



Leasing a Radar System from TSS Solutions

Historical Background

TSS Solutions is the only company of its kind that owns and leases land-based tactical radar systems. TSS Solutions is a professional defense electronics engineering and manufacturing company specializing in the upgrading, reengineering, repair, and operation of ground-based tactical and fixed position radar systems. TSS currently owns three TPS-43 systems and two TPS-75 systems. We purchased these directly from the manufacturer and have re-engineered and upgraded each to perform better than OEM specifications. Fully upgraded radar systems leased from TSS Solutions will exceed the performance of a TPS-78. For example, instead of height accuracy of about 3000' with the TPS-78, our upgraded TPS-43, -70 and -75 models deliver height accuracy of approximately 500'.

History Drives our Future

TSS Solutions has been an integral part of national defense, homeland security and counter-drug and counter-terrorism initiatives for almost 30 years. We are at the cutting edge of radar upgrade and reengineering technology sharing and leveraging our expertise with the customer across the globe. We have established our reputation as a proven and capable provider and business partner, integrating our engineering, manufacturing, service and operational expertise to benefit the customers we serve.

Radar Service Life

Radar systems are often kept in service well beyond their initially intended service life. TSS Solutions' proven Radar Leasing Solution provides an extremely cost competitive alternative to purchasing new systems. Our radar leases extend service life and capabilities, while significantly reducing ongoing operating and maintenance costs, and eliminating the OEM Diminished Manufacturing Supply (DMS) issues.

TSS Solutions has unrivaled experience operating, repairing, reengineering and upgrading military and civil radar systems globally. Our radar leasing solution provides field-proven hardware and software upgrade technologies that bring your existing radar systems up to current new radar capabilities.

The entire solution has been designed to meet and exceed current and known future operational requirements while providing a cost-effective alternative to purchasing new, over the whole extended life cycle.

Challenges of Ageing Systems

Land-based tactical radar systems, specifically the TPS-43, TPS-63, TPS-70, and TPS-75, among others, originally manufactured by Westinghouse/Northrop Grumman, Lockheed, Raytheon, SAAB, Thales, and many others, have been in service as early as 1968 after completing development in 1963. These systems are aging; some are more than 50 years old. Without the upgrade, these aging systems can impact reliability, safety, effectiveness and cause other losses. Whatever the age of a radar system, reliable performance and proper maintenance are now more critical than ever.

Maintaining 30-50-year-old radar systems can be challenging, especially when the OEM no longer provides support or parts and DMS has eroded the ability to source parts from third parties. Stakeholders must decide when it's time to upgrade or replace aging radar. What drives this decision? It may be safety, rising maintenance costs, functionality, part DMS or any combination of these.

A conflict exists between the older radar technologies that are in place and radar capabilities that are evolving at a much faster rate. Most land-based tactical radar system was designed with a 20-year life span. However, budget constraints and the cost of new systems have forced today's military and civil authorities to maintain their operation for 30 – 50 years and beyond. A typical new tactical radar system can cost anywhere from \$18 million to \$40 million plus, as well as the cost of parts, spares, training, operation, and maintenance.



Fig. 1: TPS-43

The central question is how to modernize an older system and ensure reliability. Each agency must evaluate these factors:

Spare Parts Availability/DMS

Criticality of the Need

Urgency or timeline (new OEM radar systems, in addition to being expensive, can have a very long lead time for delivery—in many cases a few years.)

Maintenance Costs

The degree of equipment wear

The viability of parts replacement

In most cases, there is no need to rip and replace, and decommission all the equipment currently deployed. A leased system solution is the least disruptive and most time- and cost-effective method to support your mission. The advantages of leasing include:

Significantly lower cost of buying new

Lower operational costs

DMS issues eliminated with ongoing support and parts availability

Asset optimization, thus extending equipment lifespan and increasing its capabilities

Minimal downtime, which lessens the effect on the mission

Improved budgeting process

Significantly improved capabilities for a much lower price than purchasing new

Substantial reduction in ongoing maintenance costs

Minimal retraining costs compared to new systems

Elimination of management headaches

The most significant benefit of leasing rather than replacing your tactical radar system is the exceptional cost savings in terms of equipment, time, labor and training. As a bonus, TSS Solutions leverages the expertise of its people with manufacturer experience to deliver tested and proven solutions to give stakeholders peace of mind in planning and executing radar leasing projects.

The Numbers

New radar systems can be costly; \$15MM - \$40MM is a reasonable range, depending on the new system being contemplated, and this range will be used in the following analysis. Our analysis is based on the cost of the systems alone and does not include the costs associated with the team of operators. TSS Solutions provides all manpower to run the radar 365 days per year. The cost analysis of contractor-provided labor will be unique to each customer. These contractors operated costs will compare favorably to your current overall staffing costs.

Using, as an example, the purchase of brand-new radar system costing \$39,000,000 each, with an expected useful life of 20 years, leasing a fully upgraded TSS system over the same period is projected to save over \$12,000,000 in net present value (NPV) dollars.

Leasing a stock TPS 43 or 75 over 20 years vs. purchasing a new radar system at a cost \$15,000,000 will save about \$4,100,000 in net present value (NPV) dollars.

TSS Solutions' lease program eliminates the ongoing cost of maintenance, repair, and DMS issues. TSS is responsible for delivering your data timely and reliably.

The TSS leased system provides all staffing as well. Eliminating the headache of leading and managing radar teams on a round-the-clock basis.

The TSS Solutions' leasing program eliminates the DMS issues associated with the lack of OEM manufacturer support for these installed and proven radar systems.

All of this equates to lower sustainment costs with far fewer headaches.

Precise Customer Needs

Each radar lease is tailored to meet the exact operational requirements. TSS can place a leased system into an existing developed site or, for additional costs, completely develop a new site. We can utilize existing fuel delivery infrastructure of delivering a completely modular system with generators, fuel bladders, and all the other components required for off-grid operation.

No Comparable Solution

There is no new radar on the market today that can compare to our suite. Our fully upgraded system capabilities exceed that of a TPS-78. Let us show you how we can save you time, money and headaches with a turn-key leased system from TSS Solutions.

For more information, please visit: www.tsssolutions.com