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Spectrum Management and Telecommunications Policy

A Spectrum Policy Framework for Canada (2002 Revised Edition)

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RADIOCOMMUNICATION ACT

Notice No. DGTP-004-02 – Revision to the 1992 Spectrum Policy Framework for Canada

Intent

The intent of the present Gazette Notice is to announce the release of a revision to the 1992 *Spectrum Policy Framework for Canada (Framework)* which reflects current policies and practices. In addition, Industry Canada is initiating a process, with public consultation, that will lead to the development over the next few years of a renewed *Framework* that will be more responsive to the evolving communications environment in the longer term.

Background

The *Framework* contains a set of Core Objectives and Policy Guidelines that provides the fundamental basis for the Department's spectrum policy and management program. The Department's experience in applying the objectives and policy guidelines of the 1992 *Framework* has been positive. However, there have been significant changes since the issuance of the *Framework* in 1992. New types of radio communication systems have emerged which necessitate changes in both spectrum policy and management. Also, there have been fundamental changes in the telecommunications industry with the advent of the Internet age and increased competition and convergence in the delivery of telecommunication and broadcasting services. In response to these changes, the Department has introduced new approaches and policies over the past few years for the effective management of spectrum. Some examples of these initiatives include: market-based licensing, spectrum licences and the broader utilization of frequency allocations. In order to keep pace with current developments, the Department is issuing a revision updating the 1992 *Framework*.

Discussion

A revision updating the 1992 *Framework* is issued based on the modifications previously made to specific aspects of the Department's spectrum policy and management program. As these particular modifications to the spectrum policy and management program have been made following the normal process of public consultation, the Department is of the view that it is unnecessary to solicit general public comment on this updated *Framework*. Nevertheless, the Department will consider any public comment on the completeness of the updated *Framework* in a future revision or amendment. Looking towards the future, the Department anticipates a number of profound changes in the delivery of telecommunications, broadcasting and new media. It is anticipated that there will be an increased reliance on commercial factors in establishing radiocommunications policy and procedures that will facilitate the most appropriate use of the radio spectrum. Common digital infrastructures will increasingly cater to the convergence of multi-service delivery. As well, there will likely be a greater role for radiocommunications in national security. In view of this situation, the Department believes that it is timely to commence a process of public discussion that will lead ultimately to a revamped *Framework*. In order to initiate the public discussion on the development of this renewed *Framework*, the following Section includes a number of broad questions for consideration.

Invitation to Provide Ongoing Comments Towards the Development of a Renewed Spectrum Policy Framework for Canada

As discussed above, the Department is inviting public comment to contribute towards the development of a renewed *Framework* that will be responsive to Canadian radiocommunication needs for the longer term. The development of this renewed *Framework* is anticipated to take two years or so and include several phases. The Department now invites preliminary views, as to the issues that should be addressed in this consultation, and their potential resolution. To initiate discussion, several questions are offered for consideration. However, commentators are invited to address any matters within the scope of the development of this renewed *Framework*.

- (a) What are the changes needed to the *Framework's* Core Objectives to better reflect the changing environment of spectrum users, the telecommunications and broadcasting industries, and evolving radiocommunications services?
- (b) Which policy principles of spectrum use and management should be changed to be more responsive to the needs of priority services and to commercial services in an open marketplace?
- (c) How can greater flexibility in the use of spectrum be introduced to let market forces seek the best commercial applications? What steps are necessary to ensure that the spectrum would be utilized and not hoarded?

The Department welcomes comment on an ongoing basis from interested parties on these and any other issues relevant to the development of the renewed *Framework*. In order to be fully considered, initial comments should be sent to Framework@ic.gc.ca by September 30, 2002, or preferably earlier. Comments will be posted, as received, on the Department's Web site at <http://strategis.gc.ca/spectrum>.

Availability of Documentation

This Notice and the revised *Framework* are available electronically as follows:

World Wide Web (WWW)
<http://strategis.gc.ca/spectrum>

or can be obtained in hard copy, for a fee, from **DLS, St. Joseph Print Group**, 45 Sacré-Coeur Boulevard, Hull, Quebec K1A 0S7, 1-888-562-5561 (Canada toll-free telephone), 1-800-565-7757 (Canada toll-free facsimile), 1-819-779-4335 (World-wide telephone), 1-819-779-2833 (World-wide facsimile).

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1. Introduction

1.1 Intent

The intent of the present document announced in Gazette Notice DGTP-004-02 is to update the *Spectrum Policy Framework for Canada (Framework)*, issued in 1992, to reflect current policies and practices.

The modifications to the 1992 *Framework* incorporate changes made since 1992 to certain spectrum policies and practices which have been the subject of extensive public scrutiny - the use of auctions in radio licensing, for one example. Industry Canada will consider any public comments on the completeness of the updating of the 1992 *Framework*, in a future revision or amendment.

1.2 Background

The *Framework* was issued in September 1992 following two stages of public consultation. The considerable effort that was put into the development of the *Framework* by the Department and those commenting resulted in the current written set of objectives and policy guidelines that has served Canada well since that time. The Department's experience in applying the objectives and policy guidelines of the 1992 *Framework* has been positive and it is our belief that industry has been aided by the public availability of this material consolidated in one document.

However, there has been a tremendous amount of change in telecommunications since the issuance of the *Framework* in 1992. During the intervening time, the world has moved into the Internet age with an increasing emphasis on the personal portability of telecommunication devices. The availability of new technologies and products has had a significant impact on the applications of radio and consequently on the use of the radio spectrum. As an example, there has been much more demand for mobile wireless devices, whereas the widespread deployment of fibre has replaced the general use of microwave radio for longer haul telecommunication links.

Furthermore, there have been some fundamental changes in government regulation of telecommunications in Canada and the world as a whole. In accordance with the World Trade Organization (WTO) multilateral agreement on basic telecommunications services of February 1997, Canada opened its market to competition from foreign entities in the fixed satellite and mobile satellite services as well as international telecommunications services.

Since 1992, changes to government policy and regulatory decisions by the Canadian Radio-television and Telecommunications Commission (CRTC) have led to a larger degree of competition in the delivery of all segments of telecommunications services. This has resulted in the use of radio systems to provide services in direct competition to wireline services, a situation that was discouraged previously. The Government has also adopted a convergence policy enabling the telephone and cable companies to enter each other's core markets thus fostering

competition, network interconnection and service innovation. Convergence is blurring the distinctions among the categories of services provided to consumers.

In order to respond to these changes of government policy direction, and some of the changes in the telecommunications industry since 1992, the Department has adopted a number of changes in spectrum policy and management. One specific example is the Department's adoption of the option of using auctions as a means of determining who should be selected among multiple competing applicants for radio licences where there is not sufficient spectrum to meet projected demand.

Consequently, the Department believes that it is timely to issue a revision to the 1992 *Framework* by updating it to reflect the current use of the radio spectrum as well as the current state of government policy and regulation. Many of the modifications to the *Framework* indicated in this document are the result of incorporating already adopted changes in the spectrum policy and management area.

1.3 Structure and Scope of this Document

For the convenience of the reader, the present document retains the structure of the 1992 *Framework*. The first three chapters provide an overview of the radio frequency spectrum, the basis in legislation and spectrum policy and the changing environment in radiocommunications. Chapter 4 presents a discussion of the Core Objectives of the *Framework*. Chapter 5 includes a discussion of the Policy Guidelines of the *Framework*.

Certain of the Core Objectives and Policy Guidelines of the 1992 *Framework* are revised. The Department is of the view that the majority of the Core Objectives and Policy Guidelines of the 1992 *Framework* are presently valid, with minor updating in some cases. In other instances, the modifications to the Core Objectives and Policy Guidelines of the 1992 *Framework* incorporate changes to departmental policy made since 1992, following the normal process of public consultation.

2. The Radio Frequency Spectrum

2.1 The Spectrum Resource

Canada depends upon the radio frequency spectrum to maintain its sovereignty and security, and to safeguard individual citizens. The radio spectrum also supports a wide range of business, personal, industrial, scientific, medical, research, and cultural activities, private and public.

The radio spectrum influences the daily lives of every Canadian. In Canada, because of immense distances and sparse population, radio services provide essential links connecting people to one another.

The spectrum resource supports a multibillion dollar industry. An increasing proportion of Canadians uses cellular radio and personal communication services. Satellite and microwave radio relay systems extend the reach of backbone fibre optic systems and in some cases provide the public with access to competing delivery of services. Capital investments in radar, radionavigation and other radio systems are also significant. The telecommunications industry's impact on the Canadian economy goes beyond the revenues and employment generated by the industry itself. Telecommunications, including wireless services, provides a critical infrastructure for knowledge-based and other economic sectors, which has an enormous "enabling" impact on the rest of the economy.

The radio frequency spectrum is a finite resource. With the rapid evolution and application of new radio technologies, the spectrum is becoming an increasingly congested and limited resource, particularly in light of increasing and competing demands for new services.

2.2 Spectrum Policy and Management

Government Mandate – The Minister of Industry, through the *Department of Industry Act*, the *Radiocommunication Act* and with due regard to the *Telecommunications Act*, is responsible for developing national policies and goals for spectrum resource use, facilitating efficient development of radiocommunication in the public interest, ensuring effective management of the radio frequency spectrum and fostering the orderly development and operation of communications in domestic and international spheres.

The broad mission for the Spectrum Management and Telecommunications Program of Industry Canada has been defined as being one of:

" facilitating the development and use of world-class communications infrastructure, technologies and services for the express purpose of enhancing Canada's competitiveness, economic growth and the quality of life of all Canadians"

by:

- ensuring flexible and efficient use of the radio frequency spectrum as a strategic national resource;
- supporting timely and equitable access to high-quality and affordable communication systems and services, and;
- promoting industrial development by facilitating exports, innovation and investment in Canada's communication infrastructure.

Spectrum Policy - Canada is keenly aware of the international dimension of its economic and social activities. As the radio frequency spectrum is a common global resource with no national boundaries, spectrum policy and management can only meaningfully take place through bilateral agreements and cooperation with neighbouring countries and multilateral organizations such as

the Inter-American Telecommunications Commission (CITEL) and the International Telecommunication Union (ITU).

Each country has a degree of flexibility to decide on particular radio service allocations to meet its domestic needs, among the services allocated internationally by the ITU. Consideration is given to mitigating interference with neighbouring countries. The Department reviews and reallocates specific frequency bands to services on a periodic basis normally following an ITU World Radiocommunication Conference in order to satisfy domestic communications requirements. These domestic allocations are published in the *Canadian Table of Frequency Allocations*.

Within the Canadian communications environment, use of the radio frequency spectrum is contingent on a balanced set of spectrum and licensing policies, radio regulations, radio system standards, rules, procedures and practices designed to maximize the economical usage of the spectrum while minimizing the impact of one use on another.

The Department, in order to develop these policies, standards etc., engages in an extensive public consultation process to enable a full review and discussion of proposed modifications.

3. The Changing Environment

3.1 The Challenges

The original *Framework* published in 1992 discussed the challenges of spectrum management such as rapid advances in technology and increasing globalization. The Department's assessment is that the function of spectrum management has largely met these challenges over the intervening period. Nevertheless, this has required some adaptation of spectrum management practices to take account of the impact of change and in many cases this change is ongoing.

One aspect affecting spectrum policy is the convergence of the telecommunications and broadcasting industries and their delivery of services. The Department released a Convergence Policy in 1996 that set the conditions for the entry of telecommunication entities into broadcasting and for the broadcasting and cable entities to enter the telecommunications markets. This policy also fostered competition, network interconnection and service innovation. Spectrum has been made available to support this policy thus enabling the deployment of new radio systems and facilitating competition, innovation and the delivery of services to all regions of Canada.

Another aspect is the increasing globalization of the economy and, in particular, trade. In accordance with the WTO multilateral agreement on basic telecommunications of February 1997, Canada opened several areas of telecommunications to competition with foreign entities. These factors require that domestic decisions on spectrum allocations, frequency plans and

standards need to have more of a global perspective rather than the domestic or sub-regional view of previous years. This also encourages the harmonization of regulatory standards and equipment approval processes with those of other countries. This trend is expected to continue.

Technology continues to evolve. Since the publication of the original *Framework*, we have seen the replacement of the use of radio relay by fibre optical links for large capacity inter-city communication systems. However, the use of radio is increasing in many other applications such as personal and satellite communications as well as local network distribution.

By far the greatest change since the inception of the 1992 *Framework* has been the widespread use of the Internet. Although it may be difficult to predict the diversity of Internet-based applications delivered by radio during this decade, they will likely be many. It is important that this and future revisions of the *Framework* are thorough and flexible in their application, to ensure that the principles and guidelines provide the appropriate base to accommodate future change.

3.2 Need For a Revision to the Framework

The Department believes that the 1992 *Framework* continues to be a useful policy document to provide the Department's basis for spectrum policy and management. However, the great change in telecommunications since 1992, as well as the changes in the Department's spectrum policy and management practices, warrants issuing a revision, updating the *Framework* where necessary.

4. Core Objectives of the Spectrum Policy Framework

As the radio frequency spectrum is recognized as a strategic national public resource, under the legislative responsibility of the Minister, the Department confirmed a set of core objectives in the 1992 *Framework*. These objectives, which relate to "allocation, planning, utilization and management of the spectrum", were intended to "provide a foundation for approaches that will ensure the judicious planning and management of the radio spectrum resource".

Modified Core Objectives

- To promote and support the orderly development and efficient operation of radiocommunication systems and services to provide economic, social and cultural benefits for Canadians while meeting Canada's sovereignty and security needs. In carrying out this function, the Department will respect the government's Regulatory Policy ensuring that federal government intervention is justified in those instances where regulation is seen as the best alternative and that adverse impacts on the economy are minimized.
- To plan and manage the utilization of the spectrum resource in accordance with legislative and public policy objectives and international agreements by the powers conferred by the

Radiocommunication Act and, with due regard to the objectives of the *Telecommunications and Broadcasting Acts*, through continuing review and improvement of the spectrum management process.

- To further improve efficient and optimum use of the spectrum resource through adoption of advanced spectrum allocation, management techniques and licensing processes based on operational requirements and technical and economic viability.
- To ensure flexibility and adaptability and ease of access to the spectrum resource in response to technological advances, and economic, social and market factors.
- To ensure Canadian interests are protected when harmonizing and coordinating Canada's spectrum policies and utilization with other countries, regional and international organizations and with treaty obligations, including those of the ITU.
- To support and promote innovation, research and development in new radiocommunication techniques and spectrum-based services and applications.
- To coordinate and establish well balanced national spectrum and radiocommunication policies and plans by widely consulting with all interested parties and the general public.

5. Policy Guidelines for a Spectrum Policy Framework

The 1992 *Framework* adopted a set of Policy Guidelines following two stages of public consultation. These 1992 Guidelines are modified to update them with current policy and practice.

In the present review, it was felt that the set of Spectrum Resource Principles of Policy Guideline 3 of the 1992 *Framework* served as a basis for several other Guidelines. These Principles form a new Guideline 1 found in Subsection 5.1.

5.1 Spectrum Resource Principles

The 1992 *Framework* included a set of spectrum resource principles intended to meet public needs, to encourage orderly and efficient development and use of radiocommunications and to ensure effective planning and management of the radio frequency spectrum.

These modified principles should continue to ensure that spectrum policies and management foster the orderly and efficient development of radiocommunication while maximizing economic and social benefits of the use of the spectrum.

Allocation of Bands to Radio Services - Bands of spectrum are allocated in Canada to particular radio services to accommodate radiocommunication systems with compatible coexistence characteristics, serving the largest number of users possible. These domestic allocations are normally a subset of the International Frequency Allocations. The Department will employ flexibility in their application as appropriate.

Designation to Usage - To promote efficient and optimal utilization by grouping together systems of similar characteristics, spectrum is designated on the basis of use, rather than type of user. The Department will provide licensees the flexibility to adapt their service offerings to meet demand within the practical limits of the allocation and designation.

Interference Mitigation and Frequency Coordination - The effects of interference are minimized or managed to acceptable limits. Coordination is normally required for licensees such as to permit service availability to users in adjacent service areas. The Department encourages the holders of area licences to coordinate amongst themselves.

Conformance to Standards and Frequency Plans - Conformance to common standards and frequency plans are normally required to ensure orderly development, to avoid harmful interference and to facilitate operational compatibility of radio systems, both in Canada and in the global market. Coexistence of multiple standards in certain frequency bands may be permitted.

Appropriate Use of Spectrum - The need and the appropriateness of use of the spectrum must generally be evident to ensure maximum utilization of resources.

Timely Release of Spectrum - The Department's intent is to release spectrum for licensing in a timely manner so that it can be used and produce benefits for all Canadians. The Department will continue to forecast when, and in what situations, additional spectrum and satellite orbital positions will be released. Spectrum will not be withheld, except when specific policy issues advocate it.

Orderly Growth of Radiocommunications - The proposed usage of the spectrum must be in harmony with the overall core objectives of spectrum usage in Canada.

Fostering of New Technologies and Innovation - The use of emerging technologies and innovation in service offerings which enhances the use of the spectrum resource is encouraged.

Application of Economic Principles - Since the publication of the *Framework* in 1992, the Department has increasingly incorporated economic principles and a reliance on market forces in the management of spectrum. Spectrum managers will strive to apply the most appropriate economic principles, as well as, policy, regulatory, technical and operational principles, to maximize the benefits to society through the use of the spectrum resource.

They will manage the spectrum in a manner that supports fair competition, using market forces to capture resource rents where they exist and recovering spectrum management costs where such rents do not exist.

Policy Guideline 1 - Spectrum Resource Principles

The Department will apply these basic spectrum resource principles as an overall guidance for good planning and management of the radio spectrum.

These principles will be adapted as necessary to meet evolving requirements.

Allocation and Priorities of the Spectrum Resource

5.2 Allocation of Spectrum

Radiocommunication is an integral part of the delivery systems of a wide variety of telecommunication services to the general public, private organizations and individuals. Spectrum allocation policies are important to support the objectives of legislation as well as the advancement of economic and social goals.

Specific spectrum policies are developed to achieve optimum allocation and efficient utilization of the radio frequency spectrum to meet the immediate and long-term needs of all radio spectrum users. The use of the spectrum resource is contingent on an efficient and effective body of policies, rules, procedures and practices designed to accommodate as many users and service applications as possible and to promote equitable sharing among the services and users in an environment free from harmful interference.

In reallocating spectrum resources from one service to another, the Department must maintain a balance among the requirements of the users. The comments in the consultation of the 1992 *Framework* agreed that “public interest” should remain a fundamental aspect. They called for the Department to provide flexibility and adaptability in the spectrum allocation process.

Policy Guideline 2 – Spectrum Resource Allocation

The radio frequency spectrum, as a national public resource, will be allocated and planned to advance public policy objectives, while ensuring a balance between public and private radiocommunication use to benefit Canadians. The reallocation of, and access to, the spectrum resource will be adapted to meet changing user requirements, to provide spectrum that best meets the needs of the user and to facilitate the deployment of new and innovative services.

5.3 Priorities for Access to Spectrum

Access to spectrum for services involving the security and sovereignty of the country and the safety of life and property, such as those provided by National Defence, police, fire and ambulance, assume primary importance, compared to other services.

The Department also recognizes that these organizations are increasingly utilizing private sector service providers to meet their communication requirements. As such arrangements are often cost effective, efficient and appropriate, the Department will endeavour to ensure that commercial service provision opportunities are not compromised in its allocation, allotment and licensing practices.

Policy Guideline 3 - Priority Support Areas

Radiocommunication systems vital to sovereignty and national security, National Defence, law enforcement, public safety and emergency will be granted high priority and support in the access and use of the radio spectrum.

5.4 Socio-economic Factors

In exercising legislative powers, the Minister may have regard to the objectives of the Canadian telecommunications policy of the *Telecommunications Act* as well as other legislation. In this regard socio-economic factors have been a key determinant of the public interest and benefits in the spectrum allocation and utilization process. In order to adequately assess various spectrum allocations or utilization options, socio-economic factors as well as the overall public interest need to be taken into account. As well the Department has employed socio-economic factors in the assessment of applications on occasion for radiocommunication systems in areas of limited spectrum availability.

Policy Guideline 4 - Socio-economic Factors

Socio-economic factors will be an important component in all aspects of spectrum policy and management, particularly within the scope of the *Radiocommunication Act*, where the Minister may give regard to the policy objectives of the *Telecommunications Act*.

5.5 Non-Spectrum Alternative

In the past, applicants for radio systems have been encouraged by the Department in certain circumstances to seek a non-radio alternative, especially in areas where spectrum is heavily utilized or where a non-radio alternative can be reasonably deployed. This policy was predicated on the basis that the use of the non-radio alternative leaves spectrum for radio applications that have no other options.

However, with the current government policy of encouraging the competitive delivery of services, there are instances where radiocommunication systems are competing directly in the

delivery of services provided by wireline facilities. Given this situation, the Department is of the view that Policy Guideline 5 of the 1992 *Framework* is no longer required.

5.6 Spectrum Efficiency

The Department is fostering an increased reliance on market forces while ensuring that regulation and policy formulation are efficient and effective. In this regard, efficient spectrum utilization continues to be an important consideration in allocation and utilization policy decisions.

At the time of the issuance of the 1992 *Framework*, the Department followed certain measures to conserve spectrum for periods of time to enable the future expansion of a licensee's spectrum. The Department now relies to a greater degree on the use of economic means for licensing mutually exclusive spectrum used for commercial services. Nevertheless, there may still be important public interest considerations for delaying the opening of certain frequency bands, or portions thereof, to new services, to benefit existing services. However, measures to conserve spectrum must consider all spectrum user needs in a manner that is complementary to legislative objectives and good spectrum management principles, while seeking to avoid creating an artificial shortage of spectrum for any class of radiocommunication.

Policy Guideline 5 - Spectrum Efficiency

Due regard will be given to efficient spectrum use in spectrum policy formulation and spectrum management practices, particularly when market forces do not align with certain important public interests.

5.7 Spectrum Sharing

Spectrum sharing is employed among services in particular allocations and geographical areas to increase the usage of the spectrum. Sharing can take the form of use of the spectrum by two or more, often dissimilar services, that can coexist in the spectrum space in a manner that they derive virtually unencumbered use providing that certain technical sharing parameters are applied, such as power limitations, antenna pointing ranges. An example of this is the fixed-satellite service sharing with the (terrestrial radio relay) fixed service. A feature of both services is that they use directional ground-based antenna.

A second type of spectrum sharing involves the time sharing of the spectrum resource. A traditional technique has been a number of lower usage mobile radio users sharing the same frequency channel. More efficient techniques take advantage of the efficiencies of traffic engineering by grouping large number of users together on multi-channel systems. The deployment of new technologies such as spread spectrum also introduces other sharing scenarios.

There has been a general increase in the number of sharing scenarios at the allocation level since the publication of the 1992 *Framework*. This is a result of the international process of finding suitable frequency allocations for emerging service applications. The solution is often to introduce new services by having them share with other existing users in established allocations, subject to certain sharing parameters which permit the operation of both services with minimal constraints. Licensees are encouraged to participate with the Department in the development of these sharing parameters.

Policy Guideline 6 - Spectrum Sharing

Spectrum sharing among various services and users based on appropriately defined criteria and conditions is required in order to satisfy the growing needs for radio spectrum resources. The Department will continue to promote spectrum sharing while considering the impact on spectrum efficiency and operational requirements of the services.

5.8 Displacement of Services

Spectrum users need to take into account in future planning that the Government will continue to possess all governing rights necessary to implement a required reallocation of spectrum at any time. Such a reallocation may necessitate the displacement of incumbents from a particular frequency band.

The following Excerpt from the Radio Regulations applies:

“Assignment of Frequencies

40. The assignment of a frequency or frequencies to a holder of a radio authorization does not confer a monopoly on the use of the frequency or frequencies, nor shall a radio authorization be construed as conferring any right of continuing tenure in respect of the frequency or frequencies.”

However, it is important to note that the Department would reallocate assigned spectrum only if there was a compelling requirement to do so, and only after public consultation on the implementation of the new service. If such a reallocation were to take place, provisions would be taken to grant a reasonable period of time for the incumbents to relocate at their own cost.

Since the publication of the 1992 *Framework*, there have been several policies issued requiring the gradual displacement of fixed services to enable the introduction of other new service offerings. It is the view of the Department that these displacement policies have been applied fairly and that they provide an appropriate mechanism for making spectrum available for new services.

Policy Guideline 7 - Systems or Services Displacement

The Department will reallocate spectrum only when there is a compelling requirement to do so and will continue to provide reasonable notice to inform users of any conditions or circumstances which could result in displacement of services or systems.

There is no liability or responsibility or intent by the Department to financially compensate spectrum users being displaced.

Licensing

5.9 Licensing Process

The traditional means of radiocommunication development in Canada has been to allocate and designate bands of spectrum to particular radio services and applications and then to subsequently license applicants within each service category.

Processing and assigning of frequencies for radio applications is accomplished by an integrated spectrum management system according to existing spectrum utilization policies, licensing policies, general radio regulations and radio system standards.

Licensing policies are constantly adapting to changes in radiocommunication in order to respond effectively to the evolving competitive environment and user needs. A number of licensing

mechanisms are available to the Minister to assign frequencies. The “First-Come, First-Served” (FCFS) approach is used in instances where there is sufficient spectrum to meet the anticipated demand in a given frequency band and where there is no additional measure required to advance particular telecommunication policy objectives.

The Department may choose to initiate a competitive licensing process in situations where there is, or is likely to be, more demand for radio frequency spectrum than the supply of spectrum available for use in a given frequency band or, where there is a need to pursue certain telecommunication policy objectives. In certain cases, it could be determined during the initial phase of a competitive process that sufficient spectrum is available to reasonably meet the needs of all applicants and that the licensing could therefore proceed on a FCFS basis. The Department would normally consult to establish the policy framework and design of a competitive licensing process.

The two types of competitive licensing are the use of auctions and the use of a comparative review. Auctions may be used where the Minister of Industry is confident that market forces can be relied upon to select licensees consistent with the public interest. Where such reliance on market forces alone may not be sufficient to achieve public policy objectives, the Minister may consider other policy factors in the public interest such as spectrum set-aside, or spectrum caps, to foster competition and the delivery of services to Canadians.

Eligibility

Generally, the Department fosters open participation in its competitive licensing except for statutory and policy requirements concerning eligibility and competition. In determining the eligibility to participate in a competitive licensing process, the Government will be guided by the requirements of the *Radiocommunication Act* and *Radiocommunication Regulations* and give regard to the objectives of the Telecommunications Act and policies made thereunder. More explicit eligibility criteria concerning competition are to be developed through public consultation to be used in competitive licensing processes.

Licensing Policies

Licensing policies ensure the achievement of a number of goals:

- meeting underlying legislative, policy, economic, regulatory, technical, operational and social objectives;
- fairness of treatment and consistency of policy application for licensees in all regions of Canada;
- accommodation of as many users as possible without harmful interference;
- administrative efficiency in dealing with applications;

- imposition of the minimum regulatory requirements on the user; and
- flexibility to respond to changes as they occur.

Policy Guideline 8 - Licensing Process

The use of the First-Come, First-Served licensing process will continue where the Department believes spectrum supply is adequate to meet demand or a reasonable accommodation of all applications can be managed.

In situations where there is, or could be, excess spectrum demand relative to supply or there is a need to pursue certain telecommunication policy objectives, a competitive licensing process, using either a comparative selection or auction licensing approach, will be initiated.

The Department will continue to ensure the necessary general policies are in place to effectively respond to evolving public policy objectives in telecommunications and broadcasting, and to protect existing users and services from harmful interference. Furthermore, the Department will continue to authorize radiocommunication system trials and new technology experiments.

As well, once radio systems have been authorized, the Department may ensure that these systems are implemented within a reasonable time and radio frequencies are efficiently utilized. In order to ensure that the radio system is implemented in a timely fashion, the Department may establish as terms and conditions of licence a reasonable period for radio station installation to take place and service to begin.

5.10 Licence Fees

It is government policy to implement user charges for services that provide identifiable recipients with direct benefits beyond those received by the general public, unless overriding policy objectives would be compromised. The aim is to promote the efficient allocation of resources, to promote an equitable approach to financing government programs and to earn a fair return for the Canadian public for access to, or exploitation of, publicly-owned or controlled resources.

The Treasury Board Document, *Cost Recovery and Charging Policy* (found at http://www.tbs-sct.gc.ca/Pubs_pol/opepubs/TB_H/CRP_e.html), states that prices should be based on market value for the sale, lease or licence of public property as well as for rights and privileges such as spectrum, which are *de facto* commercial inputs for users. This is aimed at ensuring efficient utilization of a scarce resource and a fair economic return to the general public.

Policy Guideline 9 - Licence Fees

Licence fees will be based on spectrum management costs where resource rents do not exist. When resource rents do exist, fees will ensure a fair economic return to the public in addition to recovering spectrum management costs.

5.11 Market Based Considerations

The Policy Guideline 11 of the 1992 *Framework* concerning “Market Based Approaches” is deleted as this aspect is addressed in the modified Policy Guideline 8 on the “Licensing Process”.

5.12 Radiocommunication Research and Development (R&D)

Radiocommunication technology has been recognized as a strategic component of communications systems. The Department has had a prime role in the research and development of the satellite communications industry in Canada as well as other spectrum-based technology developments.

R&D is considered a prime mechanism to foster growth of the radiocommunication industry through the development of new technologies, products and services to meet the needs of both the domestic and international radio marketplaces. R&D should advance radiocommunication technologies and foster a more efficient utilization of the spectrum resource to better serve Canadians and encourage a stronger, more prosperous economy.

Policy Guideline 10 - Research and Development

The Department recognizes R&D as necessary for the maintenance and development of the radiocommunication infrastructure and products and services in Canada, and to support a strong Canadian industry. The Department will continue to establish radiocommunication R&D requirements whenever appropriate. These requirements will be developed in consultation with industry prior to licensing.

5.13 Radiocommunication Standards

Conformance to standards is required in order that radiocommunication systems operate without harmful interference. Conformance also maximizes sharing among different services, ensures compatibility among different users, facilitates international co-ordination and, as well, effective spectrum management.

The Department recognizes that equipment standards are essential to support the introduction of new and innovative wireless technologies and services in an increasingly competitive and global market. These standards should be developed in consultation with manufacturers, service providers and users and should be harmonized regionally and globally to the maximum extent possible. In addition, the Department recognizes the need to ensure that the specific needs of

security, safety and international obligations are covered in the applicable standards. As well, the Department may take appropriate action where competition or the interests of consumers may be affected by standards-related considerations.

Policy Guideline 11 - Radiocommunication Standards

Standards and conformity assessment procedures facilitate compatibility and interoperability, avoid interference and promote efficient spectrum management and utilization. The objective is to align Canadian standards and conformity assessment procedures to the greatest extent possible with international standards. Harmonization of radio system standards is an important consideration in this process.

Mandatory standards and conformity assessment procedures should be compatible with international agreements and arrangements to which Canada is a signatory and they should include only those requirements which can be demonstrated to be necessary for good spectrum management.

Planning and Consultation (National and International)

5.14 Spectrum Resource Planning

Under the *Radiocommunication Act*, Section 5.(1)(e), the Minister of Industry is responsible for planning the allocation and use of the spectrum. To carry out this function, the Department collects information, including statistical, on spectrum use and efficiency and its availability in various locations. It also assesses the impact of the introduction of new technologies, and market trends. This function is carried out by internal and contracted studies as well as from soliciting input from interested parties.

Since the publication of the 1992 *Framework*, there has been recognition of the necessity to make information on the Department's future plans to reallocate spectrum available to the public on a regular basis. This would include the time frames of making such reallocated spectrum available for various new or expanding services. In addition to demonstrating openness in the planning process, it is the Department's belief that this information is vital for existing licensees as well as applicants in a competitive licensing process. This information is presently made available through the publication of the *Guidelines on the Licensing Process and Spectrum Release Plan* (strategis.gc.ca/SSG/sf05598e.html).

Policy Guideline 12 - Spectrum Resource Planning

Planning of spectrum resources will continue to be a prime activity of the Department to support the process of allocating adequate spectrum for various existing and new services. The Department will publish on a regular basis a forecast of spectrum

resources and associated time frames of making additional spectrum and satellite orbital positions available for the benefit of all Canadians.

The Department will continue to exercise a leadership role in planning and consultation at a national and international level to judiciously plan the spectrum resource.

5.15 Public Consultation

The Department has an ongoing need to consult the public, interested individuals, organizations, and affected parties on various policy issues regarding the development and formulation of policies, standards and procedures to realize the greatest public benefit.

The use of notices, published in the *Canada Gazette*, has been the formal instrument employed by the Department in the past to initiate comment, to apprise or inform the public, and to obtain representation on significant issues. Over the last few years, the Department has greatly expanded the use of the Internet as a means of making announcements, as well as disseminating and collecting information. This has facilitated the public's access to this information in a timely manner and expedited the process of transmitting public comment. The Department will continue to use the most modern means for the dissemination and collection of information to and from the public.

In order to make sound decisions on spectrum matters, the Department employs a systematic review process, which includes the public consultation mechanism discussed above. This process addresses all aspects of radiocommunication including national and international policy, allocations and licensing, and procedures and standards. In addition, the Department promotes the use of government/industry technical committees and has established ongoing relationships with major industry associations and user groups.

Policy Guideline 13 - Public Consultation

The Department will continue to use the most modern means to disseminate and collect information and ensure that appropriate mechanisms are in place to allow interested parties to provide input to the Department on spectrum matters.

5.16 International

The Canadian government, industry and other concerned organizations participate in international and regional organizations to represent Canadian interests on spectrum matters.

On a global scale, the ITU establishes frequency allocations and regulations for the use of the spectrum and the processes for the coordination of frequency assignments. The ITU also develops an extensive set of recommendations for radio systems characteristics and spectrum use. On a regional scale, the principle body to address spectrum use is CITELE, which deals with spectrum and standards issues in the Americas and also advocates these views at the global level.

The Department also represents Canada at meetings with other administrations on spectrum issues.

Since the publication of the 1992 *Framework*, we have increasingly operated in a global economy. Canada must look beyond traditional national and sub-regional boundaries to take into account developments in markets, spectrum planning and spectrum management techniques.

Policy Guideline 14 - International

The Department will continue to exercise leadership and commitment to Canadian involvement in regional and international spectrum matters, including those involving national security and economic/market considerations. The marketing of Canadian expertise and products will be done in concert with private industry.

5.17 New Spectrum Approaches

Since the publication of the 1992 *Framework*, the Department has carefully considered new approaches and techniques in the development of spectrum policy and spectrum management and has adopted a number of changes. There are other examples of change such as the use of the Internet to deliver services to the public as well as to enable easier and quicker access to information. The Department has put a particular priority on establishing Mutual Recognition Arrangements with other countries to facilitate the process of obtaining certification for equipment approval. The use of market-based tools such as auctions to recover the fair market value for the use of the spectrum is an example of a new approach in radio licensing.

The Department resolves to maintain an open-minded approach to new ideas, techniques and facilities.

Policy Guideline 15 - New Approaches for Spectrum Policy Development and Spectrum Management

The Department will encourage new approaches to spectrum policy development and spectrum management, and will endeavour to assess these on a continuing basis and implement where warranted.

6. Concluding Remarks

The original *Framework* published in 1992 laid out a set of core policy objectives, which formed the foundation for a strategic *Spectrum Policy Framework for Canada*. As well, key policy guidelines were provided in areas related to spectrum policy and management. The Department's view is that the 1992 *Framework* served Canada well. However, there have been a number of changes in spectrum policy developments and spectrum management practices that warranted a

revision to the *Framework*. The modifications to the Core Objectives and Policy Guidelines made to the present document are based on changes to the spectrum policy and management regime that have already been the subject of public review. Nevertheless, Industry Canada will consider any public comments on the completeness of the updating of the 1992 *Framework*, in a future revision or amendment.

7. Next Steps

Looking towards the future, the Department anticipates a number of profound changes in telecommunications. In view of this situation, the Department believes that it is also timely to commence a process of public discussion that will lead ultimately to a revamped *Framework*.