World Bank Guarantees help convert the aerospace industry in Russia and Ukraine to commercial use

The Sea Launch Guarantees
Russian Federation/Ukraine

The Sea Launch project is an international venture for launching commercial satellites into earth orbit whose principal sponsor is The Boeing Company of Seattle, Washington. The venture will use rocket components manufactured in Ukraine and Russia, which will be transported to Long Beach, California, where they will be united with commercial payloads and loaded onto a Launch Platform. An Assembly & Command Ship will escort the Launch Platform to a remote launch site in international waters near the equator in the Pacific Ocean and will control the launch from a safe distance. It will then escort the Launch Platform back to Long Beach to repeat the cycle.

In response to requests from the Government of the Russian Federation and the Government of Ukraine to provide partial risk guarantees to help mobilize commercial bank financing for the Sea Launch project, the World Bank executed two essentially identical but legally separate Guarantees on December 30, 1997. These two instruments guarantee the project lenders against debt service default caused by a breach of obligations (Covered Events) of the Russian Federation and Ukraine to the project under their respective Project Support Agreements with the Sea Launch venture. Thus, the World Bank Guarantees underwrite the commitments of the two Governments as regards the payment of damages arising from the occurrence of the Covered Events specified in the Project Support Agreements.

The Project

Sea Launch Limited Partnership, the developer and operator of the Sea Launch project, is an exempt limited partnership registered in the Cayman Islands. It has five partners, each of which owns both general and limited partnership interests:

- Boeing Commercial Space Company (United States) (40%)
- RSC Energia (Russia) (25%)
- Kværner Maritime a.s (Norway) (20%)
- PO Yuzhmash (Ukraine) (10%)
- KB Yuzhnoye (Ukraine) (5%)

KB Yuzhnoye/PO Yuzhmash will produce the two-stage Zenit launch vehicle in Dnepropetrovsk, Ukraine, and will provide operations support to Zenit processing and launch operations. RSC Energia will manufacture the Block DM-SL upper stage in Moscow and play a key role in Sea Launch vehicle integration, launch operations, and range services. Boeing Commercial Space Company acts as integrator of the project and will produce the payload fairing and interface hardware, develop the Home Port facility, and provide spacecraft integration and overall mission operations. Kværner Maritime a.s is responsible for the design and construction of the Assembly & Command Ship in the United Kingdom and the modifications to the Launch Platform in Norway; in addition, Kværner will integrate the marine elements of Sea Launch and perform marine operations.

The Zenit rocket is the world's most automated launch vehicle, with 24 successful prior launches. All the rocket engines will burn liquid oxygen and kerosene and the first stage will provide 1.6 million pounds of initial thrust, sufficient to place a 5,000-kg payload into geostationary orbit. The Block DM upper stage has had 167 successful prior launches; the Sea Launch version includes computer and guidance platform enhancements. The Zenit and Block DM-SL stages will be transported by rail to a port in Ukraine on the Black Sea, for shipment by cargo ship to the Home Port in Long Beach, California. The Home Port will provide the facilities, equipment, supplies, personnel, and procedures necessary to receive, transport, process, test, and integrate the spacecraft with the launch system, as well as docking facilities for the 660-foot Assembly & Command Ship and the 436-foot Launch Platform. A payload processing facility at the Home Port will test and encapsulate the payload in a graphite composite fairing. The payload will be then transferred to the Assembly & Control Ship for integration with
the rocket; the entire assembly will then be transferred to the Launch Platform for the journey to the launch site.

The Launch Platform, a converted North Sea oil rig, is self-propelled and will carry the rocket to the launch site, which is at 154°W at the equator. This site was chosen to reduce the amount of fuel needed for orbit maneuvers, thus maximizing the potential payload weight. The benign weather at the site allows for year-round launches. For stability, the Launch Platform will submerge to a draft of about 70 feet, and tilt the rocket upright for launch. The Assembly & Command Ship, which has accommodations for up to 240 persons, will position itself about 5 km away from the Launch Platform and will remotely fuel the rocket and control the launch.

The sponsors expect the revenue earned by launching satellites to cover the expenses of the partnership, including debt service, and provide a return to its investors. Barring unforeseen delay, the first rocket is scheduled for launch in the fourth quarter of 1998, carrying a communications satellite for Hughes Space & Communications International, Inc. to geostationary orbit.

**Russian and Ukrainian Sponsors**

Energia is one of Russia’s largest aerospace companies. It currently employs roughly 20,000 workers, down from a peak of 34,000 in 1988. Since its creation 50 years ago, Energia has played a leading role in the development of launch vehicles and the former Soviet Union’s manned space flight program. Energia registered as a joint stock company in July 1994 and is scheduled to be fully privatized in the near future. Its stock is currently traded on the Moscow stock exchange.

Yuzhnoye/Yuzhmash is now the largest aerospace enterprise in Ukraine. Yuzhnoye/Yuzhmash has been a highly diversified conglomerate since its creation in 1944. At its peak, it was staffed by 50,000 employees. It is currently a 100% state-owned enterprise with approximately 34,000 employees, of which 19,000 are employed in aerospace-related activities. Virtually all of the recent employment decline has occurred in the aerospace sector.

Both enterprises have suffered from a sharp decrease in employment and production stemming from declines in state orders for their goods and services. For example, Yuzhnoye/Yuzhmash produced only one Zenit rocket in 1995, although at the height of production in the mid-1980s, it was producing 10 two-stage Zenits and 16 first stages per year. The production decline of Energia’s Block DM is not as severe, although still significant. While both companies have sought to diversify into other activities, thousands of high technology jobs are presently at risk due to the contraction of the traditional Government market for space and space-related activities. As prospects for Government funding of such activities are dim, entering the commercial space launch business is of key strategic importance for these companies.

The project provides a long-term market to Energia and Yuzhnoye/Yuzhmash and incentives for the efficient production of launch vehicles. The rocket components will be sold to the Sea Launch joint venture pursuant to the terms of long-term supply contracts. By increasing the effective demand for the Block DM-SL and Zenit stages, the Sea Launch project will generate close to $2 billion of incremental exports for Russia and Ukraine, thereby helping to preserve thousands of high skill, high wage jobs in Russia and Ukraine.

**Financing Plan**

The financing for Sea Launch Limited Partnership’s development phase consists of:

- equity from Boeing and Kværner;
- export financing from Garanti-Instituttet for Eksportkredit (GIEK) of Norway, in the amount of US$85 million, for the refurbishing of the Launch Platform;
- export financing from Department of Trade and Industry (DTI) of the United Kingdom, in the amount of US$100 million, for the construction of the Assembly & Command Ship; and
- two loans from a syndicate of banks led by The Chase Manhattan Bank, in the amount of US$100 million each. One loan is for development expenditures in Russia and the other is for development expenditures in Ukraine. The loans carry floating interest rates and will be repaid in two equal installments in years 9 and 10. The repayment of principal and scheduled interest on these loans is covered by the World Bank Guarantees.

**Project Support Agreements (PSAs)**

The two Governments issued separate Project Support Agreements to Sea Launch Limited Partnership describing each Government’s agreed commitments to the project. As noted above, the government obligations under each PSA are supported by the corresponding World Bank Guarantee, payments under which must be applied to repay the commercial bank loan used to finance Sea Launch development phase investment expendi-
June 1998

**Project Finance and Guarantees**

**World Bank covers political risk to support export of space launch vehicles**

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**Benefits of the World Bank Guarantees**

The World Bank Guarantees are part of a series of operations being developed to encourage private capital flows to help existing enterprises in the Russian Federation and Ukraine to increase production and employment. The Guarantees were instrumental in attracting long-term private capital to these countries without “investment grade” sovereign debt ratings, mitigating risks that commercial lenders were not able to bear or adequately evaluate.