

Nuclear Reactors on the Moon: NASA and Dept. of Energy Take First Step with MOU

January 21, 2026

On 13 January 2026, NASA and the US Department of Energy (“DOE”) announced a memorandum of understanding to develop a lunar surface nuclear reactor by 2030, a milestone that could fundamentally change the strategy for sustained human presence beyond Earth. The joint initiative aims to deploy a fission surface power system capable of producing safe, continuous electrical energy on the Moon, regardless of solar availability or lunar night cycles. This effort directly supports NASA’s Artemis campaign and future missions to Mars, while reinforcing a broader national space policy focused on technological leadership.

Unlike solar arrays or batteries that depend on sunlight or limited stored energy, a nuclear reactor could offer continuous, high-density power for habitats, scientific instruments, resource processing systems, and communications infrastructure. Early concepts envision reactors producing tens to hundreds of kilowatts, enough to support a small lunar base and potentially expandable for larger installations. Uch power would also support life-support systems and fuel production for deeper space missions, capabilities that solar power alone cannot reliably sustain during the 14-day lunar night.

The policy backdrop for this technical push is the December 2025 *Ensuring American Superiority in Space* Executive Order

(read more [here](#)). The order articulates a comprehensive national strategy to affirm US leadership in space and directs federal agencies to coordinate goals that extend beyond simple exploration. Among its provisions is a specific call for deploying nuclear reactors on the Moon and in Earth orbit, with at least one lunar surface reactor ready for launch by 2030.

This policy reflects a pivotal shift in space strategy, away from episodic missions with limited infrastructure toward a persistent lunar economy. Continuous, abundant power transforms what is feasible on the Moon. It enables high-energy activities such as using lunar ice to produce water, oxygen, and rocket propellant (in-situ resource utilization) and supports long-duration research facilities that could operate independently of Earth-based power. Robust energy also creates opportunities for private sector participation in lunar services and infrastructure development, aligning with the Executive Order's broader emphasis on commercial engagement in space.

Technical challenges, however, remain significant. Designing a reactor that can be safely launched, remotely deployed, and operated in the harsh lunar environment requires innovation in thermal management, radiation shielding, and autonomous control. Fission systems are inherently complex, and mission success depends on rigorous testing and validation on Earth followed by robust safeguards against accidental radiation exposure. Beyond engineering, international treaties like the Outer Space Treaty impose obligations to avoid harmful contamination and to ensure that space activities benefit all of mankind, adding a geopolitical dimension to nuclear deployment.

Even so, the potential rewards are substantial. A reliable nuclear power source on the Moon could act as a foundation for a sustainable cislunar economy, anchoring science stations, commercial outposts, and refueling hubs that extend human reach to Mars and beyond. It would signal a transition from exploration missions subject to short stays and limited infrastructure to an era of long-term habitation and industrial activity off Earth.

For NASA and its partners, this is about staying on the Moon and exploiting that experience as a springboard deeper into the solar system. If all goes well, the Artemis III astronauts could be scouting spots for installation of the nuclear reactor during their lunar surface exploration. As NASA and DOE progress toward their 2030 goal, the integration of nuclear power into lunar strategy will be watched closely by governments, commercial entities, and international partners. How the US executes this initiative under the Executive Order framework will shape the next decade of lunar exploration and the broader geopolitical and economic landscape of space.

Author: Abdulla Abuwaseel

Title: Partner – Transactions

Email: awasel@waselandwaseel.com

Profile:

<https://waselandwaseel.com/about/abdulla-abuwaseel/>

Lawyers and consultants.

Tier-1 services since 1799.

www.waselandwaseel.com

business@waselandwaseel.com

The Rise of the Shareholder State: When Sovereignty Joins

the Cap Table

January 21, 2026

For the better part of the last thirty years, the global consensus on industrial policy was defined by a specific, somewhat detached architecture. Governments, wary of being accused of “picking winners,” generally limited their interventions to the periphery of the market. They offered tax credits to spur R&D, provided grants to subsidize manufacturing, or established regulatory sandboxes to encourage innovation. The state acted as a gardener; watering the soil, perhaps pruning a few hedges, but largely trusting the private sector to decide what grew.

That era is over. As we settle into 2026, we are witnessing a profound mutation in the DNA of industrial policy. Driven by the fracturing of the geopolitical order and the rise of dual-use technologies, the state is no longer content to be a mere benefactor or regulator. Today, governments are stepping directly onto the playing field, transitioning from grant-makers to shareholders. We are entering the age of the Sovereign Venture Capitalist.

This shift represents a fundamental rewriting of the social contract between the public sector and private enterprise. In my three decades advising sovereign states, Fortune 500 corporations, and international organizations, I have observed the gradual tightening of the nexus between national security and economic competitiveness. However, what is occurring now is not a tightening; it is a fusion.

The catalyst for this change is the realization that in critical sectors; specifically **defense, artificial intelligence (AI), quantum computing, and space** exploration. The timeline of traditional procurement and the passivity of subsidies are insufficient. The speed of innovation in the

private sector vastly outpaces the bureaucratic machinery of the state. Furthermore, the capital intensity required to scale these deep technologies often exceeds what traditional VC markets, obsessed with short-term metrics, are willing to tolerate.

From Market Fixer to Market Maker

Consequently, we are seeing the emergence of state-backed investment vehicles that do not merely offer loans, but take direct equity stakes in startups. The United States, long the bastion of free-market orthodoxy, has become a leading practitioner of this new doctrine. The “equitization” of the CHIPS Act funding, most notably the government’s move to secure equity warrants in semiconductor champions like Intel, was the crossing of the Rubicon. It signaled that if the taxpayer is to underwrite the existential risk of reindustrialization, the taxpayer must also capture the strategic upside.

This logic is rapidly extending to the quantum frontier. The Department of Commerce’s negotiations with quantum pioneers like IonQ and Rigetti to swap federal funding for equity positions demonstrates a new strategic calculus: “Quantum Supremacy” is not a commodity to be bought; it is a national asset to be owned.

This is not an American idiosyncrasy; it is a global contagion. In Europe, the rhetoric of “strategic autonomy” has operationalized into hard capital. France’s Definvest and French Tech Souveraineté funds are actively taking stakes in dual-use champions, from space antenna manufacturers like Anywaves to sovereign cloud providers. Germany shattered its own post-war taboos by acquiring a blocking stake in defense electronics firm Hensoldt. And the NATO Innovation Fund, now deploying its €1 billion into startups across the Alliance, represents the multilateral evolution of this trend; a “closed-loop” innovation economy funded by, and for, the

state.

The Governance Paradox

The rise of the “Investor-State” introduces profound considerations. When a government becomes a major shareholder in a defense AI startup, it effectively fuses the regulator with the regulated.

- How does the DOJ or the European Commission impartially police an antitrust case involving a company where the Treasury holds a board observer seat?
- What happens to the fiduciary duty to maximize profit when it conflicts with the sovereign duty to maximize national security?
- If a state-backed quantum firm fails to meet safety standards, will it be allowed to fail, or will “too big to fail” morph into “too strategic to fail”?

The Diplomatic Cap Table

Furthermore, this shift weaponizes the capitalization table. A startup’s “investor relations” strategy is now indistinguishable from its foreign policy. Accepting sovereign equity is a double-edged sword. It offers “patient capital” and a guaranteed customer, but it also locks the company into a specific geopolitical orbit. A defense AI company with the Pentagon or a European Ministry of Defense on its cap table may find its exit options severely restricted. Selling to a foreign acquirer becomes a diplomatic impossibility rather than a business decision.

For the emerging industrialist, the message is clear: The government is no longer just the referee. It is now a player, a partner, and occasionally, the most demanding shareholder in the room.

We are leaving the age of laissez-faire innovation. As governments build their portfolios, from the Gulf's sovereign wealth funds transforming into active deep-tech investors to the U.S. Commerce Department's equity warrants, they are reshaping the global economy into a collection of competing national portfolios. Navigating this convergence requires not just business acumen, but a diplomatic sophistication that understands the new rules of geoeconomic statecraft. The state has pulled up a chair, and it has placed its chips on the table.

Author: Abdulla Abuwaseel

Title: Partner – Transactions

Email: awasel@waselandwaseel.com

Profile:

<https://waselandwaseel.com/about/abdulla-abuwaseel/>

Lawyers and consultants.

Tier-1 services since 1799.

www.waselandwaseel.com

business@waselandwaseel.com

The Constellation Gold Rush: FCC Approves 7,500 Starlink Satellites and China Applies for 200,000 Satellites with ITU

January 21, 2026

The constellation boom is here and it is a regulatory, spectrum, and orbital-capacity land grab that is playing out two venues that matter more than most operators admit: the Federal Communications Commission (market access, spectrum rights, operating conditions) and the International Telecommunications Union (international spectrum filings and

priority). Starlink is the proof of concept. China's latest filings are the proof that the next phase will be geopolitical.

Start with the blunt metric: low Earth orbit is getting crowded fast. A recent analysis cited more than 11,700 active satellites as of May 2025, a multiple-hundreds-percent increase from 2018, and attributes much of the change to megaconstellations. In the United States' own regulatory record, the scale is even clearer: SpaceX is operating roughly 9,400 Starlink satellites, described as about two-thirds of all active satellites. This is not "growth." This is a new baseline.

Starlink's next regulatory phase: authorization at scale, with conditions

On January 9, 2026, the FCC approved SpaceX's plan to deploy an additional 7,500 second-generation Starlink satellites, taking SpaceX's authorized total to roughly 15,000 satellites. The Commission did not greenlight the full vision (SpaceX had sought authority tied to nearly 30,000 Gen2 satellites), citing the untested nature of the Gen2 models, and instead issued a partial approval with milestones.

Those milestones matter commercially. The FCC's decision structure is effectively a gating mechanism: launch and operate 50% by December 2028, complete by December 2031, and complete deployment of the first-generation tranche by November 2027. For investors, suppliers, and competitors, those dates become de facto market timing signals. For downstream customers (governments, carriers, and enterprise buyers), they become service-availability cues.

The details inside the FCC's order also reveal where the U.S. market is moving: more flexibility on frequencies, and explicit accommodation for direct-to-cell style services (described as direct-to-cell connectivity outside the U.S.

alongside higher throughput ambitions). The FCC's own "partial grant" summary confirms the scope: additional frequencies and new orbital shells as part of the Gen2 upgrade architecture.

For operators and new entrants, the lesson is straightforward. The FCC is still willing to authorize at megascale, but it is pairing that scale with (i) performance and deployment deadlines, (ii) collision-avoidance and debris posture expectations, and (iii) ongoing oversight leverage. You cannot treat licensing as a one-time hurdle. You need to treat it as a lifecycle compliance program.

China and the ITU: filing is strategy, not paperwork

The ITU side is where the constellation boom becomes a strategic contest over priority. In the final week of December 2025, Chinese entities filed submissions covering more than 200,000 satellites with the ITU, according to reporting tied to ITU records.

There are two important nuances here.

First, ITU filings do not equal satellites in orbit. They are claims over spectrum and orbital resources under ITU Radio Regulations, and they can be used to reserve future operating flexibility, establish coordination positions, and shape the negotiation terrain with other administrations. The commercial implication is that spectrum risk is increasingly being "front-loaded" years before launch, and sometimes decades.

Second, the filings are arriving in a context of openly expressed safety and congestion concerns. The same reporting cycle ties China's actions to broader arguments about Starlink's collision risk and orbital crowding. That framing matters because it foreshadows the next wave of regulatory tools: more aggressive coordination demands, tougher market-access conditions, and reciprocal restrictions justified by safety or interference concerns.

In other words, the boom is shifting from “who can build and launch” to “who can secure durable rights, protect market access, and survive coordination disputes.”

What this boom is really creating: a full-stack opportunity cycle

A megaconstellation world creates opportunity far beyond manufacturing satellites. If the FCC is willing to authorize scale but only with enforceable milestones and evolving debris expectations, there is immediate demand for counsel that can architect applications, milestones, and operational compliance so the constellation remains financeable. China’s ITU posture signals a coming era of contested filings and coordination leverage. Operators will need serious representation to audit filing strategy, anticipate coordination friction, and defend priority positions before disputes harden into market-access denials. Even rivals are recapitalizing and replenishing to stay in the game; for example, Eutelsat has placed major orders to expand and maintain OneWeb while governments support European alternatives. That creates a second-order market in ground infrastructure, terminals, gateway licensing, cybersecurity, and government procurement.

The practical takeaway

This boom is not just “more satellites.” It is a race to lock in spectrum rights, regulatory permissions, and operational credibility before orbital carrying capacity becomes a hard constraint. The winners will not be the operators who launch the most spacecraft. They will be the operators who can (i) win approvals, (ii) survive coordination, (iii) maintain safety and disposal performance, and (iv) keep market access open across jurisdictions that are increasingly willing to weaponize spectrum and safety narratives.

Author: Abdulla Abuwaseel
Title: Partner – Transactions
Email: awasel@waselandwaseel.com
Profile:
<https://waselandwaseel.com/about/abdulla-abuwaseel/>

Lawyers and consultants.
Tier-1 services since 1799.
www.waselandwaseel.com
business@waselandwaseel.com

China's 2025 Space Launch Record: A Peek Behind the Curtains

January 21, 2026

China's space program in 2025 offers a clear picture of how the country now approaches access to orbit: methodically, at scale, and with long-term strategic intent. China has been steadily focused on operational consistency. The result is a launch cadence that now rivals many other national programs.

How many launches?

Publicly available tracking data indicates that China conducted approximately 90 orbital launches during 2025. This is second only to the United States, and far ahead from the other states that conducted launches in 2025.

While final tallies vary slightly depending on classification methodology, the overall conclusion is consistent across sources: China sustained a near-weekly launch cadence for an entire calendar year. That level of activity places it firmly among the most active spacefaring nations and reflects a system that has moved into sustained industrial execution.

What are the launches for?

It is important to know that China has two headline

megaconstellation efforts, each planned for 10,000+ satellites: Guowang (national network) and the Shanghai-based Thousand Sails. These constellations are intended to provide broadband communications and strategic redundancy and are widely understood as national infrastructure projects rather than purely commercial ventures. A significant portion of China's launches were done to support these large-scale satellite constellations; China conducted approximately 15 launches to Guowang deployments in 2025 alone.

Alongside its constellations, China continued its steady cadence of national security launches. Payloads associated with the Yaogan series and other classified missions were placed into orbit throughout the year. In December 2025, for example, a triple-launch sequence was executed and included a classified Yaogan payload and another classified spacecraft on a separate vehicle. This illustrates China's integration of "military space" into its launch cadence and emphasized the scale and dual-use nature of its orbital activities. China now treats defense-related access to space as a continuous operational need.

Human spaceflight and station logistics also remained stable with China demonstrating its emergency capabilities. China had planned three missions to its Tiangong space station in 2025: the crewed Shenzhou 20 and Shenzhou 21 missions (launched in April and October, respectively) and the Tianzhou 9 cargo spacecraft (launched in July). However, in around early November during routine checks, and just before departure back to Earth to return the three astronauts, an external crack was found on the Shenzhou 20 spacecraft viewport window likely caused by space debris. The spacecraft was deemed not safe to carry the astronauts through the heat of reentry. This resulted in emergency protocols being initiated. The three astronauts returned to Earth safely in the Shenzhou 21 spacecraft which had arrived to Tiangong while the Shenzhou 22, which was already on emergency standby at the Jiuquan

station, was readied in approximately 16 days and launched to Tiangong uncrewed. This was the first reported major human spaceflight emergency for China and it responded in an orderly manner.

Beyond Earth orbit, China continued to invest in scientific and exploratory missions. The launch of Tianwen-2 in May, China's ambitious asteroid sample-return and comet-exploring mission, underscores Beijing's intent to maintain a presence in deep space exploration alongside its more commercially oriented activities. Tianwen-2 is expected to arrive at a near-Earth asteroid classified '469219 Kamo'oalewa' in July 2026 and reenter Earth in late 2027.

One of the most consequential developments in 2025 was progress towards partial launch vehicle reusability. In December, LandSpace conducted what was widely described as China's first, commercial full reusable rocket test profile (orbit plus attempted recovery) and is openly targeting booster recovery as a commercial milestone. Simultaneously, Space Pioneer is currently working on Tianlong-3, its own iteration of a reusable vehicle. China's first state-owned reusable rocket designed by the Shanghai Academy of Spaceflight Technology, the Long March 12A, debuted in late December but recovery of the first stage of the rocket failed. If these efforts mature, they will place a downward pressure on launch costs and increase the competitiveness of Chinese providers in the global market.

Conclusion

China's 2025 launch record ultimately reflects a space program that has moved into sustained execution. The year's activity shows a system designed for continuity, where launch cadence, payload diversity, and operational reliability are treated as baseline expectations. Taken together, the data points to a mature ecosystem capable of supporting national security, commercial expansion, and long-term strategic objectives

simultaneously.

Author: Abdulla Abuwaseel

Title: Partner – Transactions

Email: awasel@waselandwaseel.com

Profile:

<https://waselandwaseel.com/about/abdulla-abuwaseel/>

Lawyers and consultants.

Tier-1 services since 1799.

www.waselandwaseel.com

business@waselandwaseel.com

Trump's Executive Order: Commercial Space Stations, Nuclear Reactors on the Moon, and More

January 21, 2026

On 18 December 2025, as an early Christmas gift for the space industry, President Trump executed Executive Order titled [Ensuring American Superiority in Space](#), ordering several notable changes.

Issued one day after the reconfirmation of entrepreneur and commercial astronaut Jared Isaacman as the 15th NASA Administrator, this Order reflects the Administration's intent to position the commercial industry as the central pillar of American space dominance.

Reaffirmation of Artemis and Moon landing

The Order reaffirms US commitment to returning astronauts to the Moon through the Artemis program, with lunar economic development serving as a platform for sustained presence, infrastructure development, and economic activity.

Acquisition Reform and Market Entry

A core feature of the Order is reforming federal acquisition processes to lower barriers for new market entrants. Agencies are instructed to modernize procurement practices to prioritize speed, competition, and non-traditional contractors.

Targeting USD 50 billion in investment by 2028

The Administration sets an objective of attracting at least USD 50 billion in private investment into the US commercial space sector by 2028. This capital has been positioned to bolster the commercial industry in the rapid development of novel dual-use technologies.

Increasing launch cadence

The Order calls for increased launch frequency across civil, commercial, and national security missions. Launch licensing, range access, and infrastructure capacity are treated as immediate constraints requiring reform. For launch providers and spaceports, the directive places operational scalability squarely on the national agenda.

Commercial Space Stations and alternatives to the ISS

Agencies are directed to accelerate the development of commercial alternatives to the International Space Station by 2030, whilst privately operated space stations are explicitly encouraged. This encouragement for commercial space stations establishes a policy runway for long-term private human spaceflight operations and should serve as a prolific motivator for commercial operators to commence development; Vast, Max Space and Axiom have continued to push this forward.

Deployment of nuclear reactors in space by 2030

The Order authorizes accelerated development of nuclear reactors on the Moon and in orbit by 2030. Nuclear power is

framed as essential for sustained lunar operations and deep-space missions. This represents one of the strongest federal endorsements to date of nuclear systems as enabling infrastructure for space activity

Cancellation of the National Space Council

The Order revokes Executive Order 14056 of December 1, 2021, removing the legal foundation of the National Space Council. As a result, the Council ceases to function as an active presidential advisory body unless reconstituted by future executive action. This reflects a broader shift away from centralized policy coordination toward direct executive and agency execution.

NASA's assumption of publication costs

Unusually, the Order directs NASA to bear the cost of its publication. This provision is rarely seen in modern executive actions and underscores NASA's central role in implementing the Administration's space agenda. Symbolically and practically, NASA is positioned as an executing authority rather than an intermediary.

Takeaway

The Order's central premise is that American space superiority will be achieved through commercial execution. This shift from government as the primary operator materially expands opportunities for launch providers, satellite manufacturers, spaceport operators, in-space infrastructure developers, and investors prepared to scale alongside federal objections.

Commercial actors should treat the Order as a call to align early. Companies should map their capabilities against Artemis support, lunar infrastructure, missile defense enablers, commercial LEO destinations, and nuclear power deployment, and position themselves for accelerated procurement cycles. At the same time, operators should prepare for regulatory movement by

reassessing export control exposure, licensing pathways, and cross-border operations in anticipation of streamlined frameworks. Finally, the Order rewards speed. Firms that engage agencies now, structure offerings to meet compressed timelines, and invest in compliance readiness will be best positioned to capture high-value contracts.

Author: Abdulla Abuwaseel

Title: Partner – Transactions

Email: awasel@waselandwaseel.com

Profile:

<https://waselandwaseel.com/about/abdulla-abuwaseel/>

Lawyers and consultants.

Tier-1 services since 1799.

www.waselandwaseel.com

business@waselandwaseel.com

SpaceX's Potential IPO: Smaller Space Companies and Governance Necessity

January 21, 2026

The prospect of a SpaceX initial public offering (“IPO”) listing has revived debate about how regulatory posture shapes company value in the space sector. The company, privately valued at approximately USD 800 billion and considering a potential valuation of USD 1.5 trillion, illustrates a broader transformation in how capital markets evaluate aerospace firms. Now, investors increasingly scrutinize not only technology and revenue growth but also the quality, defensibility, and scalability of licensing and spectrum rights, particularly for operators with global footprints.

Starlink's constellation, now the largest deployed in history

and providing broadband to more than 8 million users worldwide, functions as a regulatory organism as much as a technical one. Each satellite, downlink terminal, beamforming pattern, spectrum allocation, and market authorization adds layers of legal exposure. For operators in earlier stages of growth, Starlink's compliance architecture, which is built across dozens of jurisdictions, signals a fundamental point that in the modern commercial space economy, licensing and spectrum are no longer mere administrative filings. They are now balance-sheet assets that affect valuation, investor access, and long-term competitiveness.

Yet licensing alone is not the lesson. A transition toward public-market disclosure places organizational governance under equal scrutiny. Even for a company of SpaceX's scale, investor questions regarding internal decision processes, risk management systems, and independence of oversight bodies are far from marginal. Space companies traditionally grow through engineering excellence and contract acquisition, but public markets require demonstrable maturity in governance, regulatory risk management, and strategic continuity. These requirements will cascade down through the sector. Smaller operators who postpone governance formalization until growth will find themselves disadvantaged when capital investors begin using SpaceX's eventual disclosures as de facto industry benchmarks.

A second implication arises from the tension between long-horizon programs and short-term investor expectations. The development of Starship, which has been characterized by extraordinary capital intensity and multi-decade ambitions, demonstrates how public-company frameworks compress timelines. Operators entering the market today must recognize that board structures, compliance protocols, and risk reporting will be examined with the same rigor as orbital-debris mitigation plans or landing-rights filings. Investors will view an operator's regulatory footprint as a reflection of the

operator's internal discipline.

Smaller companies can prepare for this shift by (1) reviewing their regulatory posture across all aspects of operation to identify potential gaps that could jeopardize the company; (2) stress testing their contracts with customers, suppliers, and government partners to ensure they meet evolving legal and disclosure standards; (3) developing universal incident-response protocols so that reporting is consistent, defensible, and aligned with insurer expectations; (4) maintaining disciplined documentation of design decisions, internal deliberations, quality controls, and mission assurance processes to support both regulatory review and investor due diligence.

SpaceX's potential listing underscores a structural transformation in how commercial space companies are evaluated. Licensing portfolios and governance maturity now function as equal factors of enterprise value. Smaller operators who incorporate these lessons early will differentiate themselves not only in regulatory posture but in credibility, resilience, and capital readiness as the sector moves toward its next phase of institutionalization.

Author: Abdulla Abuwaseel

Title: Partner – Transactions

Email: awasel@waselandwaseel.com

Profile:

<https://waselandwaseel.com/about/abdulla-abuwaseel/>

Lawyers and consultants.

Tier-1 services since 1799.

www.waselandwaseel.com

business@waselandwaseel.com

Cosmonaut Removed from SpaceX

Flight Mission for Violation of National Security via the ITAR

January 21, 2026

The recent removal of a cosmonaut from SpaceX's Crew-12 mission has drawn attention not for its diplomatic implications, but for what it signals about the tightening intersection of human spaceflight and national-security regulation. Reports indicate that the cosmonaut was withdrawn following an alleged violation of U.S. export-control rules, specifically, the International Traffic in Arms Regulations ("ITAR").

The cosmonaut allegedly photographed restricted technical materials during training activities at SpaceX facilities in Hawthorne, California. Even a seemingly routine photograph taken within a secure environment can constitute an "export" under ITAR, which defines export to include, *inter alia*, the transfer of controlled technical data to any foreign person, whether or not that transfer occurs outside U.S. territory. As such, the act of capturing and storing sensitive imagery on a personal device may be sufficient to trigger an export-control investigation.

If confirmed, the incident stands as one of the clearest examples thus far that human spaceflight no longer exists outside the perimeter of national-security law. Commercial operators routinely host international astronauts, government partners, researchers, and soon, even private passengers on flight missions. Each individual, regardless of their role, walks into environments saturated with ITAR-controlled systems and data. The presence of foreign nationals in training

facilities, spacecraft assembly buildings, and mission-simulation centers requires companies to build increasingly robust compliance architectures to avoid inadvertent transfers of technical data.

The episode also arrives at a moment when U.S. export-control agencies are actively considering reforms to modernize ITAR and the Export Administration Regulations for the commercial space era. Policymakers have proposed new license exemptions for civil and scientific missions, and revisions to the definitions of spacecraft, launch vehicles, and related equipment. The U.S. Department of State's Directorate of Defense Trade Controls has also announced planned revisions to the ITAR and U.S. Munitions List for 2026. Yet even as regulators contemplate liberalization in some areas, the Crew-12 incident underscores that ITAR's core prohibitions remain formidable.

There is a broader lesson for future spaceflight participants. As commercial missions increasingly include non-career astronauts, civilians, and international passengers, individuals may find themselves documenting their experiences: photographing hardware, recording facilities, posting social media updates, or capturing behind the scenes content for family, research, or personal records. What feels like ordinary documentation may, in a high-technology environment, constitute a regulatory breach. Travelers who are unaccustomed to U.S. export-control regimes may not appreciate the breadth of which "technical data" encompasses. The penalties for unintended violations can be severe, and operators remain responsible for safeguarding access to controlled technology.

General counsel and in-house legal teams can take several concrete steps to harden their facilities against similar breaches. This begins with implementing granular export-control access protocols, including individualized technology control plans that specify precisely which foreign persons may enter which areas, under what supervision, and with what

restrictions on electronic devices. Counsel should also oversee mandatory pre-training for all visitors, regardless of role, explaining the scope of ITAR technical data and the severe consequences of unauthorized documentation. Facility layouts should be reviewed to ensure that controlled hardware is never visible from mixed-access zones, and companies should adopt monitored storage solutions to prevent personal devices from entering sensitive areas. Finally, incident-response procedures must be rehearsed in advance so that any suspected breach is escalated immediately, preserved for regulatory reporting, and contained before it can compromise export-license obligations.

For companies, investors, and governments participating in cross-border space missions, the Crew-12 development is a reminder that export compliance is now inseparable from mission design, astronaut training, facility access management, and passenger education. For passengers, it signals that the legal obligations accompanying space travel extend far beyond launch contracts and liability waivers; they reach into the way one records, describes, and shares the experience itself. Operators and participants alike would be well advised to approach these missions with a heightened awareness of the legal architecture that surrounds them and with cognizance that, in the space industry, even a photograph can carry the weight of national security concern.

Author: Abdulla Abuwasel

Title: Partner – Transactions

Email: awasel@waselandwasel.com

Profile:

<https://waselandwasel.com/about/abdulla-abuwasel/>

Lawyers and consultants.

Tier-1 services since 1799.

www.waselandwasel.com

business@waselandwasel.com

Oman Unveils Commercial Space Framework and Launch Authorization Regime

January 21, 2026

The Oman Civil Aviation Authority (“CAA”) has formally published its directive on *Airspace Usage for Launch Vehicle Activities*. The directive provides the requirements for launch vehicle activities conducted within or from the territory of Oman.

Complementing the directive is a six-page application for operators to seeking to perform a space activity in Oman to submit to the Director General of the CAA. With the framework in place and applications ready, this is the optimal opportunity for investors seeking first movers’ advantage in a novel jurisdiction with ostensibly clear space ambitions.

The Directive

The directive empowers the Civil Aviation Authority, in coordination with the Ministry of Transport, Communications and Information Technology (“MTCIT”), to manage and control the nation’s airspace for launch vehicle operations and ensure the safety and efficiency of civil aviation.

Under the directive, any operator intending to conduct a launch from or within Omani territory must first coordinate with the MTCIT and then apply to the CAA’s Director General of Civil Aviation Regulation. The application must be filed no later than 45 working days before the planned launch date. The directive requires the operator to be accompanied by a

“subject matter expert” who can brief the CAA on the intended activity.

The directive requires applicants to disclose detailed mission parameters, including launch windows, vehicle specifications, and deviation mechanisms. Each launch plan must be supported by a WGS-84 map of the launch site, safety buffers, and flight path coordinates. These data points are critical for the CAA’s issuance of a Notice to Air Missions (“NOTAM”), the mechanism through which the Authority reserves and manages portions of national airspace during launch operations, discussed further below.

Additionally, the subject matter expert must facilitate to the CAA a hazard identification plan followed by a risk assessment report evaluating severity, probability, and preventive measures. This is to ensure the fitness of the rocket and the safety of the airspace. The directive further mandates meteorological assessments, a “Go/No-Go” weather criterion, and coordination with the CAA for any required meteorological data or equipment.

Given Oman’s proximity to other launch-capable states such as the UAE and Saudi Arabia, coordination with adjacent airspace authorities is expected as part of broader air traffic control considerations.

Application Form

At the outset, before the applicant submits their application to the Director General of the CAA’s Civil Aviation Regulation. The application form consists of the following thirteen sections:

1. Details of the applicant
2. The case manager at the MTCIT
3. Details of the launch site operator
4. The mission details
5. Mission summary

6. Key flight parameters and performance metrics
7. Vehicle specifications
8. Launch plan
9. Weather requirements
10. Hazard management
11. Details of state coordination
12. Any additional requirements the CAA may require
13. Declaration

To download the application form, click on the following link:
[Application of Airspace Operation for Space Activities Issue 2 Revision 00.pdf](#)

Next Steps for Investors

With the framework now in force, this presents an opportunity for prudent operators to gain early operational access to a strategically located Gulf jurisdiction, and the opportunity to influence the development of Oman's broader space governance architecture.

Prospective operators should begin compiling the technical, operational, and safety documentation required under the directive for submission to the CAA.

In the interim, Oman will be preparing to open doors to its first-ever commercial spaceport, the Etlaq Spaceport, by 2027. Etlaq is a massive endeavor and will consist of a mission-control facility, warehouses to be used for rocket manufacturing and testing, and a business park to provide operators with a shared infrastructure. Operators who move swiftly may have their application and NOTAM ready just in time for launch from Etlaq.

Author: Abdulla Abuwasel
Title: Partner – Transactions
Email: awasel@waselandwasel.com
Profile:
<https://waselandwasel.com/about/abdulla-abuwasel/>

Lawyers and consultants.
Tier-1 services since 1799.
www.waselandwasel.com
business@waselandwasel.com

Leveraging Public Finance for Spaceports: An Analysis of Recent Amendments for Commercial Space Infrastructure Under IRC § 142

January 21, 2026

The immense capital expenditure required to establish and maintain terrestrial space infrastructure has long represented a significant financial barrier for the commercial space industry. Historically, funding for such ambitious projects has been dependent on direct government contracts or the high-cost capital of venture equity markets. A pivotal change in United States federal tax law, however, has introduced a sophisticated public finance mechanism designed to lower this barrier, fundamentally altering the calculus for investing in the ground-based assets that underpin the space economy. The amendment of Internal Revenue Code § 142 to include spaceports as a class of “exempt facility” for which tax-exempt private activity bonds may be issued marks a strategic integration of the space sector into the mainstream of American infrastructure finance. This legislative action effectively signals a policy determination that private space infrastructure now serves a public purpose akin to airports and docks, meriting access to the same advantageous financing tools.

Legal Framework: The “Exempt Facility Bond”

The legal foundation of this opportunity lies within the concept of the exempt facility bond itself. Section 142 of the U.S. Internal Revenue Code carves out specific exceptions to the general rule that bonds issued to benefit private entities are taxable. This section enumerates a select list of privately operated or utilized facilities, such as airports, docks, wharves, and mass commuting facilities, which are deemed to provide a significant public benefit. By adding “a spaceport” to this list, the U.S. Congress has enabled state and local governments to issue bonds on behalf of a private enterprise for the purpose of developing space facilities, with the interest paid to bondholders being exempt from federal income tax. This tax exemption translates directly into **lower borrowing costs** for the project, as investors are willing to accept a lower interest rate in exchange for the tax benefit.

Anatomy of a “Qualified Spaceport”

Crucially, the legislation provides a comprehensive and forward-looking definition of what constitutes a “spaceport.” This is not limited to the physical launchpad but is crafted to encompass an entire industrial ecosystem. The statute specifies that the term includes fixed assets, equipment, and facilities located at or near a launch or reentry site that serve a range of functions. An analysis of these functions reveals the law’s broad intent. The inclusion of facilities for **“manufacturing, assembling, or repairing spacecraft, space cargo, or components thereof”** is particularly significant. It extends the benefit of tax-exempt financing beyond launch service providers to the vital upstream supply chain of hardware manufacturers and component suppliers. This provision directly enables the development of integrated “spaceparks,” where design, manufacturing, testing, and launch operations can be co-located to create powerful efficiencies.

Furthermore, the definition covers infrastructure for “**flight control operations,**” acknowledging the critical and costly ground-station and mission-control networks necessary for any space venture. It also explicitly includes facilities for “**transferring crew, spaceflight participants, or space cargo to/from spacecraft,**” a clause that directly addresses the burgeoning markets for both space tourism and in-space logistics. This statutory breadth ensures that the financing mechanism is not narrowly prescriptive but can adapt to the diverse business models emerging within the commercial space sector.

Structuring the Public-Private Partnership (P3)

A central pillar of this framework is the intricate structure designed to facilitate public-private partnerships while adhering to the tax code’s requirement of governmental ownership. To qualify, the financed facilities must be governmentally owned for tax purposes. The law, however, provides a clear and practical “**safe harbor**” that allows a private entity to lease and operate the facility without jeopardizing the bonds’ tax-exempt status. This legal architecture is critical, as it allows a public entity, like a port authority or a county economic development corporation, to serve as the issuer and legal owner while a private space company brings its specialized expertise and operational control to the project.

The safe harbor provisions are precise.

1. The lease term granted to the private operator **cannot exceed 80%** of the property’s reasonably expected economic life, ensuring the public entity retains a meaningful residual interest in the asset.
2. Any option granted to the private lessee to purchase the facility must be at a price equal to its **fair market value** at the time the option is exercised. This prevents the arrangement from functioning as a disguised

installment sale at a pre-arranged, below-market price.

3. The private operator must formally **waive any right to claim federal depreciation deductions or investment tax credits** with respect to the facility. This provision prevents a project from receiving a “double benefit” of both tax-exempt financing and private-owner tax deductions.

This carefully balanced structure provides a tested and bankable model for allocating risk, responsibility, and reward between public and private partners.

Navigating Federal Entanglement Rules

The legislation also astutely navigates the complex rules regarding federal guarantees. Generally, private activity bonds are ineligible for tax-exempt status if their payment is directly or indirectly guaranteed by the federal government. This rule prevents the federal government from using the municipal bond market to provide backdoor subsidies. However, in the context of spaceports, where federal agencies like NASA and the Department of Defense are often foundational, long-term customers, this prohibition posed a fatal obstacle. A multi-year launch services agreement or facility lease with a federal agency could easily have been interpreted as an impermissible guarantee. The amended code provides a crucial clarification: **payments made by the United States** for the use of a spaceport under ordinary rental or user-fee arrangements **will not be treated as a federal guarantee**. This carve-out is of paramount importance, as it provides the certainty needed for projects anchored by federal contracts to proceed with tax-exempt financing, thereby aligning the tax law with the business realities of the aerospace and defense sectors.

Conclusion: A Strategic Policy Shift

In sum, the inclusion of spaceports under Section 142 is far more than a minor regulatory adjustment. It is a sophisticated

piece of financial engineering that creates a clear, legal pathway for channeling lower-cost capital into essential space infrastructure. By leveraging the mature public finance market, this legislation provides a powerful new tool for economic development, enabling states and municipalities to compete for high-tech investment and job creation. For the commercial space industry, it reduces the cost of capital, a primary constraint on growth. For investors, it creates a novel, tax-advantaged asset class with exposure to a transformative economic frontier. This framework is a deliberate act of industrial policy, designed to accelerate the build-out of a robust domestic space infrastructure and secure American leadership in the commercial space domain.

Author: Abdulla Abuwaseel

Title: Partner – Transactions

Email: awasel@waselandwasel.com

Profile:

<https://waselandwasel.com/about/abdulla-abuwaseel/>

Lawyers and consultants.

Tier-1 services since 1799.

www.waselandwasel.com

business@waselandwasel.com

Securing Sensitive Data: Contract Clauses for AI Integration

January 21, 2026

Artificial Intelligence (AI) is no longer confined to specialized platforms like ChatGPT or other large language models. Everyday business software—including common suites from Microsoft and Adobe—has begun integrating AI-driven features that may process, store, or learn from user input.

This evolving landscape creates unique risk considerations regarding how confidential and sensitive data is handled.

Organizations must remain vigilant about the risk that confidential data could be inadvertently retained, analyzed, or shared outside intended boundaries. For example, if a user inadvertently inputs trade secrets into an AI-powered software tool, there is no absolute guarantee that the tool will not use, store, or train on that data, potentially making it accessible for other purposes. Such incidents raise legal and compliance concerns, especially when sensitive or proprietary information is involved.

In response to these concerns, many companies are adopting contract language that addresses the use of AI systems. These clauses aim to prevent the unintentional disclosure of private data and ensure that neither party uses the other's confidential information to develop or enhance any AI models. By including clear guardrails and usage parameters, parties can leverage the benefits of AI tools while maintaining strong confidentiality standards.

Although every contract should be tailored to the specific circumstances of the parties involved, clauses that are appearing in modern contracts generally read somewhat along the following lines:

“AI System” refers to any Artificial Intelligence software or functionality, whether generative or otherwise, including but not limited to machine learning models, large language models, or embedded tools within third-party platforms. Each Party agrees that no Party shall disclose or provide Confidential Information to an AI System that can be accessed by individuals or entities other than the disclosing Party and the receiving Party, unless expressly authorized in writing. Confidential Information shall not be used to train, develop, fine-tune, or otherwise enhance any AI System, algorithm, or related dataset without prior written consent

of the other Party. Furthermore, any AI System utilized must be configured or managed so it does not retain, learn from, or generate future outputs based on the disclosing Party's Confidential Information unless expressly permitted. Each Party shall implement appropriate technical and organizational measures to ensure that any AI System used in the course of performance under this Agreement cannot inadvertently store, transmit, or share Confidential Information in contravention of this provision.

Such contract language underscores the importance of transparency and proactive protection of sensitive data in an AI-driven environment. As AI technologies become increasingly pervasive, it is prudent to adopt contractual safeguards that help all parties preserve the confidentiality and integrity of proprietary information.

Author: Abdulla Abuwaseel
Title: Partner – Transactions
Email: awasel@waselandwaseel.com
Profile:
<https://waselandwaseel.com/about/abdulla-abuwaseel/>

Lawyers and consultants.
Tier-1 services since 1799.
www.waselandwaseel.com
business@waselandwaseel.com