



International  
Civil Aviation  
Organization

# ICAO's North Atlantic Joint Financing Agreements

**A Successful Approach  
To Financing  
Air Navigation Services**



# **Historical Highlights of North Atlantic Joint Financing Arrangements**

## **September 1946**

North Atlantic Ocean Stations (NAOS) Conference of PICAO  
Joint financing agreement to finance weather ships on the North Atlantic.  
Administered by ICAO until 1975 then taken over by the World Meteorological Organization (WMO).

## **April 1947**

Joint Financing Arrangement for LORAN Station in Iceland  
Six States (Canada, France, Iceland, Kingdom of the Netherlands, the United Kingdom and the United States) enter into a provisional arrangement for financing the operation of a LORAN station at Vik, Iceland to serve North Atlantic flights.

## **June 1948**

ICAO Conference on Air Navigation Services in Iceland  
Final Act of a joint financing arrangement signed on behalf of certain interested ICAO Member States to render financial support to Iceland.

ICAO Council adopts Resolution accepting the recommendations of the Final Act.

## **September 1948**

Joint Financing Agreement on Air Navigation Services in Iceland  
Concluded between the ICAO Council and Iceland to give effect to the purposes of the Final Act of the Conference. Services financed by the Governments. No user charges levied on aircraft operators until 1 January 1974.

## **April - May 1949**

ICAO Conference on Air Navigation Services: Greenland and the Faroes  
Takes action to finance jointly certain air navigation services in Greenland and the Faroe Islands.

## **September 1949**

Concludes Agreement between ICAO Council and Denmark in accordance with Final Act of the Conference.

## **September 1956**

ICAO Joint Financing Conference for the Revision of the Danish and Icelandic Agreements (DEN/ICE/1)  
Approves two Joint Financing Agreements, later known as the 1956 DEN/ICE Joint Financing Agreements:  
a) Agreement on the Joint Financing of Certain Air Navigation Services In Greenland and the Faroe Islands; and  
b) Agreement on the Joint Financing of Certain Air Navigation Services in Iceland.

## **March - April 1972**

Second Conference on 1956 Danish and Icelandic Joint Financing Agreements (DEN/ICE/2)  
Agrees to user charges from 1 January 1974 - gradually moving to the full recovery of the costs allocable to civil aviation in 1982.

## **March 1977**

Third Conference on 1956 Danish and Icelandic Joint Financing Agreements (DEN/ICE/3)  
Adjusts the services covered, e.g. fewer synoptic stations in Greenland and Iceland; changes administrative arrangements.

## **February 1982**

Fourth Conference on 1956 Danish and Icelandic Joint Financing Agreements (DEN/ICE/4)  
Reviews and updates Joint Financing Agreements and recommends changes and amendments, later incorporated into two Protocols of amendment.

## **November 1982**

DEN/ICE Diplomatic Conference  
Adopts Protocols amending the Danish and Icelandic Joint Financing Agreements for implementation on 1 January 1983, subsequently ratified by all participating governments.

# Foreword

**Civil aircraft flights crossing the North Atlantic north of latitude 45°N are served by air traffic control, communications and meteorological services in Greenland, Iceland and the Faroe Islands provided under two Joint Financing Agreements with Denmark and Iceland administered by ICAO and reflecting a very high degree of international co-operation.**

The first Joint Financing Arrangement, for weather ships in the North Atlantic, came into existence in 1946 and was followed by arrangements governing a broader scope of services later in the 1940s. These original arrangements were revised in 1956 and adopted as the Danish and Icelandic Joint Financing Agreements.

Today, the services continue to be provided and financed in accordance with these two Agreements, as amended and updated by the Montreal Protocols of 1982. At present, 23 States with civil aircraft flying across the North Atlantic are parties to the Agreements, including the two Provider States, Denmark and Iceland. The Joint Support Committee of the ICAO Council makes recommendations to the Council concerning these air navigation services, their financing and their administration by ICAO within the framework of the Agreements.

The continued development of air navigation services to efficiently handle growing traffic around the world is vital, including the timely cost-effective implementation of the ICAO communications, navigation and surveillance/air traffic management (CNS/ATM) systems. The provisions of Chapter XV of the 1944 Convention on International Civil Aviation (the Chicago Convention) and ICAO Assembly Resolutions provide the opportunity for similar joint financing arrangements to be introduced in other regions of the world. The general shortage of capital for the development of facilities and the growing emphasis on cost-effectiveness also provide scope for the joint financing concept to be applied by two or more States to enable them to share in the cost of implementing and operating air navigation facilities and services for international civil aviation.

## Introduction

There are at least three good reasons to examine the International Civil Aviation Organization's joint financing experience at this time. Firstly, joint financing is a natural continuum from other ICAO joint approaches, for example in training, search and rescue, law-making and the development of civil aviation technology. Moreover, the Organization's – and the industry's – success in these areas is mirrored in similar success in joint financing.

Secondly, September 1996 marked the 50th anniversary of the civil aviation community's first entry into joint financing. This is therefore a good time to reflect on the effectiveness of the experience and its potential application on a larger scale among ICAO's 180-plus Contracting States.

This leads to the third reason. Current financial and technical considerations demand innovative financing. In these challenging times, scarce resources must be managed with the greatest care and prudence. Introduction of the new communications, navigation and surveillance/air traffic management (CNS/ATM) systems provides both the need and the opportunity to share resources in mutually satisfactory ways.

Is joint financing a viable option to achieve these ends? Does the joint financing experience from ICAO's past hold any useful lessons for the future? An attempt is made here to answer these questions, mainly on the basis of experience gained in the implementation of the North Atlantic Joint Financing Agreements.

# The North Atlantic Experience

## Rationale

After World War II, civil air traffic was building up rapidly on the North Atlantic. Air navigation services were urgently needed to ensure the safety of flights. Aircraft had limited range, flew at low altitudes and needed to make several stops to cross the Atlantic. PICAQ (Provisional ICAO) and ICAO technical meetings in 1946 and 1948 therefore recommended that certain air navigation services in Greenland, Iceland and the Faroe Islands that had been used in World War II be retained to service flights.

Denmark and Iceland are, even today, only modest users of the service. The question therefore arose as to whether they should bear the full costs of the services on behalf of users operating flights over the North Atlantic.

The urgent need for the services resulted in a series of arrangements for its financing on a shared basis. These arrangements are known as the North Atlantic Joint Financing Agreements. Inspired by a spirit of international co-operation, they were developed, and continue to be implemented, under the auspices of ICAO and in accordance with Chapter XV of the Chicago Convention.

## Evolution of the Agreements

The first joint financing arrangement was concluded in 1946 when a North Atlantic Ocean Stations (NAOS) conference held by PICAQ in London agreed to finance weather ships on the North Atlantic. The arrangement was administered by ICAO until 1975 when it was taken over by the World Meteorological Organization (WMO). In 1947, an ICAO joint financing arrangement was set up to finance a LORAN station which had been operated by the United Kingdom in Vik, Iceland during World War II. In 1948, a more comprehensive arrangement provided the financial support requested by Iceland for air traffic control, communications and meteorological services.

In 1949, a similar arrangement was concluded at Denmark's request. This was for certain essential meteorological and communications stations in Greenland and a LORAN station in the Faroe Islands.

The experience with the Danish and Icelandic joint financing arrangements suggested the need for greater flexibility in the procedures. Arrangements based on a multilateral conference were replaced by bilateral agreements between Iceland and Denmark, as Provider States, and the various user States. ICAO and the ICAO Council continue to serve as administrator, while the United Kingdom acts as agent of Denmark and Iceland for the billing and collecting of the charges. (See inside front cover – Historical Highlights of North Atlantic Joint Financing Arrangements.)

# **What Joint Financing has Achieved**

**The achievements of North Atlantic joint financing may be examined in relation to management, finance/economy, equity and technology.**

## **(i) Management**

The management of the process is based on an efficient system of division of labour. Under this system, Iceland and Denmark have been responsible for the provision of such services as air traffic services; meteorological services; aeronautical and meteorological telecommunications services; and radio navigation aids. ICAO provides the administrative services, with the ICAO Council providing general oversight.

ICAO has been able to administer the Agreements efficiently. Denmark and Iceland have efficiently provided the required air navigation services for North Atlantic flights. As a result, the service has been able to handle ever increasing civil aircraft crossings in the North Atlantic. (See inside back cover for current number of crossings.)

## **(ii) Finance/Economy**

The Joint Financing Agreements have been instrumental in ensuring that funds are available on a timely basis to provide the stipulated services. Moreover, the arrangement enables the servicing of North Atlantic civil aviation at a lower cost than for comparable facilities anywhere else in the world.

## **(iii) Equity**

Not only are funds available as and when required. They are provided on a fair and equitable basis. The Agreement provides for an adjusting mechanism by which users and Contracting States pay no more and no less than the costs incurred by Denmark and Iceland for the services provided.

## **(iv) Technology**

Air traffic management in the North Atlantic region has long relied on traditional communications, navigation and surveillance/air traffic management (CNS/ATM) systems. Outside the coverage of very high frequency (VHF) communications, pilots and controllers communicate through high frequency (HF) operators. Navigation is based mostly on inertial navigation systems and flight management systems. While surveillance radar coverage is provided over Iceland and adjacent waters, beyond radar coverage air traffic control relies on position reports by pilots for surveillance of air traffic. Sophisticated radar and flight data processing systems have already been implemented, or are in the process of being implemented, in all air traffic control centres concerned.

Plans are well under way to take advantage of new technology in accordance with the ICAO CNS/ATM systems concept. This applies to the fields of data links (for both air-ground and ground-ground communications), satellite navigation and automatic dependent surveillance (ADS), as well as human-centred automation in ATM systems. This new technology will enable ATM enhancements in terms of safety, flexibility, and system capacity, which, in turn, will increase the regularity, efficiency and economy of aircraft operations in the region.

# How the Joint Financing Agreements Work

The North Atlantic joint financing arrangement is based on two Agreements. One is between Iceland and some of the other States using the services. The other is between these States and Denmark. The objective of the Agreements is to finance the operation of the air traffic control, communications and meteorological services provided to international flights by facilities in Greenland, Iceland and the Faroe Islands. (See inside back cover for current estimated financing costs.)

In the case of each Joint Financing Agreement there is a formal main text and three Annexes. The Annexes provide a good indication of the working of the Agreement. Annex I clearly specifies the nature and location of the services. Annex II details the required inventory. Annex III deals with the financial aspects.

No changes to the main Agreements have been necessary since these 1956 Agreements were amended by Protocols adopted in 1982 and implemented from 1 January 1983. The main Agreements can be amended, should this be necessary, without the need for a formal diplomatic conference or protocol. Amendments require the agreement of two-thirds of all the Contracting States responsible collectively for not less than 90 per cent of current assessments. Unlike the main agreements, the Annexes require relatively frequent updating and may be amended by the Council with the consent of either the Danish or Icelandic Government. This arrangement is flexible enough to make the system workable but strict enough to protect the interests of the parties.

The services are financed by user charges, assessments on the Contracting States and contributions from Denmark and Iceland. Denmark and Iceland contribute 5 per cent of the total costs of providing the services in consideration of special benefits derived from operating the services. A significant part of the remaining 95 per cent comes from user charges paid by the operators of aircraft crossing the North Atlantic. These charges include fees to meet ICAO's administrative costs and the United Kingdom's expenses for billing and collecting the charges. The other revenue source is assessments paid by all the States that are parties to the Agreements, based on the percentage of North Atlantic crossings performed by operators from those States.

The Agreements are flexible in allowing for necessary modernization of the facilities and services by replacement, updating and additions to capital equipment. Also, new services can be added - and changes made to the staffing - to ensure that the operations remain efficient while meeting the changing requirements of the North Atlantic region.

The Agreements are carefully administered by the ICAO Secretariat under the direction of the ICAO Council and the Council's Joint Support Committee. This arrangement involves very close co-operation with Denmark and Iceland and facilitates fair, equitable and effective decision-making.

The Joint Support Committee is mainly concerned with procedures for the financing of the services. These include provisions for the approval of cost estimates, actual costs, audit reports, assessments, user charges, adjustments and payments to the Provider States. Proposals for new projects and new capital expenditures for the services are also considered. Recommendations are made to the Council on all such matters for approval. The terms of reference of the Committee are attached as an Appendix.

# Lessons Learned

## The challenge

ICAO's North Atlantic joint financing experience has taken the form of a structured response to perceived needs, challenges and opportunities. The need was for services to ensure the safe passage of trans-Atlantic civil aviation traffic which developed in the Northern regions in the post-War era. The challenges were:

- technical: how to serve pilots in the circumstances of scarce radar resources characterizing oceanic routes;
- administrative: how to deal with the fact that the two countries best suited to service the facilities were among the least active users of the route;
- financial: how to engage the support of the two natural Provider States without saddling them with an undue share of the financial burden.

Here, then, was an opportunity for the fledgling international civil aviation community to generate a solution based upon innovative approaches and available resources.

## What works

Four main lessons have been gained from this experience. The first is the need for a clear identification of needs and objectives. Joint financing for the North Atlantic was effective because the parties involved recognized the need, identified its main elements, and agreed on the required response.

The second lesson is the importance of fairness and equity. Every component of the arrangement must be carefully weighed and balanced to ensure that no one is unduly disadvantaged, no one disproportionately compensated.

The other side of this coin – and the third lesson – is the need for flexibility. This flexibility is enshrined in the amending provisions of the legal instruments and in the structuring of the financial transactions. The decision to change from amendments through the final acts of plenipotentiary conferences to much simpler mechanisms has proven to be an inspired one. And the system of prepayments, advances and subsequent adjustments prevents the quest for fairness and equity from leading to delayed cash flows which might hinder the work of the two Provider States or of ICAO as the administrative arm of the arrangement.

The fourth lesson is the need for a workable division of labour. The who can be almost as important as the what and the why. This division of labour has involved:

- Denmark and Iceland as the Provider States;
- ICAO, through its Secretariat, the Council and Joint Support Committee, as the source of administrative efficiency, the guarantor of financial probity, and a catalyst for improvements in the arrangements;
- the users of the services, as a source both of financing and of ideas for further innovation and improvement;
- the Government of the United Kingdom as the billing and collecting agent;
- the Contracting Governments, including Denmark and Iceland, as sources of revenue and as the ultimate decision-making authority.

# The Future of Joint Financing

## Other North Atlantic experiences

In addition to the longstanding cost-sharing arrangements discussed here, the North Atlantic region is known for quite extensive co-operation among the States that provide air navigation services. This includes the delegation by Denmark of airspace over Greenland above FL 195 to Iceland to form part of the Reykjavik FIR.

Then there is the co-operation between Ireland and the United Kingdom in the operation of the Shanwick Oceanic Area Control Centre in Prestwick. Co-operation in the sharing of communications costs for the North Atlantic fixed communications network is also undertaken on a routine basis with 50/50 sharing of communication circuit costs between Canada and Denmark; Denmark and Iceland; and Iceland and the United Kingdom. A significant portion of these costs are financed through the Danish/Icelandic Joint Financing Agreements. Data links and ADS trials undertaken by the Provider States on a systematic basis represent another form of co-operation towards the implementation of new services.

This type of co-operation between two or more North Atlantic Provider States is important and will no doubt continue.

## New Joint Financing Arrangement

With effect from 27 March 1997, the first phase of reduced vertical separation minimum (RVSM) was implemented in the North Atlantic minimum navigation performance specifications (MNPS) airspace, in accordance with regional supplementary procedures approved by Council. This enables RVSM-approved aircraft, initially between flight levels 330 and 370 inclusive, to operate with 1 000 ft vertical separation instead of 2 000 ft, as was previously required. Height-keeping performance needs to be demonstrated as part of the RVSM approval process, and is being monitored on an on-going basis by the Central Monitoring Agency on behalf of the North Atlantic Systems Planning Group (NAT SPG). Ultimately, it is intended to extend the application of RVSM to all levels between flight levels 290 and 410 inclusive. RVSM almost doubles the airspace capacity in the flight level band concerned.

The new system is being financed under a new joint financing arrangement inspired by the experience with Iceland and Denmark. The new arrangement involves Canada, Iceland, Ireland, Portugal, the United Kingdom and the United States, with ICAO, once again, as administrator.

Under the arrangement, Canada, Iceland, Ireland, Portugal and the United Kingdom fund and own the facilities for a height monitoring project on the basis of their 1992 share of the North Atlantic traffic. Subject to available appropriations, U.S. obligations include the provision of GMU equipment, a number of reference stations and post-processing equipment. Operational, maintenance and depreciation costs, as well as ICAO's administrative costs, are met through user charges. As with the Denmark/Iceland agreements, the United Kingdom Civil Aviation Authority serves as billing and collecting agent. Once again, flexibility is important.

## Can the joint financing concept be applied elsewhere?

Given the success of the Danish and Icelandic Joint Financing Agreements in facilitating cost-effective air navigation services on the North Atlantic, it has often been suggested that this experience should be applied in other parts of the world. Indeed, any of the Contracting States of ICAO may present proposals for similar arrangements to be administered by ICAO. Such arrangements must be in accordance with Chapter XV of the Chicago Convention and with Resolutions adopted by the ICAO Assembly.

Experience would suggest that any new arrangements may apply the concept of joint financing in a manner slightly different from the North Atlantic experience. For example, participating States might be directly responsible for the air navigation services provided with the costs involved shared amongst them in accordance with an equitable formula. Also, the full costs involved would likely be recovered from the users.

The joint financing concept is attractive. It offers considerable potential cost savings for the operation of a facility, a service or a full range of air navigation services. Its attractiveness arises from the fact that it can:

- a) make it easier to raise capital for aviation projects by reducing the capital requirements for each of the States participating in the cost sharing arrangement;
- b) offer the potential for providing more cost-effective services for civil aviation; and
- c) result in lower user charges for aircraft operators.

#### **Elements of a successful joint financing system**

What are the main elements to consider when examining the possibility of establishing a joint financing agreement?

- 1) The "project" or service to be financed – Can the joint financing of facilities and services benefit two or more States?

Can an arrangement benefit all States providing services for a particular route or region, or a group of States?

The objective of a joint financing arrangement should be to reduce the costs for each participating State, or facilitate the establishment of an air navigation facility or service.

- 2) Project description - A project description is essential. This should outline all the main elements of the project and its costs (capital, operating and maintenance) over a time period of, normally, 5 to 10 years.

This would help to determine the most appropriate financial arrangements to allow the project to be implemented efficiently and on a timely basis.

3) The participating States – The particular needs of the participating States must be determined, together with any special circumstances which may affect their participation in an Agreement.

4) Flexibility – Arrangements should be adapted to the circumstances of interested States so as to allow them to participate; and allow for the efficient operation of the arrangement. Rigidity in the application of guidelines should be avoided.

5) Simplicity – The less formal the arrangement the better, generally speaking. "Administrative agreements" should be sought to the extent possible. More formal arrangements may be required in certain cases, but formal agreements are generally more involved, complex and time-consuming to establish, implement and modify.

6) The cost sharing and cost recovery arrangements – These are a vital element and need to be efficient, equitable and simple to implement. The recovery of costs through user charges should be applied in accordance with ICAO's policies and principles in the Statements by the Council to Contracting States on Charges for Airport and Air Navigation Services (Doc 9082/5). The costs of new joint financing arrangements may be recovered as follows:

a) by each participating Provider State recovering its share of the project costs through its own cost-recovery mechanism, normally by levying user charges on flights; or

b) through a combined single user charge, such as the North Atlantic RVSM user charge to be used to recover the costs of the North Atlantic Height Monitoring System.

7) Administration of the arrangement – The arrangement would involve two or more States and should be administered by one of the States or by an independent organization such as ICAO. The administrative costs involved would be recovered as part of the arrangement.

# Conclusion

Further joint financing arrangements may be expected in the future. Continued advances in technology, including CNS/ATM implementation, increased difficulties in raising capital to finance costly CNS/ATM infrastructure and the growing emphasis on cost-effectiveness will encourage States to consider such arrangements.

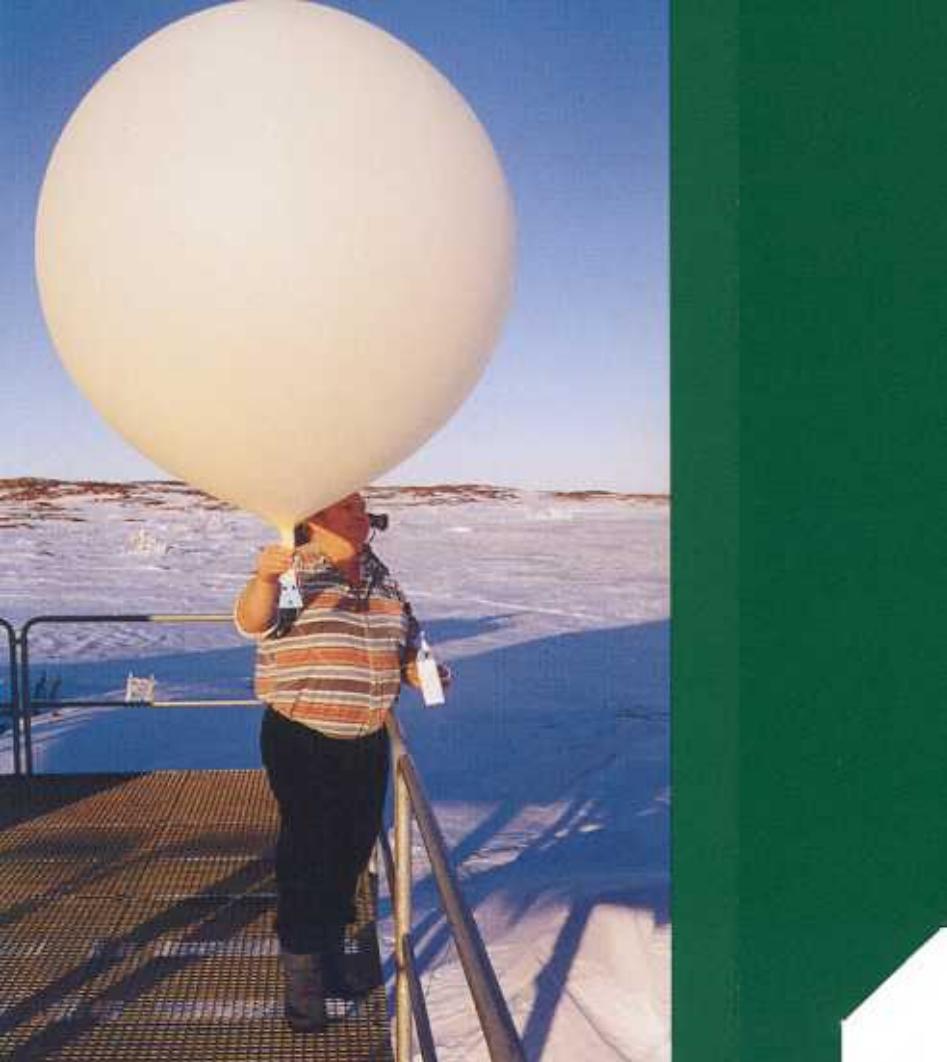
Joint financing can provide for the recovery of capital and operational and maintenance costs through the existing user charge arrangements of participating States, or through a combined user charge levied on the flights using the services provided. Such arrangements cannot be modelled completely on ICAO's joint financing experience in the North Atlantic, however, they can certainly benefit from that experience.

# Appendix

## **Terms of Reference of the Committee on Joint Support of Air Navigation Services**

The Committee on Joint Support of Air Navigation Services shall consider matters related to the provision of financial or technical services for the improvement of air navigation facilities under the terms of Chapter XV of the Convention on International Civil Aviation referred to it by the Council or on its behalf by the President, and advise the Council thereon. Specifically, the Committee will:

- a) examine requests from Contracting States for financial and technical services for the improvement of air navigation facilities, and advise the Council on their implementation;
- b) examine recommendations made by ICAO regional air navigation meetings which indicate the probability of need for financial and technical support, and advise the Council thereon;
- c) advise the Council on the initiation of consultations with interested States in particular cases arising under a) and b) and on the need for special international conferences in any such cases;
- d) consider the implementation of international agreements relating to the provision of financial and technical services through ICAO, and advise the Council on the discharge of responsibilities given to the Organization;
- e) receive reports on the progress of schemes relating to the provision of financial and technical services through ICAO, and advise the Council accordingly;
- f) advise the Council on acceptance and distribution of general monetary contributions made by Contracting States towards the cost of joint support schemes, and on the reimbursement of costs incurred by ICAO in connection with such schemes; and
- g) study channels and devices through which technical aid could be given for the operation of air navigation facilities and services and advise the Council thereon.



## **Crossings and Financing — Current Data**

Civil aircraft crossings in the North Atlantic have increased by a factor of 14 from 22 000 crossings in 1956 to 297 000 crossings in 2002.

In 2003, the estimated cost of the services covered by ICAO's North Atlantic Joint Financing Agreements is U.S.\$27.6 million — U.S.\$5.9 million for Denmark and U.S.\$21.7 million for Iceland.