is necessary for NTT East and West to sustain, on a continuous basis, the provision of subscription telephones in all areas, even in publically built, privately operated FTTH areas where optical IP telephones equivalent to subscription telephones are provided.

To expedite *Hikari no Michi* development, it is necessary to avoid any potential of obligations to provide metal access lines for subscription telephones impeding the establishment of optical-fiber lines, which is the core *Hikari no Michi* technology. Thus, it is considered apt to provide NTT East and West with additional flexibility and to avoid duplicate infrastructure investment by changing the universal service scope to include "subscription telephones" alongside "optical IP telephones equivalent to subscription telephones."

The current system revision, by way of this change to the universal service scope, is expected specifically to avoid metal build-out in new residential/building developments and pave the way for the eventual removal of metal access lines, and, thus, to promote optical-fiber development in areas where optical IP telephones equivalent to subscription

telephones are provided.

Note that the objective of the current universal service system is to ensure universal services everywhere in the country and not to directly promote optical fiber or other infrastructure development or migration. Nevertheless, it must be remembered that the current system revision, in large part, encompasses this perspective.

Section 2. Direction of the Examinations

A. Transitional Period Considerations

(i) Transition from telephones to broadband

1. Transitional period for universal services

The realization of the *Hikari no Michi* plan will permit the provision of medical, education, government, and other services via broadband networks to households and allow all households to access broadband services. Therefore, it is thought possible in the *Hikari no Michi* plan (in the "Basic Course of Action on Implementing the *Hikari no Michi* [New Broadband Super Highway] Plan") to treat "broadband access" as a universal service, providing that national public consensus to do so can be obtained.

Based on this understanding, the transitional period for the universal service system can be considered as the period to move from "the state where telephones can be used everywhere" to "the state where broadband can be used everywhere." Since, by definition, the state where broadband can be used everywhere will not be reached during the transitional period, it is appropriate to specifically include, as before, "telephones" in the universal service scope during this period.

2. Transitional period examinations

Given that the universal service scope during the transitional period continues to specifically include "telephones" as before, it is appropriate for examinations to refer to the previous basic "telephone" framework and to use the previous three basic universal service requirements.

Based on this understanding, it is appropriate for this system revision to use the previous three basic universal service requirements to determine the appropriate scope of optical IP telephones eligible under the universal services.

(ii) Transition from metal to optical

1. Transitional period for infrastructure

The *Hikari no Michi* plan (in the "*Hikari no Michi* [New Broadband Super Highway] Strategy Outline") states: "The primary envisioned technology [for the realization of universal broadband] is FTTH. Moreover, in consideration of the capacity required (approximately 30 Mbps) for the high-traffic applications envisioned at the current time

(video delivery, remote healthcare, etc.) and future technical innovations, it is expected that some cable systems (hybrid fiber-coaxial (HFC)) and wireless broadband communication systems will act as alternatives to FTTH."

Based on this understanding, the transitional period for infrastructure can be taken as the transition from metal-based technologies to infrastructure centered on optical fiber.

2. Examinations based on infrastructure transition

Given the understanding above, businesses providing metal-based subscription telephones have two options open to them during the transition from metal to optical infrastructure in areas where optical IP telephones equivalent to subscription telephones can be provided.

(1) Stop providing new metal-based subscription telephones (end new subscription telephones)

(2) Transfer existing users of metal-based subscription telephones to optical IP telephones in order to eventually end metal-based subscription telephone services (withdraw from subscription telephones)

Because the examination matters are likely to be different, options (1) and (2) above will be considered separately in the course of the following system revision examinations.

There were comparatively few discrepancies in opinions about option (1) from the perspective of advancing the *Hikari no Michi* plan, and there were even circumstances envisioned where option (2) would be necessary. Still, there is active debate from various viewpoints about option (2) and its specific implementation within the *Hikari no Michi* plan examinations.

In light of the circumstances described above, this report took the course of first examining the infrastructure transitional period assuming option (1) and then conducting additional examinations assuming option (2) where deemed necessary.

B. Direction of System and Operational Revisions

(i) Act OnNippon Telegraph and Telephone Corporation (NTT Act)

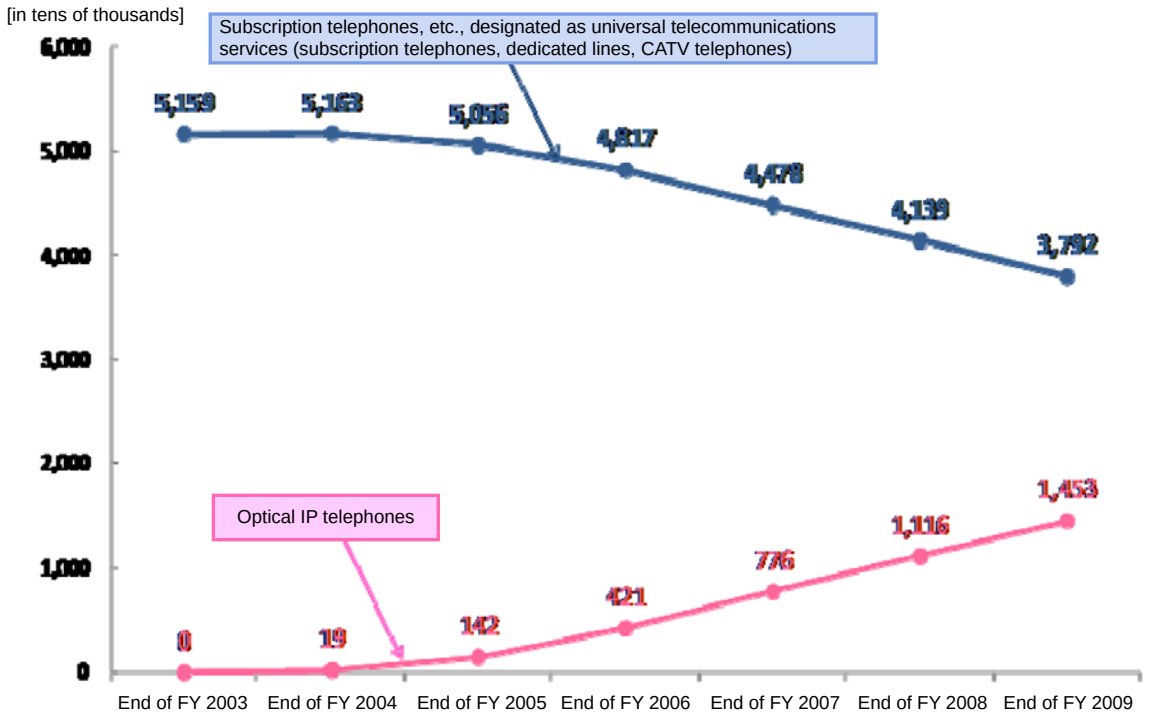
The provision of nationwide universal services under the current system follows from a stipulation in the NTT Act (in Article 3) that the NTT holding company and NTT East and West "shall contribute to the securement of appropriate, fair, and stable provision of nationwide telephone services which are indispensable to the lives of people." In practice, universal services are guaranteed by having NTT East and West operate local telecommunication services in all districts in all prefectures of the country.

With this stipulation, NTT East and West are required to provide some form of telephone services in all districts in all prefectures and secure the "appropriate, fair, and stable

provision of nationwide telephone services which are indispensable to the lives of people." Based on the requirements under the NTT Act, NTT East and West have, to this point, provided subscription telephone services nationwide.

The number of subscription telephone contracts, however, has slipped in recent years while the number of optical IP telephone contracts, which are effectively replacing subscription telephones, has climbed. In the near future, the number of optical IP telephone contracts is expected to overtake that of subscription telephones. Given this situation, it is appropriate to consider the provision of either subscription telephones or optical IP telephones equivalent to subscription telephones as fulfilling the requirements of the NTT Act in the interest of avoiding duplicate infrastructure investment. In this case, it will be necessary to examine the scope and other conditions of optical IP telephones to be provided as a universal service.

Figure 4: Transitions in the Number of Optical IP Telephones



(ii) Regulations concerning universal telecommunications services based on the Telecommunications Business Law

Under the current system, regulations concerning "universal telecommunications services" govern compensation amounts and other matters to assure the suitability and sustainability of universal service provision. The definition of "universal telecommunications services" is given Article 7 of the Telecommunications Business Lawas "telecommunications services which are specified by an ordinance of the Ministry of Internal Affairs and Communications as being indispensable to the lives of citizens and thereby shall be provided nationwide." In coordination with interpretations and operations of the system based on the NTT Act, the

present MIC ordinance (Article 14 of the Regulations for Enforcement of the Telecommunications BusinessLaw) defines universal telecommunications services as “subscription telephones.”

Consequently, if we accept that providing either subscription telephones or optical IP telephones equivalent to subscription telephones constitutes providing a universal service under the NTT Act, this will necessitate changing the scope of universal telecommunications services based on the Telecommunications Business Law.

It should be noted that when a telecommunications service falls under the definition of universal telecommunications services based on the Telecommunications BusinessLaw, providers of that service are subject to various regulations, including the obligation to endeavor to provide appropriate, fair, and stable universal telecommunications services, contractual agreement regulations, technical standards, and accounting rules. Hence, the application scope of regulations defining universal telecommunications services based on the Telecommunications Business Lawmust be set while accounting for the regulations’ intent and objectives and for the benefits and ramifications on businesses and end users.

Chapter 2: Scope of Optical IP Telephones Meeting the Universal Service Requirements

Based on the direction of examinations set out in Chapter 1, Section 2, the Council decided to examine optical IP telephone modalities that met the three basic requirements of a universal service listed below.

Figure 5

Basic universal service requirements

(1) Essentiality — **the indispensability of a service to the lives of people**
(2) Affordability — **the provision of a service at prices everyone can afford**
(3) Availability — **the provision of a service everywhere without regional variations**

Section 1: Availability — The Provision of a Service Everywhere Without Regional Variations

Availability of a service means that it can be used anywhere in the country. The intention of this system revision is to redefine the scope of universal services as "subscription telephones or optical IP telephones equivalent to subscription telephones." This satisfies the availability requirement because universal telecommunications services would be made available nationwide by either subscription telephones or optical IP telephones.

Section 2: Essentiality — The Indispensability of a Service to the Lives of People

Essentiality of a service means that it is broadly recognized as a service everyone uses and as an underlying structure of social and economic activities. To date, subscription telephones have been designated as a service indispensable to the lives of people.

A. Service Quality

The first question is whether optical IP telephones can guarantee service quality, in terms of call quality and other parameters, equivalent to subscription telephones. The Regulations for Telecommunications Facilities for Telecommunications Business, however, requires optical IP telephones assigned 0AB–J numbers to guarantee service quality equivalent to subscription telephones. Therefore, despite the fact that the services are different technically, 0AB–J optical IP telephones do guarantee service quality on par with subscription telephones. Thus, the service quality of 0AB-J optical IP telephones is appropriate for a universal service.

B. Reliability

(i) Considerations

The next issue is whether optical IP telephones and subscription telephones offer equivalent

levels of reliability. In the past, there were widespread problems with optical IP telephone reliability. In the last couple of years, however, nearly all of these difficulties have been resolved, leading to much-improved reliability. Therefore, the current reliability of optical IP telephones is appropriate for a universal service.

(ii) Differences in remote power-feed functions

One substantial difference between optical IP telephones and subscription telephones is that optical IP telephones require a power source at the handset and are essentially unusable during power outages. The power source is needed because remote power-feeds cannot be provided due to the nature of optical fiber.

Nevertheless,many other household electrical products require power sources at handset. There are also several other considerations about the general inability to use optical IP telephones during power outages: (1) Power outages have become very rare in Japan in recent years, and the frequency of power outages is much lower than in other countries; (2) mobile phones are prevalent and most households are able to make calls from a mobile phone during a power outage; (3) and users who require uninterrupted optical IP telephone use can install secondary power supply units that can power optical IP telephones for a certain duration during power outages. Given these considerations, the robustness of optical IP telephones is acceptable for a universal service.

C. Accessible Numbers

(i) Considerations

There are certain phone numbers and services accessible from subscription telephones that cannot be reached from optical IP telephones. These inaccessible phone numbers and services, however, are limited to rarely used pager numbers (020) and special additional services, such as call waiting.

The use of such special services is not a consideration for a universal service, however, and the current accessible numbers and available services of optical IP telephones sufficient enough to be appropriate for a universal service.

(ii) Emergency calls

Concerning to metal-line subscription telephones, emergency calls (calls to 110, 119, and 118 emergency services) are designated as a universal service in view of the importance of the public’s safety and security.

There is no change in the importance to people’s lives of emergency calls issued from optical IP telephones designated as a universal service with this system revision. The Regulations for Telecommunications Numbers stipulates that optical IP telephones assigned 0AB–J numbers must guarantee the ability to make emergency calls and presents no substantial obstacle to classing 0AB–J optical IP telephones as a universal service. Therefore, the emergency call capability of optical IP telephones, which is the same as that

of subscription telephones, is appropriate for a universal service.

Based on parts A, B, and C above, optical IP telephones are seen as satisfying the essentiality requirement since they guarantee equivalent performance to subscription telephones in terms of service quality, reliability, and other parameters.

D. Provision of Adequate Information to Users

Optical IP telephones require a power source at the handset and are essentially unusable during power outages. Furthermore, they can only call a subset of numbers and use a subset of services accessible from subscription telephones. Because there are users who will need to take special measures to address these shortcomings, users must be given accurate information about these matters.

The Guideline on Consumer Protection Rules for the Telecommunications Industry, which is based on Article 26 of the Telecommunications BusinessLaw, obliges businesses providing optical IP telephones to explain certain matters to consumers when the telephones are unable to make emergency calls during power outages because there is no remote power-feed or when the use of telecommunications services is limited. In addition to these matters, businesses, when supplying optical IP telephones as a universal service, should provide users with necessary information in an easily understood format about the need for a power source close to the handset and about the differences from subscription telephones.

Section 3: Affordability — The Provision of a Service at Prices Everyone can Afford

A. Basic Considerations

Universal services must be provided at a price everyone can afford (affordability). Thus, optical IP telephones designated as a universal service should be limited to those that meet this affordability requirement.

It is difficult to judge what optical IP telephone price levels can be deemed affordable enough for everyone at the present stage when the household penetration rate remains low. Nevertheless, subscription telephone price levels should be taken into account in some form because optical IP telephones are expected to be provided as replacements to subscription telephones during the transitional period.

In recognition that optical IP telephone pricing structures are different from the current subscription telephone pricing structures, both the intent of the current system revision and the subscription telephone price levels must be weighed when examining the appropriate scope of optical IP telephones designated as a universal service during the current transitional period.

B. Scope of Eligible Optical IP Telephones

If we consider “telephones” the prime universal service modality during the current transitional period and take into account the present subscription telephone price levels, examinations at the present time should focus on optical IP telephones supplied separately from broadband services in order to determine appropriate price levels for optical IP telephones offered as a universal service during the transitional period.

Optical IP telephones supplied separately from broadband services today include services provided in municipal IRU areas and services provided to large apartment buildings. Figure 6 provides the prices of leading services.

Figure 6: Prices for Optical IP Telephones Supplied Separately from Broadband Services

Type of service	Provider	Optical IP telephone service name	Initial fee	Basic rates	Call rates to subscription telephones and calling territory		Remarks
For municipal IRU areas	NTT East	IP Tsushin-mo Service*1	¥13,000	¥1,800 /month	¥8 per three minutes	Flat nationwide	Provided in some municipalities (rates for Sumita Town, Iwate Prefecture)
	NTT West	Flet’s Hikari My Town Family Lite*1	¥16,600	¥1,560/month*2	¥8 per three minutes	Flat nationwide	Provided in some municipalities (rates for Maniwa City, Okayama Prefecture)
	Softbank Telecom	BB Phone Hikari City	¥3,000	¥1,550/month	¥7.99 per three minutes	Flat nationwide	Provided in Niimi City, Okayama Prefecture
For large apartment buildings	KDDI	au Hikari Denwa Service	¥18,000 – ¥20,000*3	¥1,400/month	¥8 per three minutes	Flat nationwide	
	STNet	Pikara Hikari Denwa*4	¥25,000	¥1,300/month	¥8 per three minutes	Flat nationwide	
Unclassified service	K-Opticom	eo Hikari Denwa	¥30,000*5	¥1,323/month*6	¥7.4 per three minutes	Within the six adjacent prefectures	
					¥8 per three minutes	Outside the six adjacent prefectures	

*1: An FTTH service that provides 0AB–J phone services and IP notification services but not does not give Internet access.
*2: Maniwa City pays ¥200 per month to NTT West. This service also requires a subscription for free local calls (¥476 per month) provided by Maniwa City. An additional charge of ¥500 per month is required for billing by postal mail.
*3: This charge was waived during a special campaign between June 1 and August 31, 2010.
*4: This service is provided only to apartment buildings with STNet optical fiber already installed.
*5: Total of installation charges and processing fees.
*6: Includes charges for adaptor use.

To determine appropriate price levels for optical IP telephones supplied as a universal service during the transitional period, it is necessary to examine whether the price levels in Figure 6 are basically appropriate or whether more restrictive price levels should be considered.

The first factor is current subscription telephone pricing. Figure 7 provides current subscription telephone prices.

Figure 7: Current Prices for NTT East and West Subscription Telephones

<table>
<tr><td colspan="2" rowspan="2"></td><td colspan="6" rowspan="2">Basic rates (monthly)</td><td colspan="3">Call rates (three minutes, weekday afternoons)</td><td rowspan="3">Subscription fee (paid by user)</td></tr>
<tr><td>Local</td><td>Non-local, inner prefecture</td><td>Inter prefecture</td></tr>
<tr><td rowspan="4">NTT East and West</td><td rowspan="2">Subscription telephones</td><td colspan="3">Residential</td><td colspan="3">Business</td><td rowspan="3">¥8.5</td><td rowspan="3">(Inner prefecture: within a 60 km radius) ¥30</td><td rowspan="3">(Inter prefecture: outside a 100 km radius) ¥80 (relayed by NTT Com)</td><td rowspan="3">¥36,000 (–)</td></tr>
<tr><td>Third class station</td><td>Second class station</td><td>First class station</td><td>Third class station</td><td>Second class station</td><td>First class station</td></tr>
<tr><td>Pulse-dialing line
Brackets indicate Light plan</td><td>¥1,700 (¥1,950)</td><td>¥1,550 (¥1,800)</td><td>¥1,450 (¥1,700)</td><td>¥2,500 (¥2,750)</td><td>¥2,350 (¥2,600)</td><td>¥2,300 (¥2,550)</td></tr>
<tr><td>Touch-tone line
Brackets indicate Light plan</td><td>¥1,700 (¥1,950)</td><td colspan="2">¥1,600 (¥1,850)</td><td>¥2,500 (¥2,750)</td><td colspan="2">¥2,400 (¥2,650)</td></tr>
<tr><td>Softbank Telecom</td><td colspan="2">Otaku Light (simple plan)</td><td>¥1,500</td><td colspan="2">¥1,350</td><td>¥2,350</td><td>¥2,200</td><td>¥2,050</td><td colspan="2">¥7.89</td><td>Residential: ¥14.9
Business: ¥7.89</td><td>–</td></tr>
<tr><td>KDDI</td><td colspan="2">Metal Plus</td><td colspan="3">¥1,500</td><td colspan="3">¥2,400 (analog)</td><td colspan="2">¥8</td><td>Residential: ¥15
Business: ¥8</td><td>–</td></tr>
</table>

In comparison with subscription telephones, optical IP telephones generally have lower call rates. In this aspect, then, optical IP telephone prices are at an appropriate level for a universal service.

Basic rates, on the other hand, require further consideration because they in some cases exceed the lowest basic subscription telephone rates available in the respective area.

The first point is that current subscription telephone pricing structures do not completely reflect real costs.[5] This point has been mentioned in past Council reports, which have indicated the need for a re-examination of basic subscription telephone rates (Figure 8).

The second point is that because optical IP telephones make use of IP technology, call rates are generally flat nationwide rates and are lower than the call rates of subscription telephones. Where basic rates exceed those of subscription telephones, the prices are thought to reflect current costs, such as optical-fiber installation costs.

[5] The national average cost per subscriber line in FY 2009 was ¥1,872 based on a long-run incremental cost model.

Figure 8: Past Council Reports on Subscription Telephone Pricing Structures

Excerpt from a November 21, 2006, Information and Communications Council report

(3) Ongoing examinations of pricing structures in the interest of maximizing user benefits

○ The current basic rate structures have been founded on the idea of utility fees — higher prices are charged in local-calling areas that have larger subscriber populations because of the greater assumed utility to those subscribers. The Council recognizes that this type of rate structure has lost its significance given that competing business organizations are adopting flat basic rates and given the rapid growth of IP telephones.

○ Thus, the Council asks that NTT East and West observe the following point when revising their current basic rate structures in consideration of the revisions' impact on the universal service system.

- Specific revisions to basic rate structures are, in principle, left up to the management of NTT East and West. Nevertheless, NTT East and West shall continue to re-examine their basic rate structure approach based on market structural changes, such as IP migration, and shall immediately report to MIC and inform the general public about any revisions to the basic rate structure that results from these examinations.

Excerpt from the October 25, 2008, Information and Communications Council report "Review of the Universal Service Fund"

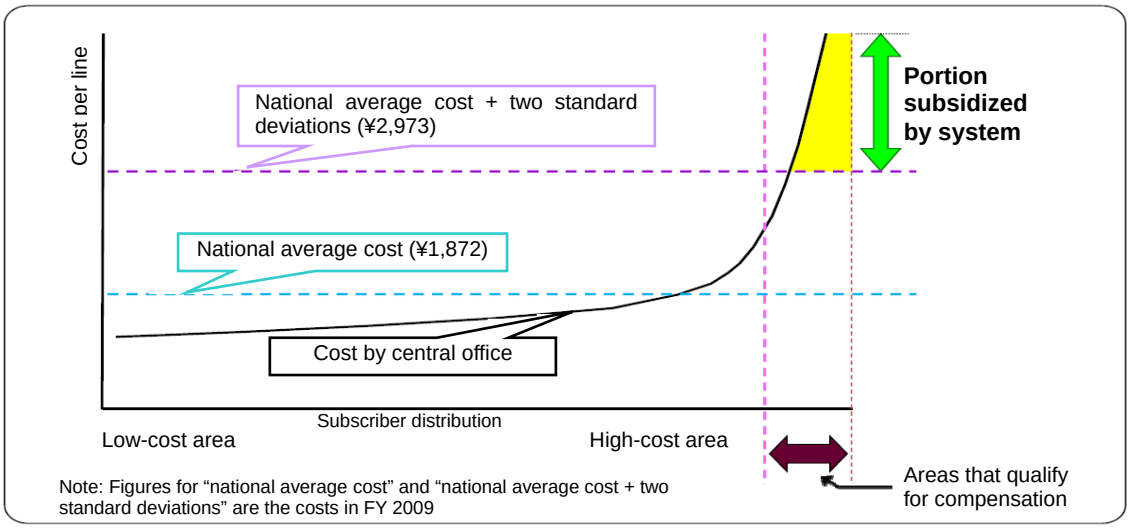
Chapter 1. FY 2009 – FY 2011 Universal Service System
Section 3: System Costs
B. Treatment of Basic Rates

The NTT East and West station class designations are based on the idea of utility rates, in which the more subscribers that can be called at conventional local call rates, the greater the utility value of the telephone service to subscribers in that area. As a result, there are still discrepancies in the basic rates due to these station class designations.

In interviews, participating businesses expressed the opinion that it is difficult at the present time to correct these discrepancies in basic subscription telephone rates between stations classes because rates for first and second class stations would unavoidably increase, which merits a national discussion. They were also of the opinion that the question of resolving station class discrepancies should be raised for discussion as soon as possible.

In a November 2006 Information and Communications Council report, NTT East and West were directed to continue to re-examine their approach to basic rate structures. We require NTT East and West at this time to take appropriate measures with respect to their basic rate structures based on this earlier recommendation.

Figure 9: Subscription Telephone Costs and Compensation Calculations



Note: Figures for "national average cost" and "national average cost + two standard deviations" are the costs in FY 2009

Some observers held that optical IP telephones, where available, offer more utility than subscription telephones because inexpensive calls can be made nationwide and because of their inherent broadband service extensibility.

Based on the actual state of subscription telephone and optical IP telephone pricing and assuming, as given in Chapter 1, Section 2A(ii)-2(1), that business operators will not provide new subscription telephones, basic optical IP telephone rates do not necessarily have to be tied the basic rates of residential subscription telephones in the respective area, even when taking current subscription telephone price levels into account. Instead, as long as optical IP telephones can be provided at basic rates that are at least within the current range of basic rates of residential subscription telephones,[6] then optical IP telephones can potentially be a universal service during the transitional period.

Another consideration in this discussion is the avoidance of duplicate infrastructure investments, given that the intent of this system revision is to promote optical fiber installation. In areas where supplying optical IP telephones on a normal profit basis is unfeasible, it is possible to expect that optical fiber will be installed through municipal IRUs and similar schemes, even though the basic rates of optical IP telephones that replace metal-based subscription telephones may exceed the current range of basic rates for residential subscription telephones. The concern is that if the universal service scope is made too restrictive, optical fiber may not be rolled out at all in these unprofitable areas. In areas facing this dilemma, then, optical IP telephones can still potentially serve as a universal service even if their basic rates exceed the current range of basic rates for residential subscription telephones.

Should the basic rates of optical IP telephones be significantly more expensive in the circumstances above however, optical IP telephones would not be appropriate as a universal service. But if optical IP telephones can be provided at the current basic rates found in municipal IRU areas[7] — the highest of which are no more than 10 percent higher than the current third class station residential basic rates for subscription telephones — these rates are acceptable for a universal service.

The other scenario to be discussed is when businesses transfer existing users of metal-based subscription telephones to optical IP telephones, as stated in Chapter 1, Section 2A(ii)-2(2). Opinions were expressed that in this scenario both the basic rates and call rates of optical IP telephones supplied as equivalents to subscription telephones should not exceed the previous prices charged to the users for subscription telephones. This recommendation should be observed by any business that decides to transfer its users from subscription telephones to optical IP telephones.

[6] Specifically, at or less than the basic rates for third class station residential subscription telephones (¥1,700), as given in Figure 7.

[7] Currently, the basic rates for optical IP telephones supplied separately from broadband services in municipal IRU areas are at or less than ¥1,800, as given in Figure 6.

C. Future Issues

(i) Present direction of system adjustments

Given the considerations above, the present basic rates for optical IP telephones supplied separately from broadband services generally meet the requirements for a universal service. Thus, for the present time, it is reasonable to adjust the universal service system on this assumption.

This system revision includes the assumption that the definition of optical IP telephones designated as a universal service will contain pricing criteria that references subscription telephone pricing.

By adopting such a definition, price regulations, like the price cap regulations on subscription telephones, can be avoided at the present time for optical IP telephones designated as a universal service. Nevertheless, service provision conditions, utilization trends, and other factors must be monitored to determine whether deployment of the revised universal system is keeping optical IP telephone prices, which are projecting downward, artificially high.

(ii) Future examination issues

Ad hoc examinations should be look into cases where new optical IP telephone services are introduced in a municipal IRU area or similar area with more expensive basic rates than existing municipal IRU optical IP telephone services. Such examinations should consider matters such as whether the extra costs can be accepted in the interest of promoting optical-fiber build-out, etc. based on verifications of the specific service provision conditions, utilization trends, and other factors and such as whether similar circumstances exist in areas that are not municipal IRU areas.

The criteria for optical IP telephones designated as a universal service will need to be re-examined in tandem with any revisions to the basic rates for subscription telephones.

Examinations should consider whether optical IP telephones supplied as part of a broadband service deserve to be included in the universal service scope based on the service provision conditions, utilization trends, and other factors which will be provided by an even greater variety of services and pricing plans for these telephones.

Furthermore, examinations of whether optical IP telephones supplied as part of a broadband service should be included in the universal service scope must also consider whether to permit prices for these optical IP telephones that are higher than subscription telephones because these optical IP telephones offer access to more functions than just telephone services. Such examinations must be carried out in parallel with considerations of including future broadband access as a universal service.

When conducting any of the examinations above, service provision conditions, utilization

trends, and other factors must be monitored to determine whether optical IP telephone prices, which are projecting downward, are being kept artificially high.

Chapter 3: Application of Regulations Based on the Telecommunications BusinessLaw

Section 1: Application Scope of Regulations Related to Universal Telecommunications Services

A. Content and Intent of the Current System

The Telecommunications Business Lawdefines universal telecommunications services as "telecommunications services that are indispensable to the lives of citizens and thereby shall be provided nationwide."

This stipulation requires universal telecommunication services — telecommunications services that are widely understood to be a fundamental means of communication and indispensable to the general public because a lack of access would present significant obstacles to people's livelihoods and social and economic activities — to be made accessible, in principle, everywhere in the country without prejudice in both profitable and unprofitable areas. At the present time, there are three designated universal telecommunications services: subscription telephones, emergency calls, and Type 1 public telephones (Article 14, Regulations for Enforcement of the Telecommunications BusinessLaw).

Following on from the intent of this stipulation, any telecommunications business that provides universal telecommunications services must strive to provide such services appropriately, impartially, and stably (Article 7, Telecommunications Business Law.

Furthermore, universal telecommunications services are required to be provided impartially to all users at appropriate prices and under defined terms and conditions. Thus, telecommunications businesses are obliged to prepare contractual agreements on the provision of universal telecommunications services stating prices and other terms and conditions, notify the prices and other terms and conditions to the regulatory body before they take effect, and post the prices and other terms and conditions for the general public. Telecommunications businesses are also obliged to provide the universal telecommunications services as defined in the contractual agreement (articles 19 and 23, Telecommunications BusinessLaw).

Because universal telecommunications services are indispensable to people's livelihoods, any telecommunications business that offers universal telecommunications services may not, without justifiable grounds, refuse to provide its universal telecommunications services within its service areas (Article 25, Telecommunications BusinessLaw).

In addition, any telecommunications business that provides universal telecommunications services must conduct its accounting according to procedural rules set by an MIC ordinance to ensure the proper calculation of service charges (Article 24, Telecommunications BusinessLaw). And telecommunications businesses must maintain telecommunications

facilities used to provide universal telecommunications services so the facilities are in compliance with technical standards set by an MIC ordinance to secure the stable and reliable provision of services (Article 41, Telecommunications BusinessLaw).

B. Universal Telecommunications Services and the Intent of This Revision

This revision to the universal service system intends to expand the scope of universal services from “subscription telephones” to “subscription telephones or optical IP telephones equivalent to subscription telephones” to avoid such issues as duplicate infrastructure investments, given the current transition in telecommunications service infrastructure from metal lines to optical lines. To date, “subscription telephones” (along with emergency calls and Type 1 public telephones) have been designated a universal telecommunications service in line with the regulations above and, therefore, “subscription telephones” are made available, in principle, nationwide without any regional prejudices. With this revision, however, it will be sufficient to have either “subscription telephones” or “optical IP telephones equivalent to subscription telephones” available everywhere in the country.

Thus, given the intent of this revision and the intent of the universal telecommunications services regulations given in Part A above, as well as in consideration of the impact on related businesses and users, the application scope of the universal telecommunications services regulations must be examined before proceeding with this revision.

C. Examinations of Possible Options

From opinions given in interviews, there are three possible options for the application scope of regulations associated with this revision, which would designate optical IP telephones equivalent to subscription telephones as a universal service.

(1) Regulations apply to the optical IP telephones of all providers
(2) Regulations apply only to the optical IP telephones of NTT East and West
(3) Regulations apply to the optical IP telephones of providers that also supply subscription telephones

(i) Examination of option 1

Option 1 would apply the regulations to all telecoms that provide optical IP telephones designated as a universal service.

This approach applies the regulations to any telecom that provides even one universal service because the current revision includes either “subscription telephones” or “optical IP telephones equivalent to subscription telephones” as universal services. From the standpoint of ensuring fair competition and protecting user interests, this option is acceptable because the same regulations apply to the same services of all businesses.

The downside to this approach is that, although the regulations would cover business operators that do not provide metal-based subscription telephones currently designated as universal telecommunications services, it results in more stringent regulations despite not

entirely having the desired effect of this revision, which is to avoid duplicate infrastructure investments in metal and optical. For this reason, this option is not completely appropriate.

(ii) Examination of option 2

Option 2 would apply the regulations only to the optical IP telephones of NTT East and West. In the midst of the massive switchover from metal to optical, the providers of metal-based subscription telephones, which are currently a universal telecommunications service, are not limited to just NTT East and West. So although this option does match the intent of this system revision, it does not necessarily conform to the current system's approach because it does not take this diversity into consideration.

If this option were adopted, optical IP telephone services that replace current universal metal-based subscription telephone services would be designated universal telecommunications services only when provided by NTT East or West. Since the optical IP telephone services of other telecoms would not be considered universal telecommunications services, this option is not entirely adequate in terms of ensuring fair competition and protecting user interests.

Furthermore, due to the structure of the regulations in the Telecommunications Business Law any regulations that single out specific telecommunications businesses must undergo strict examinations.

(iii) Examination of option 3

Option 3 avoids the issues with options 1 and 2 and it conforms with the intent of the current system of universal telecommunications services and the intent of this revision. Thus, option 3 appears to be suitable from an overall perspective.

The problem with option 3 is that different regulations would apply to the same service depending on whether the provider of optical IP telephones supplied separately from broadband services also provides metal-based subscription telephones or not. In view of the current transitional period, however, this discrepancy is considered unavoidable. At the same time, competition conditions must be watched closely and it must be remembered that the system may need to be revised again when the metal-optical transition is nearly complete.

D. Contractual Regulations

In interviews with business operators, opinions were gathered on the best regulatory approach to contracts and other matters after optical IP telephones become a universal telecommunications service.

Because this question involves the intent of the universal telecommunications service system itself, it must be given serious consideration. This issue should continue to be studied in parallel with examinations into the progress of the metal-optical transition and into the future designation of broadband access as a universal service.

Section 2: Ending the Provision of New Subscription Telephones by NTT East and West

A. Basic Considerations

Once the regulations above are amended to reflect the intent of this revision to the universal service system, it will be possible, generally, for NTT East and West, at their discretion, to not provide new subscription telephone services even when requested by users in areas where optical IP telephones equivalent to subscription telephones can be provided.

There are past precedents of telecoms electing to refuse new applications for a specific telecommunication service, and no fundamental problems are seen in the Telecommunications BusinessLaw, provided that it is possible to provide optical IP telephones equivalent to subscription telephones. The present Telecommunications BusinessLaw, however, states that “any telecommunications carrier who provides universal telecommunications services shall not, without justifiable grounds, refuse to provide its universal telecommunications services within its service areas” (Article 25). For this reason, policies to resolve differences between this requirement and this revision should be examined to permit telecommunications businesses to end the provision of new subscription telephones in areas where it is possible to provide optical IP telephones equivalent to subscription telephones.

Furthermore, the general public must be adequately informed that the provision of new subscription telephone services is ending, even if only in limited areas, because of the sizeable impact on users.

B. Public Awareness Efforts

A valid approach to studying effective publicity policies and measures is to begin phasing out new subscription telephones in a trial area and use feedback on experiences in the trial area.

Furthermore, when NTT East or West decides to end the provision of new subscription telephones in a given area, users must be made aware of the fact well in advance of the termination. In addition, a highly transparent process should be followed when determining the specific areas where new subscription telephones will be terminated, including the prior announcement of NTT East or West’s basic policies and plans, in the interest of giving users and related businesses predictability.

In connection with informing users about the termination of new subscription telephones, it was observed that the public’s understanding of the universal service system in general is very limited. It is necessary then to continue to promote public awareness of the overall system in tandem with this system revision.

C. Future Issues

Future examinations into granting NTT East and West the right to refuse to provide new

subscription telephone services even when requested by users must look at how to smoothly move ahead with this policy and how to enable NTT East and West to respond to such matters as (1) the service type used prior to the new application (whether a subscription telephone or not, etc.) and (2) whether the service user is relocating (whether the user is relocating, and, if not relocating, whether the application is for a new service or an additional service).

Such examinations must also consider fully whether there is any special need to guarantee the interests of users and must take into account the contractual relationship between the telecom and the users.

Chapter 4: Compensation Examinations

This chapter considers the necessity of providing compensation for optical IP telephones — assuming optical IP telephones are defined as a universal service — in the same way as for subscription telephones and other current universal services. This chapter also looks at the necessity of revising the compensation calculation methodology, including the current optical IP correction factor.

Section 1: Necessity of Compensation

A. Current Compensation Mechanism

The current universal service system adopts a benchmark methodology to calculate the compensation amounts for subscription telephones. The mechanism provides compensation to cover the costs associated with NTT East and West's high-cost subscription telephone lines by the amount those costs exceed a benchmark (the national average cost + two standard deviations).

An examination is required into the need to compensate the provision of optical IP telephones in high-cost areas prior to including optical IP telephones equivalent to subscription telephones in the universal service framework. Before this examination, however, opinions were gathered in interviews with businesses on this issue, the most important of which are summarized here.

(1) As there is no obligation to deploy optical IP telephones universally nationwide and as it is a management decision to deploy them, compensation is unwarranted.

(2) Compensation from the fund must be given to eligible telecommunications businesses providing 0AB–J IP telephones, but the methodology of calculating compensation amounts must be re-examined because PSTN and IP networks have different architectures.

(3) With respect to calculating compensation amounts, the cost calculation methodology, the process of identifying areas eligible for compensation, and the calculation methodology for compensation amounts should be studied based on experiences after tangible services have appeared in a majority of areas.

B. Compensation Considerations

The objective of the universal service system is to ensure the provision of services indispensable to people's livelihoods in all areas, even high-cost areas. If the rates are set to reflect the actual costs in high-cost areas, it will not be possible to guarantee universal services are provided at affordable prices. Therefore, the universal service system, in principle, establishes a mechanism to offset business operators' losses in high-cost areas.

During the transitional period, in which "telephones" are considered universal services, the current approach to compensation should be continued, in view of the principle behind the compensation mechanism, in order to subsidize the costs to maintain metal-based

subscription telephones in high-cost areas.
This revision aims to include optical IP telephones equivalent to subscription telephones in the universal service scope. At the present time, the eligible telecommunications businesses, NTT East and West, are expected to provide optical IP telephones as a universal service in municipal IRU areas. Subsidies and other programs already exist to help municipalities construct the necessary facilities and provide services in these areas. Therefore, there is no pressing need to compensate the costs of providing optical IP telephones as a universal service.

Furthermore, NTT East and West, the two eligible telecommunications businesses, were also of the opinion that the need for optical IP telephone compensation should be studied based on experiences after tangible services have appeared in a majority of areas. For these reasons, then, the best form of optical IP telephone compensation should continue to be studied based on changes in market and competition conditions and on the burden placed on the general public.

C. Compensation Calculation Methodology

In view of the arguments above, the current mechanism for calculating compensation amounts should be maintained at the present time with respect to the cost calculation methodology, the process of identifying areas eligible for compensation, and the calculation methodology for compensation amounts.

Furthermore, the current mechanism that subsidizes only costs associated with metal lines according to demand should be continued at the present time even if some subscription telephone lines have migrated to optical IP telephones in high-cost areas.

On the other hand, there are questions about whether some form of adjustment will be necessary to the calculations of subscription telephone compensation amounts once the optical IP telephones NTT East and West provide to high-cost municipal IRU areas are deemed a universal service. Our thoughts on this question are (1) at present, this scenario will happen only in a limited number of areas and (2) NTT East and West cannot decide to immediately terminate subscription telephone services in these municipal IRU areas. Therefore, at the present time, the costs to maintain subscription telephone services in these areas should not be eliminated from compensation calculations, and, hence, there is no need to adjust compensation amounts in the short term.

D. Future Issues

Although at the present time, it is advisable to maintain the current mechanism for calculating compensation amounts, it is still necessary to consider revisions to the calculation methodology in view of the conditions around the provision of optical IP telephones as a universal service and the state of migration from subscription telephones to optical IP telephones.

Should these considerations find it necessary to calculate the costs associated with optical IP telephones, further examinations will be required because the network architecture of optical IP telephones differs from that of metal-based subscription telephones.

Currently a long-run incremental cost (LRIC) model is used to calculate compensation amounts for subscription telephones and other universal services. But prior to calculating optical IP telephone costs, fundamental examinations should be pursued to determine which calculation methodology is appropriate (for example, an LRIC model designed to calculate optical IP telephone costs).

Section 2: Necessity of the Optical IP Correction Factor

A. Current Optical IP Correction Factor

The continuing movement from subscription telephones to optical IP telephones is reducing the number of subscription telephone lines and, thus, respective compensation amounts as calculated are falling despite the fact that the costs to maintain subscription telephones are the same. This situation has prompted fears that it may become difficult to maintain universal services in high-cost areas. To avoid this situation, starting with the approved contribution and subsidy amounts in FY 2009, an optical IP correction factor has been used for compensation calculations that adds the number of subscription telephone lines lost to optical IP telephones to the actual number of subscription telephone lines.

An examination is required into whether the optical IP correction factor should be continued prior to including optical IP telephones equivalent to subscription telephones in the universal service framework. Before the examination, however, opinions were gathered in interviews with businesses on this issue, the most important of which are summarized here.

(1) The optical IP correction factor must be continued for as long as the current calculation methodology is used because the factor's objective is to correct the decline in compensation amounts due to the falling number of subscription telephones nationally, even though subscription telephone numbers have not fallen in high-cost areas.
(2) The correction factor is unnecessary, seeing that the progress of the *Hikari no Michi* plan and the minimization of the burden on the general public should be premised on the elimination of metal lines.
(3) IP correction should be abolished once optical IP telephones become a universal service.
(4) The current correction factor is a transient measure that accounts for the two-level cost structure and, therefore, must be revised.

B. Optical IP Correction Factor Considerations

In Section 1 above we addressed the question of how best to calculate subscription telephone compensation amounts once the optical IP telephones NTT East and West provide to high-cost municipal IRU areas are deemed a universal service. Our thoughts on this

question are (1) at present, this scenario will happen only in a limited number of areas and (2) NTT East and West cannot immediately terminate subscription telephone services in these municipal IRU areas. Therefore, at the present time, the costs to maintain subscription telephone services in these areas should not be eliminated from compensation calculations, and, hence, there is no need to adjust compensation amounts. Similarly, the optical IP correction factor should also be maintained.

There is another approach during the transitional period to handling subscription telephone lines that migrate to eligible optical IP telephone lines in high-cost areas. This approach would deduct these lines from the total number of correction lines rather than considering them as subscription telephone lines. This and other approaches to the actual implementation of the optical IP correction factor should be examined as necessary while monitoring the state of migration and the extent of its impact.

Section 3: Other Considerations

A. Impact of Compensation on Competition Conditions

In interviews, competitors of NTT East and West expressed concerns that providing compensation for optical IP telephones designated as a universal service may adversely impact fair competition in FTTH services (many of which are bundled with optical IP telephones). Thus, future examinations of optical IP telephone compensation must take into consideration the potential impact on the state of fair competition.

B. Provision of Adequate Information to Users

In interviews, consumer organizations recognized the respective efforts of the government (MIC), supporting organizations, eligible telecommunications businesses, and contributing businesses to publicize the universal service system and to release materials on the calculation of contributions and subsidies since the system began operating. Nevertheless, consumer organizations pointed out that users are still bearing the expenses of the system without understanding it, and they expressed the wish that more detailed information on user contributions must be disclosed and presented along with easily understood explanations of universal services in general.

Based on these opinions, all entities must make further efforts to adequately inform users about the universal service system and to provide information about their contributions in more easily understood formats in order to educate users about the system.

Chapter 5: Further Examination Issues During the Course of Infrastructure Migration

This chapter arranges issues that should examined based on state of IP migration during the transitional period and on NTT's transition plans and attempts to clarify those issues and their directions.

Section 1: Treatment after IRU Agreements Expire in Municipal IRU Areas

A. Issue for Examination

There is an increase in situations where a telecommunications business purchases, via an IRU contractual agreement, optical fiber and associated facilities that municipal governments in disadvantaged regions have established through subsidies or other programs and the telecommunications business utilizes those facilities to provide services within the municipality's area.

IRUs are facility lease agreements with a fixed term (usually 10 years). NTT East and West raised the question about the need to work out how municipalities will provide facilities once IRU agreements expire in order to maintain the stable provision of optical IP telephones as a universal service.

They specifically asked for an examination of a mechanism that will continue the stable provision of services in IRU areas, such as signing an agreement similar to the current agreement, on the premise that the telecommunications business leases facilities that municipal governments have built with the assistance of subsidies and other programs from the central government, which makes affordable rates feasible.

The telecommunications business is expected to negotiate individually with the municipality about the treatment of optical IP telephone services when the IRU agreement expires (usually after 10 years) and renew their initial agreement. It is envisioned that when the agreement is renewed, the business will cover upgrade costs and facility expenses not provided for in the original subsidies. These new costs may, however, lead to increases in user rates, which were originally judged suitably affordable for a universal service.

B. Considerations Ahead of the Examinations

This issue deserves ongoing examinations into whether it is necessary to construct some mechanism in the universal service system to limit any user price fluctuations in the universal services described above. Such examinations should be based on the actual state of service provision in municipal IRU areas.

This problem is linked to the problem of how to interpret the costs and their contributions when these circumstances occur. It is also a problem related to the sustainability of not just optical IP telephones but also broadband networks. Therefore, these examinations should

keep in view the overall future image of the universal service system.

Section 2: Treatment of Metal-Access Telephones Accommodated in IP Networks under Consideration by NTT East and West

A. Issue for Examination

NTT is considering migrating PSTN users by accommodating their telephones in NGNs using metal-access IP adaptors in optical service areas. If such telephone services actually materialize, how the universal service system should treat these services must be examined.

According to NTT's PSTN user migration roadmap, it plans to migrate its core networks from PSTN to IP while prioritizing the service life of its facilities.

Some observers are of the opinion that such services should not be designated a universal service in order to encourage the withdrawal from metal access lines. NTT East and West, however, indicated they forecast existing switching devices to begin to reach the end of their service lives in about 10 years and that they are studying the accommodation of metal access lines in IP networks for the interim period. Nevertheless, the companies believe that, if consensus can be reached on "optical IP telephones with the same price levels as subscription telephones" being treated as a universal service, then "metal-based IP telephones with the same price levels as subscription telephones" should, essentially, be treated as a universal service too.

B. Considerations Ahead of the Examinations

At present, any response to the accommodation of metal access lines in IP networks will have to wait for NTT's examinations to see what technical means will be used to provide the services and to see what level user rates will be set at. Still, the provision of such services by NTT East and West would have a substantial impact on related business operators and users. Such impacts should be duly examined if and when such services are considered for addition to the universal service system.

The current system revision is limited to the inclusion of optical IP telephones in the universal service scope. Should NTT actually provide the services described above, the universal service scope will have to be re-examined to determine whether such services can be deemed "equivalent to subscription telephones."

Section 3: Treatment of the Provision of Optical IP Telephones in Designated Areas by Businesses Other than NTT East and West

A. Issue for Examination

Examples have been seen of businesses other than NTT East and West providing optical IP

telephone services at equivalent levels to subscriber telephones in municipal IRU areas, such as Softbank Telecom's provision of services by means of a municipal IRU in Niimi City, Okayama Prefecture.

In interviews, NTT West recognized that there were cases of other business operators establishing the capacity to provide 100 percent optical IP services in IRU areas, such as the example above. The company indicated, however, that systematic adjustments would be necessary before designating, alongside subscription telephones, any one of "optical IP telephone services with equivalent price levels to subscription telephones" from multiple carriers as universal services in these areas.

B. Considerations Ahead of the Examinations

Under the current system, even in the situation described above, NTT East and West must provide telephone services when requested by subscribers. In the future, however, should the provision of services through municipal IRUs expand further and should more business operators other than NTT East and West undertake these services, it will be necessary to examine how best to define the territories of eligible telecommunications businesses on a per-prefecture basis and to examine the construction of mechanisms that can ensure the stability of universal services even if the business operator withdraws from the area.

Section 4: Treatment of Non-Optical Technologies

A. Issue for Examination

The *Hikari no Michi* plan, introduced earlier in this report, expects that non-optical technologies, such as cable systems (hybrid fiber-coaxial (HFC)) and wireless broadband communication systems, will act as alternatives to optical fiber. In consideration of future technical innovation, these and other technologies will likely play an important role in realizing universal broadband.

In interviews on this subject, some opined that discussions were needed concerning the classification of non-optical-based 0AB–J IP telephones as a universal service regardless of the access line technology, and others suggested that all 0AB–J IP telephones, whether optical IP telephones or not, should be designated universal services for the convenience of consumers.

B. Considerations Ahead of the Examinations

This system revision aims to avoid duplicate infrastructure investment by incorporating optical IP telephones equivalent to subscription telephones in the universal service system. But as examinations into realizing universal broadband proceed, studies should be made of the treatment of non-optical technologies and whether such technologies should be included in the universal service system in the interest of maintaining technical neutrality.

C. Treatment of Mobile Phones

There have been previous studies looking at designating mobile phones, which now number more than 100 million subscriptions, as a universal service. In the interviews conducted for this report, some businesses felt that because of their proliferation and wide service areas, mobile phones should be considered again for inclusion in the universal service system. But as this system revision is concerned with avoiding duplicate infrastructure investment, a separate examination with a different focus would be needed to consider whether to place mobile phones among the universal services.

Since the rates for mobile phones are higher than subscription telephones, since there are still areas where mobile phone services are unavailable, and since there are demographic and regional variations in the use of mobile phones, any consideration of mobile phones as a universal service would need to look closely at their proliferation and usage conditions on a continuing basis.

And as important as it is to look at proliferation and usage conditions when considering mobile phones as a universal service, it would also be necessary to account for the key concept of the current universal services, which is to ensure “a minimum means of communication.” In other words, should mobile phones be included as a universal service, it would be necessary to examine whether mobile phones are a separate universal service to subscription telephones (i.e., subscription telephones and mobile phones) or whether, much like optical IP telephones in this system revision, mobile phones are a complementary universal service to subscription telephones (i.e., subscription telephones or mobile phones).

Another factor that must be weighed is the fact that users and mobile carriers did not express positive opinions on the idea of designating mobile phones as a universal service. Mobile carriers, in particular, were of the opinion that, due to the nature of mobile phone technology, it would be difficult to provide mobile phones with the same degree of stability and impartiality as subscription telephones.

Section 5: Treatment of Public Telephones in View of the Metal-Optical Transition

A. Issue for Examination

One issue associated with NTT East and West’s core network transition from PSTN to IP that has been identified is how to deal with functions and services, such as public telephone functions, that are not provided with current IP technology.

Anissue with public telephones, if connected to optical access lines, is the need for a function to send pulses over the IP network to indicate the caller has paid. NTT East and West are still researching technologies to implement public telephones that are compatible with IP networks and optical access lines, but technically it may not be possible to realize all the current functions of public telephones. Thus, if IP/optical-compatible public telephones can only be provided with a limited set of technically feasible features,

corresponding adjustments to the universal service system must also be made.

B. Examinations Assuming a Changing Role for Public Telephones

Type 1 public telephones are designated as a universal service and are installed for public safety and security and to provide a minimum means of communication outdoors. According to two MIC surveys on Type 1 public telephones in 2008 and 2010,[8] the majority of people believe that Type 1 public telephones should remain a universal service. Nevertheless, the role of public telephones is expected to change with the proliferation of mobile phones.

Given the changing role for public telephones, how well the current public telephone installation criteria and compensation calculation methodology correspond to these developments must be verified while monitoring the means by which IP-compatible public telephones are deployed and while giving due consideration to the fact that public telephones offer public safety and security and provide a minimum means of communication outdoors for users without a mobile phone.

[8] Both surveys questioned approximately 1,000 people. When asked about the necessity of public telephones as a universal service, more than 70 percent of the respondents (71.6 percent in 2008, 74.2 percent in 2010) replied "necessary" or "somewhat necessary."

Chapter 6: Further Issues After the Realization of the *Hikari no Michi* Plan

This chapter looks at universal service system issues that may arise after the transitional period (i.e., after the realization of the *Hikari no Michi* plan). Specifically, this chapter considers future examinations, based on the assumption that broadband access, with a much larger scope than the basic "telephone" framework, will be designated as a universal service.

Section 1: Universal Service Issues After the Realization of the *Hikari no Michi* Plan

With the full implementation of the *Hikari no Michi* plan, all households will have access to broadband networks, at which point it will be possible to treat "broadband access" as a universal service. Furthermore, the Information and Communications Council's 2008 report "Review of the Universal Service Fund" (2008 Report) noted the necessity of maintaining the availability (universal access) of services meeting certain conditions in environments where broadband services could be received.

A. System Revisions Assuming Broadband Access

Universal services predicated on broadband access once the *Hikari no Michi* plan has been fully implemented will be qualitatively different from universal services during the transitional period that are predicated on "telephones." Since a new system framework largely premised on broadband will be necessary, the system's basic approach will also need a far-reaching overhaul.

In other words, future examinations will likely focus on the necessity of a conversion from a system guaranteeing and maintaining "telephones," which rests on the current NTT Act, to a system guaranteeing and maintaining "broadband," assuming a scenario in which multiple carriers provide services.

B. Promotion of Broadband Utilization

The assumption of treating "broadband access" as a universal service has two requirements: national consensus, as a matter of course, and, prior to forming a consensus, a considerable increase in broadband utilization rates.

Currently, ultra-high-speed broadband infrastructure has been made available to about 90 percent of Japan's households, but the actual utilization rate is only around 30 percent, which underscores the importance of promoting broadband utilization. Because enabling users to receive broadband services at affordable prices is the key to increasing utilization rates, further stimulation of fair competition between carriers is a prerequisite to promoting broadband utilization.

Section 2: Broadband Establishment and Maintenance

The "*Hikari no Michi* Strategy Outline" states that, in principle, the private sector in a competitive environment should lead broadband infrastructure establishment, but it also provides for public assistance measures as incentives to accelerate infrastructure establishment.

In interviews, the following opinions were given on broadband establishment and maintenance.

(1) Future examinations should look at using a new framework separate from the universal service system to cover first the establishment costs and then the maintenance costs for ultra-high-speed broadband services in high-cost areas as part of implementing the *Hikari no Michi* plan.

(2) Paid-forward investment compensation is needed to implement the *Hikari no Michi* plan.

A. Approach to Covering Broadband Establishment Costs

As stated before, the purpose of the universal service system is to maintain universal services nationwide and not to directly support the establishment of broadband infrastructure. Therefore, based on the current approach to universal services, it is not customary to provide compensation from the universal service fund for broadband establishment.

The comment that broadband establishment and other costs should be covered by a framework separate from the universal service system should be examined as necessary in the context of future comprehensive examinations of information and communications policy.

B. Approach to Covering Broadband Maintenance Costs

If, in the future, maintaining broadband access becomes eligible for compensation under the universal service system or a similar system, this would be premised first on forming national consensus on the issue. Second, timely and appropriate examinations would be needed of the methodology to calculate broadband access maintenance costs as well as the method of sharing these costs, while observing the approach and ideas stated in the 2008 Report.