

October 20, 2026

Submitted via Regulations.gov Portal

Christopher Kirkpatrick
Secretary of the Commission
Commodity Futures Trading Commission
Three Lafayette Centre
1155 21st Street NW
Washington, D.C. 20581

Re: Response to the Commodity Futures Trading Commission’s Request for Comment on the Listing of Compute Derivatives Contracts (RIN 3038-AF77)

Dear Mr. Kirkpatrick,

Paradigm Operations LP (“*Paradigm*”)¹ and Andromeda Cluster, Inc. (“*Andromeda*”)² appreciate the opportunity to comment on the Commodity Futures Trading Commission’s (“*CFTC*” or the “*Commission*”) Request for Comment on the Listing of Compute Derivatives Contracts (the “*RFC*”).³ As investors, builders, and participants in both AI and derivatives industries, we have significant expertise and a strong interest in the development of well-functioning markets for AI and compute, and we thank the Commission for its thoughtful approach to the regulation of financial innovations like those at the center of this RFC.

To be clear, the need for viable compute markets is not merely on the horizon; it is here. Compute is—today—one of the most economically significant commodities in the United States, with the RFC itself noting that current installed stock may imply compute services that account for as much as four percent of U.S. GDP.⁴ As AI becomes increasingly important to an ever-expanding range of industries, compute markets will continue to grow precisely because every participant in the AI buildout bears the price risk: the labs that buy capacity, the neoclouds and data center operators that sell it, and the lenders financing GPUs against future rental income. When, as now, that risk cannot be effectively hedged, it is priced into the cost of capital and passed on to every business that relies on AI. At present, the lack of a good hedging mechanism is creating an AI tax on the economy, one that is being passed on to every single American.

Paradigm and Andromeda therefore support the Commission’s efforts to better understand compute markets and to ensure that listed compute derivatives are available for the benefit of hedgers and the American AI and compute markets alike. However, we also believe that any steps

¹ Paradigm is a frontier technology investment firm that invests and builds in crypto, AI, robotics, and across new frontiers from the earliest stages. More information about Paradigm is available online at <https://www.paradigm.xyz>.

² Andromeda is a GPU compute infrastructure company that sources, operates, and delivers dedicated compute capacity to AI developers. More information about Andromeda is available online at <https://andromeda.ai/>.

³ Request for Comment on the Listing of Compute Derivatives Contracts, 91 Fed. Reg. 54259 (Aug. 21, 2026).

⁴ See RFC, 91 Fed. Reg. at 54260 n.5.

the Commission takes to shape the compute derivatives markets should be carefully calibrated to specific and identifiable risks in order to avoid picking winners and losers based on regulatory restrictions, rather than the value they provide to the market.

Our comments therefore focus on five related points. *First*, we explain the importance of compute markets and provide background details that we believe will be helpful to the Commission. *Second*, we urge the Commission to issue guidance clarifying how exchanges can demonstrate, under the existing regulatory framework, the quality and transparency of indices underlying listed compute derivatives without further delaying the widespread adoption of these markets. *Third*, we explain the benefits that we believe physically-settled compute futures would provide to the market. *Fourth*, we describe why we oppose any heightened standards applicable specifically to listed compute derivatives and/or exchanges listing such products. *Fifth*, we explain why compute is well suited as perpetual futures contracts.

I. Functioning Compute Markets Are Critical to the American AI Buildout

As the Commission noted, the price of compute is one of the most material costs in the AI production stack.⁵ Compute providers often operate on thin margins relative to the rental price of compute, meaning that even modest price movements can determine whether a given deployment is profitable. And given China’s success in building out its AI and energy infrastructure,⁶ America’s long-term advantage lies in financial markets that ensure predictable cash flows, increase lender confidence, and lower lending rates. In other words, the ability to manage price risks is *the* critical lever to ensuring that America and its allies win the AI race, and to the AI Action Plan’s specific instruction to improve “the financial market for compute.”⁷

Importantly, like any other commodity market, AI and related industries will require a variety of hedging tools due to the complexity of the business models and price risks involved. For example, compute providers that do not own hardware or chips may seek a price floor through put options in order to lock in forward revenue. Vertically-integrated compute providers, on the other hand, may seek spread contracts in order to lock in the margin between input and output costs. Data center operators may seek traditional cash-settled futures to lock in a minimum price for GPU rentals, while labs and other buyers may seek the opposite position to lock in a maximum price. And small-scale AI companies may wish to hedge their price risks using localized costs based on a specific “node” or source. Each of these products will need different terms, and it may be most effective for some products to use different sources for those terms than others.

⁵ See RFC, 91 Fed. Reg. at 54262.

⁶ See The White House, *Winning the Race: America’s AI Action Plan*, at 14 (July 23, 2025) (“American energy capacity has stagnated since the 1970s while China has rapidly built out their grid. America’s path to AI dominance depends on changing this troubling trend.”); SemiAnalysis, *The Chinese AI Infrastructure Boom: Introducing the SemiAnalysis China Datacenter Model* (Sept. 25, 2026) (estimating China’s datacenter fleet at over 24 GW, “[b]igger than EMEA [and] [b]igger than the rest of Asia,” and noting that China “routinely delivers 100MW datacenter facilities in under 12 months.”).

⁷ RFC, 91 Fed. Reg. at 54262 (citing The White House, *Winning the Race: America’s AI Action Plan*, at 4 (July 23, 2025)).

Paradigm and Andromeda therefore believe that the key to unlocking the full promise of compute markets is to allow participants to drive the development of effective and fit-for-purpose hedging tools, subject only to principles-based rules and guidance intended to address discrete issues. Artificial limitations on what products are developed or how they are priced could delay or even thwart these tools from being released to and tested by the market. The American AI and compute industry needs flexibility to design and test these new products, and the space to allow market forces to determine which products are best fit for their stated purposes.

Accordingly, the remainder of our comments are framed around the belief that the most pressing issue facing the Commission is ensuring that compute markets become expeditiously functional and available to all interested market participants. Given the amount of money and volatility involved in compute (and energy) markets, liquidity will inevitably follow, and will follow to the markets that ensure transparency, reliability, and standardization. We therefore believe the Commission should focus on facilitating the conditions for well-functioning and orderly compute markets to flourish, rather than prematurely forcing a market structure that will stifle innovation and American success in AI.

II. Standardization and Liquidity Concerns Can Be Addressed by the Market

In the RFC, the Commission stated that “it is the Commission’s preliminary belief that the emergence of a compute derivatives market in accordance with Commission rules and regulations would likely require standardizing variables typically associated with compute, both with respect to the price index used as a settlement reference, and with respect to the standards of compute that is required to be physically delivered.”⁸ We agree that some degree of standardization will be necessary before listed compute derivatives become widely-used as hedging tools, but do not believe that this challenge is materially different from other commodity markets. Crude oil, for example, varies by grade, sulfur content, and location, yet the market defines a specific benchmark contract and allows basis to trade around it, a practice the CFTC has allowed for years in many markets, from energy to interest rates. Compute can work the same way as these established benchmarks.

The difficulty today is that certain major compute indices simply aggregate transactions involving a specified chip, regardless of the location, SKU, configuration, or service-level commitments. The chip is of course an important component of a transaction’s value, but these other factors are important as well. Therefore, transactions based on these single-factor indices may be acceptable for speculative purposes, but may introduce unacceptable basis risk for hedgers and lenders. Additionally, and as the Commission noted,⁹ many indices today are built from a limited number of publicly-posted quotes and private deals that happen to be reported to an index provider, without capturing transactions by the largest compute suppliers. Again, this limits the utility of such indices because they may not be properly tethered to cash-market prices. The Commission is right to be attentive to these issues.

⁸ RFC, 91 Fed. Reg. at 54262.

⁹ See *id.* (“The Commission preliminarily understands that . . . price formation primarily occurs in opaque bilateral transactions....”).

But those issues do not require a bespoke regulatory regime. The Commission’s guidance in Appendix C to Part 38 already provides that a cash settlement price should be a reliable indicator of cash market values, and it applies equally to every index-settled contract. To the extent the Commission believes that additional clarity is appropriate—an initiative that, as discussed immediately below, we would support—it could therefore provide guidance within that existing framework regarding the ways in which designated contract markets (“*DCMs*”) listing compute derivatives ensure that the underlying index captures a representative sample of transactions that accurately reflect the market.

To that end, Paradigm and Andromeda would support guidance that encourages or requires exchanges to disclose the extent to which an underlying index satisfies certain indicia of transparency and reliability. For example, the Commission could require that DCMs disclose the extent to which indices: (1) have a published methodology, (2) differentiate between transactions based on specifications and tenor, (3) are grounded in transaction-based inputs or, where quotes are used, are labeled as such, (4) publish the number of contributors and level of contributor concentration, and (5) are administered by an independent body. This information will assist market participants with evaluating the quality of the index underlying a given compute derivative, and will simultaneously address the manipulation risk the Commission identified. An index that discloses contributor concentration, separates transactions from posted rates, and is independently administered is far more difficult for any single provider to move by adjusting a posted rate or directing capacity onto or away from a particular venue.

Additionally, the Commission expressed concerns about the existence of liquidity in the underlying cash markets and also in listed compute derivatives.¹⁰ Respectfully, we do not believe liquidity will pose an obstacle, let alone an insurmountable one that should limit the proliferation of these markets.

- First, developing derivatives markets often have limited liquidity and/or fragmented pricing sources at the outset—particularly in the early stages of geopolitical and technological realignment—and yet flourish into critical hedging and investment products.¹¹ For example, CME Eurodollar futures averaged only 3,000 contracts a day in 1981, but grew into one of the world’s most highly-traded interest rate products before the transition from LIBOR to SOFR. There is no reason to expect that the AI and compute markets will draw any less capital.
- Second, despite the current lack of transparency in cash market compute transactions discussed above, market makers have proven willing to participate, with DCMs having filed cash-settled compute futures, event contracts on GPU

¹⁰ See RFC, 91 Fed. Reg. at 54262 (“the Commission preliminarily believes that compute may not yet exhibit certain of the characteristics of commodities that typically underlie a commodity derivatives market, including . . . sufficient liquidity”), 54263 (“What, if any, recalibration of market safeguards, risk controls, and liquidity protections should a DCM implement for compute derivatives... to prevent thin liquidity conditions from resulting in disproportionate or runaway price movements?”).

¹¹ See, e.g., Lerman, Dave, “World’s Most-Traded Interest Rate Futures Contract Almost Failed,” available at: <https://www.cmegroup.com/education/articles-and-reports/worlds-most-traded-interest-rate-futures-contract-almost-failed>.

rental prices already trading, and market makers committing to support them. With the additional guidance suggested above, those market makers and their institutional and retail counterparties will only be more likely to participate. In other words, solving the first problem solves the second.

- And third, whatever the current demand for compute derivatives may be (and it is substantial) it will be dwarfed by the demands of tomorrow. Andromeda sees this demand directly, from compute providers seeking to lock in forward revenue, from investors seeking to price and hedge forward capacity, and from lenders seeking protection on the compute transactions they finance. Delaying the arrival of these markets until the inevitable deluge of demand is undeniable will only serve to hold back American AI development to the benefit of our adversaries.

In short, functional derivatives markets will not emerge until exchanges are able to list their products, test them in the market, and adjust according to what works and what does not. We therefore urge the Commission to permit DCMs and others to develop and launch compute derivatives under appropriate oversight but without the delays or onerous conditions that would hamstring these critical markets.

III. Physically-Delivered Futures Would Further Solidify the Compute Market

Coupled with transparent, reliable, and standardized cash-settled and index-based markets, the deployment of physically-delivered contracts would resolve most of the remaining concerns expressed in the RFC. While the price of a cash-settled and index-based contract merely converges with the underlying index (and therefore is only as good as the index itself), a contract that settles through physical delivery would be directly connected to the market for the specific product being delivered, even if only a small number of transactions result in delivery. By analogy, less than one percent of crude oil futures contracts deliver physically, yet the possibility of delivery helps anchor the crude futures market to the underlying cash market. And unlike oil, a standardized cluster that has been certified to the contract standard can be provisioned in minutes rather than shipped and stored, making it better suited to a physical delivery model.

Moreover, and similar to the benchmark natural gas and WTI contracts, a wide range of cash-settled compute contracts with different contract specifications could be priced by a differential to a physically-delivered contract, rather than by reference to an imperfect index. Even a single physically-delivered contract could therefore spur development of a variety of contracts tailored to different risk profiles.

In the RFC, the Commission referred to “potential infrastructure-related challenges associated with delivering [compute],”¹² but our experience is that these challenges are manageable with established commercial practices. The core part of a neocloud’s business, for example, is to “deliver” rights to rent or use compute. In the context of a deliverable futures contract, the compute capacity being delivered would of course need to be subject to standardized specifications. However, the delivery process itself would merely entail the short counterparty obtaining capacity that satisfies the exchange standards, and provisioning such capacity to the

¹² RFC, 91 Fed. Reg. at 54262.

buyer under a service-level agreement. The exchange could certify that certain GPUs satisfy its standards (similar to how DCMs certify precious metals warehouses or coffee beans) through site visits, burn-in and workload validations, and certifications to the contract standard. Where a delivery fails, the contract can provide for substitution of conforming capacity, service credits, or damages, as commercial compute agreements do today.

Moreover, intermediaries could help to perform these functions by identifying compute capacity from various sources, verifying that capacity is available, packaging the capacity into a standardized deliverable, and making that deliverable available to short sellers. A standard contract framework for bilateral compute transactions, analogous to the EEI Master Agreement that standardized the terms for the trading of power, would make bilateral transactions more comparable and improve the inputs available to every index.

The market may also benefit from multiple “grades” or tiers of deliverable compute capacity, based on the quality or demand for the specifications of a given cluster. For example, some market participants may need to hedge based on specifications for the “best-in-class” type of compute, while others may more effectively hedge their risks with derivatives reflecting the price of various lower-quality inputs (similar to existing futures on different grades of physical commodities). We recognize that physical delivery raises questions about deliverable supply and susceptibility to squeezes,¹³ particularly because compute, like electricity, cannot be stored. Multiple deliverable grades and certification of capacity from a range of providers would broaden deliverable supply and limit the ability of any single supplier to constrain it, and exchanges can calibrate position limits and accountability levels using the deliverable-supply methodologies already applied to other non-storable commodities. The Commission should therefore not seek to set quality standards or otherwise limit listed compute derivatives based on quality, provided that the terms of such listed derivatives are fully disclosed.

IV. Compute Derivatives Should Not be Subject to Heightened Standards

The Commission asked several questions regarding whether compute derivatives should be subject to heightened regulatory requirements. In each case, we believe the answer is “no.” All aspects of a listed compute derivative—including the index or pricing source—should have a high degree of transparency, but they should otherwise be subject to the same standards as any other derivative contract.

First, the Commission asked whether DCMs should be required to maintain information-sharing agreements with each compute venue and each compute capacity provider.¹⁴ We believe this would be unwarranted, as the CFTC has already recognized. Commission staff issued an advisory in 2018 encouraging DCMs that list virtual-currency derivatives to enter into similar arrangements with the underlying spot market exchanges,¹⁵ only to withdraw that guidance last

¹³ See RFC, Questions 1.g, 2.h, 91 Fed. Reg. at 54263–64.

¹⁴ See RFC, Question 2.d, 91 Fed. Reg. at 54263.

¹⁵ See CFTC Staff Advisory 18-14, *Advisory with respect to Virtual Currency Derivative Product Listings* (May 21, 2018).

year in part because Commission regulations already provide listing and clearing standards.¹⁶ Additionally, we note that most DCM-listed crypto futures contracts were based on indices from a small number of spot crypto exchanges, whereas compute indices, particularly with the anticipated growth and recommended developments laid out above, will be compiled by index providers based on significantly more sources. And lastly, requiring such arrangements would give compute suppliers an effective veto over whether a contract can be listed at all, since any one of them could simply decline to enter into an agreement.

Second, the Commission asked two questions about whether retail-specific protections should apply to listed compute derivatives.¹⁷ We do not believe retail-specific protections are necessary. As the Commission’s own comparison to oil suggests, compute is a commodity with broad commercial use. The Commission’s existing customer protection framework, including risk disclosure requirements and protections for customer funds, already applies to retail participants in oil and other commodity futures on the same terms as institutional participants, and we see no reason compute should be treated differently.

Third, and more broadly, many of the Commission’s other questions related to heightened requirements for listed compute derivatives were also posed to DCMs listing voluntary carbon credit (“VCC”) derivatives as recently as 2024 via Commission-issued guidance.¹⁸ The stated reasons for the heightened standards on VCC derivatives in that guidance were very similar to those articulated by the RFC. For example, the Commission explained that it “recognizes that VCC derivatives are a comparatively new and evolving class of products, and believes that guidance that outlines factors for a DCM to consider in connection with the contract design and listing process may help to advance the standardization of such products in a manner that promotes transparency and liquidity.”¹⁹ The RFC uses nearly identical language, stating that the Commission “recognizes that compute derivatives are a comparatively new and evolving class of products” and that comments may help “advance the standardization of such products in a manner that promotes transparency, liquidity, and responsible innovation.”²⁰

However, the Commission withdrew that guidance in its entirety less than one year later, stating that:

¹⁶ See CFTC Letter 25-07, Withdrawal of CFTC Staff Advisory No. 18-14 with Respect to Virtual Currency Derivative Product Listings (March 27, 2025) (“Staff notes that the Commodity Exchange Act (“CEA”) and Commission regulations establish robust standards and procedures for the listing and clearing of derivative products, including virtual currency and other digital asset derivatives, by a DCM, SEF, or DCO.”).

¹⁷ See RFC, Question 3.b (“What customer-protection considerations, such as disclosure requirements arise from offering a compute derivatives contract settling against a geopolitically sensitive commodity, including to retail participants?”), Question 3.d (“What, if any, unique protections and prophylactic measures are appropriate or necessary for the protection of retail users of compute derivatives and markets, including as compared to other derivatives markets?”), 91 Fed. Reg. at 54264.

¹⁸ See Commission Guidance Regarding the Listing of Voluntary Carbon Credit Derivative Contracts, 89 Fed. Reg. 83378 (Oct. 15, 2024).

¹⁹ *Id.* at 83400.

²⁰ RFC, 91 Fed. Reg. at 54260.

VCC contracts should be evaluated in the same manner as any other derivatives contract listed on a DCM. The Commission’s review of VCC derivatives contracts is consistent with its well-established approach for reviewing all derivatives contracts as set out in parts 38 and 40 of the Commission’s regulations. As a result of issuing the VCC Guidance, the Commission believes that it placed a disproportionate focus on a particular class of derivative contracts, which could lead to confusion and inconsistencies in DCMs’ implementation of the CEA and Commission regulations.²¹

We believe the same logic should apply to compute derivatives. There is no need for the Commission or DCMs to evaluate compute derivatives differently than other futures contracts, and doing so could lead to confusion and inconsistencies in DCMs’ implementation of their regulatory obligations.

V. Compute Is Well Suited to Perpetual Futures

Lastly, the Commission asked whether perpetual compute futures would offer advantages over fixed-date contracts and whether they pose unique risks.²² We believe perpetual futures are a natural fit for compute, but that they are complementary to fixed-date contracts, rather than a replacement for them. Compute is consumed continuously and cannot be stored, so many commercial users face a rolling exposure to the price of capacity rather than an exposure tied to a single expiration date. A perpetual contract allows those users to maintain a hedge without the cost and operational burden of repeatedly rolling dated contracts.

Once a reliable anchor price exists—ideally from a physically-delivered contract as discussed in Section III above—the funding mechanism of a perpetual contract will tether its price to that anchor. As Paradigm has explained too in prior comments to the Commission, perpetual futures do not raise risks that the Commission’s existing regulatory framework is unable to address,²³ and we see no reason to apply different standards to perpetual compute futures.

VI. Conclusion

Paradigm and Andromeda commend the Commission for its thoughtful approach to overseeing these burgeoning and globally-consequential markets for compute. We believe the most immediate and important focus should be on facilitating the development of well-functioning and reliable derivatives markets and contracts that can be used by the wide range of industry participants to manage their AI-related businesses. We believe that liquidity and significant market-initiated changes will follow, which would not only benefit the industry, but also address many of the Commission’s concerns expressed in the RFC.

²¹ Withdrawal of Commission Guidance, 90 Fed. Reg. 44321 (Sept. 15, 2025).

²² See RFC, Questions 4.a–4.b, 91 Fed. Reg. at 54264.

²³ See Paradigm Comment on the Extension of Standard Futures Contracts to 24/7 Trading and on Perpetual Contracts Referencing Physically Delivered or Storable Energy Commodities (RIN 3038-AF75) (Aug. 26, 2026).



If you have further questions regarding our comments to the RFC, you can contact us at Stefan@Paradigm.xyz or David@andromeda.ai.

Sincerely,

/s/ Stefan Schropp

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Cc: Joshua Sterling, Milbank LLP