

## **Satellite and Space Services Agreements: Liquidated Damages and Liability**

The satellite and space services segments are experiencing an unprecedented surge, driven by fundamental technology advancements and cost reductions in excess of 100x. A once-prohibitive cost of over \$500 million per satellite has plummeted into the hundred-thousands range, democratizing space access and igniting a flurry of innovative applications. Traditional business models, which involved launching single satellites into Geosynchronous orbit or at most tens of satellites into mobile orbits, are now replaced by large satellite constellations that can provide much wider service coverage, lower transmission latencies, higher bandwidth, and much stronger signal to noise ratios (SNRs). Companies like SpaceX and Amazon are leveraging new technologies and cost reductions to deploy vast constellations of satellites, numbering in the tens of thousands.

All of these satellite and space services business models will sooner or later run into the legal complexities of commercial contracts between vendors and customers. Some commercial agreements reach down multiple levels through the supply chain and are therefore multidimensional. As expected, liability quickly arises as a fundamental issue in such contractual negotiations, and vendors and customers can find themselves quickly locked into standoffs that may appear unbridgeable. But an elegant solution to the liability gap in such agreements could come from an unexpected source: liquidated damages.

Liquidated damages are pre-arranged financial compensations agreed upon by contracting parties, payable in the event of predetermined events (usually breaches by the vendor). Traditionally, when representing vendors in technology and commercial contracts for terrestrial applications, we tend to push hard against liquidated damages for a variety of reasons. But the analysis can change quickly from the vendor perspective in contracts involving satellites and space services.

### **1. The Uniqueness of Space Systems**

Satellites and space services operate in an environment where component failures can quickly lead to catastrophic mission failure. This contrasts with most terrestrial technology deployments, where warranty exchanges, repairs, or system redundancies can resolve most issues. Even epidemic failures for large volume consumer products could be intercepted early and addressed, although the cost could be high. In space, however, post-deployment corrections are generally impossible.

To manage component failure risks, vendors and customers sometimes agree to incorporate redundant systems, but these can add material cost and/or weight, limiting their use. Therefore, liquidated damages become a useful mechanism to manage the unique liability issues that arise in the space segment.

### **2. The Role of Liquidated Damages**

Liquidated damages offer a mechanism to bridge the gap between vendors and customers in contracts involving satellites and space services. Without liquidated damages, liability negotiations could place all the burden on either the customer (who then must rely on insurance for liability coverage), on the vendor (who could be subjected to catastrophic liability and losses), or somewhere in the middle depending on relative leverage. In my experience, regardless of the final outcome on the liability framework, the negotiations surrounding liability in contracts for satellites and space services can be brutal and extended in time, and could damage the relationship between the customer and vendor. Calls with the Board of Directors, conversations with the insurance carriers, and liability assessment memos from the lawyers become common developments as the customer and vendor become locked into their respective positions on liability. If structured well, however, liquidated damages could quickly close the liability gap in these negotiations, saving time and preserving the relationship between the parties.

### **3. Effective Liquidated Damages Provisions**

A well-structured liquidated damages clause in satellite and space services contracts should address several key issues:

- a. Size: Liquidated damages should be limited in size, typically no more than a percentage of the total contract price. A starting point for negotiation could be 10% of the total contract price, or of the initial commitment price if there are multiple phases to the project.
- b. Milestones: Liquidated damages should closely track delivery milestones and timelines, providing a clear framework for both parties. There are opportunities here for the vendor to control the risk framework and expected value of the liquidated damages because the vendor knows its own business and risk profile better than the customer.
- c. Liability Caps and Consequential Damages: Liquidated damages should be coupled with a liability cap for the vendor for commercial and technical breaches. Important sub-issues here are whether the liquidated damages are inclusive or additive to this cap, the interplay with consequential damages for other breaches, and the existence of absence of other liability caps for other classes of breaches.
- d. Time Limits: There should be specific time limits for triggering the liquidated damages claims to prevent indefinite liability.
- e. Alternatives: The customer should have the option to trigger liquidated damages or seek other remedies. Alternatives to liquidated damages could include performance acceleration for the next milestone or additional resource allocation. This approach has benefits for both parties, including an opportunity for the vendor to avoid immediate and direct financial losses.
- f. Insurance: The vendor should understand clearly whether its insurance policy could cover the liquidated damages in whole or in part. The vendor should try to reach a clear upfront agreement with its insurance carrier around the logistical process for such liquidated damages claims, including scope of coverage and deductibles.

#### 4. Conclusion

For satellite and space services contracts, liquidated damages can offer an elegant and pragmatic solution to potential liability standoffs between vendors and customers. Despite being typically seen as negative in terrestrial technology and commercial agreements, liquidated damages can be a positive tool with mutual benefits for both customers and vendors in satellite and space service contracts. It is important, however, that liquidated damages are structured to adequately balance the risks and benefits of both parties considering the unique risks inherent to space-based operations.