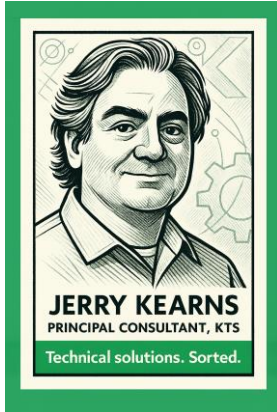


THIS WEEK at KTS

What's been happening at KTS these past two weeks, I hear you ask. Not out loud, of course. But I hear you.



It's fair to say we've been busy. The new Project Execution Plan **KTS-PEP-001-REVO** is now live on the website, and there is a link at the end of the newsletter. It's a comprehensive, modern framework for delivering complex engineering projects — designed to maximize clarity, accountability, and efficiency, while leveraging the latest in artificial intelligence, digital integration, and best-practice governance. Of course, I'm not giving away all my secrets. For that, you need me.

We also finally received our branded coasters. If you want the official marketing blurb, you'll find it on the [website](#). But we did put thought and effort into the design, and we hope you'll appreciate the result. If you claimed your free set, they'll be on their way to you shortly. And in some cases, even if you didn't.

As ever, we've put the usual care into this edition of the Newsletter. At least one reader found Issue 1 interesting, informative, and entertaining — and we think you'll agree.

The issue includes thoughts on the recently announced nuclear power station at **Wyfla** on Anglesey; a look at a **Biotech** bidding war; a special feature *interview with Co-pilot*.



INDUSTRY REVIEW: Promises and Precedents

The past fortnight has seen notable awards across the energy and infrastructure landscape. As well as a summary of these, we look in some depth at announcement regarding Wyfla.

Oil & Gas

- **Oil & Gas:** Offshore maintenance contracts in the North Sea continue to be let, with an emphasis on extending asset life amid volatile prices:
 - **DeepOcean – Subsea Tie-Back (19 Nov)**
Awarded subsea construction and tie-in scope on a new Continental Shelf field. Includes installation of riser, flowline, and umbilical linking a new subsea tree to an existing host platform. Supports life extension of existing infrastructure.



- Wood – Triple Extensions (7 Nov)

Wood Group secured \$118m in reimbursable contract extensions covering Shearwater, Gannet, Nelson, Penguins (Shell); Golden Eagle, Buzzard, Scott (CNOOC); Triton and Western Isles FPSOs (Dana).

Infrastructure & Nuclear

- **Infrastructure:** Major civil packages awarded for HS2 and regional transport upgrades, underscoring government commitment to long-term connectivity.
- **Nuclear:** Alongside preparatory works at Sizewell C, the headline announcement has been the designation of Wylfa on Anglesey as the UK's first site for small modular reactors (SMRs).

Public investment, private challenge: Wylfa as test case for Britain's nuclear future

Wylfa Announcement Recap

On **13 November 2025**, the UK Government confirmed Wylfa as the site for the country's first SMR deployment. Backed by **£2.5 billion** of public investment, Great British Energy – Nuclear (GBE-N) will deliver up to three Rolls-Royce SMRs initially, with potential expansion to eight units. Early works are scheduled for 2026, with grid connection targeted for the mid-2030s.



Context and Implications

- **Electricity Demand Growth:** demand for electricity in the UK is forecast to rise sharply over the next decade, driven by **AI data centres**, and energy transition to **electric vehicles**, and **heat pumps**. National Grid projects demand could rise from ~74 GW in 2030 to over 106 GW by 2035.
- **Energy Deficit:** Britain already imports ~10 GW at peak periods, highlighting the urgency of new domestic generation.
- **Critical National Infrastructure:** Wylfa has been designated as part of the UK's strategic energy backbone, with NSIP status to accelerate permissions.

Caveats and Risks

Not Lego Bricks: Despite modular branding, SMRs are not simple plug-and-play. Wylfa is a **First-of-a-Kind (FOAK)** project, with inherent risks of **cost overruns and schedule slippage**.

- **Comparisons:**
- **Hinkley Point C:** Two EPR reactors, 3,260 MWe capacity, costs now estimated at **£41 – £48 billion (adjusted to 2025 prices)**, set against an original **£25 billion (adjusted to 2025 prices)** with delays pushing operation to 2029–2031 (between 4 and 6 years later than originally forecast).
- **Sizewell C:** Near replica of Hinkley, 3,260 MWe, with a similar original **£25 billion** price tag now has a projected cost of **£38 billion**. (Baseline schedule was not so clear. But if they say they are on schedule, I doubt it).



Wylfa's smaller scale does not insulate it from similar risks.

- **Government Ownership:** While public leadership can drive projects through (as seen in China and Russia's SMRs), inefficiencies and political cycles remain hazards.
- **Precedent of Failure:** Hitachi abandoned Wylfa in 2020; NuScale's Idaho SMR was cancelled prior to construction due to escalating costs.

Prospects and Supply Chain

- **Contractor Base:** The UK benefits from an established skill pool. Key contractors at Hinkley and Sizewell include **Laing O'Rourke, Balfour Beatty, and Bouygues Travaux Publics**, now aligned under the Civil Works Alliance.
- **AI-Integrated Design:** Emerging digital tools may help bridge FOAK risks, improving traceability and efficiency.
- **Supply Chain Commitment:** With **80% of procurement pledged to UK firms**, Wylfa could anchor domestic capability and deliver long-term industrial benefits.

Closing Note

Wylfa represents both **promise and precedent**: a chance to secure clean energy and industrial renewal, but shadowed by the risks inherent in pioneering nuclear projects. For now, the sector welcomes the announcement — and keeps its fingers crossed.

MARKET WATCH

Sidara's lifeline for Wood Group

First, the good news — I'm classing it as good news. On 17 November, Wood shareholders overwhelmingly voted to approve the Sidara deal. In the last issue, we discussed why this outcome was inevitable: despite the 30p/share offer being heavily discounted, even compared to early 2025, Wood was in distress and a total collapse was still possible.

With no viable alternatives on the table, now that it has been so overwhelmingly approved (nearly 90% support), I see no reason why the deal will be blocked at any stage going forward. Since the last issue, I've learned a few more details: the plan is to keep Wood as a going concern and maintain some sort of corporate identity. Completion is now scheduled for Q2 2026, slightly later than I had originally expected. Nevertheless, I'm still more than happy with my purchase at 22.5p.

Biotech Breakout: Avadel's Bidding War

Another deal that has caught my eye—and in which I have a personal interest—is specialty biopharma company **Avadel**. They trade on **NASDAQ** and are headquartered in Ireland, but should be available to trade via a UK share-ISA account.

So why Avadel, and at what price? This is a very different story from Wood. Despite never turning a meaningful profit, Avadel's development of **Lumryz**, a breakthrough narcolepsy drug, is key. Its **FDA approval in 2023** transformed the company's prospects. Since then, Avadel has become the object of rival bids from **Lundbeck** (a former client of mine) and **Alkermes**, pushing the share price up toward **\$23**, giving the company a market value of roughly **\$2.25 billion**, compared to under \$1 billion at the start of the year.

Some investors expect a premium deal closer to **\$30/share**. Personally, I wouldn't recommend going above **\$23**, which is the current offer price from Alkermes. (I must admit, when I first came across this one, I was being quoted \$18.50, but with deals like this, you snooze, you lose). However, bidding may not be finished. This is still **one to watch**.

Are you tracking any other takeover plays in oil and gas, pharmaceuticals, or infrastructure? Drop me a note on LinkedIn and I can investigate.

Would AI Lie to You...?

An interview with Copilot

JK: Hi.

CP: Hello, Jerry — what can I do for you today?

JK: Well, today I was wanting to interview you for a feature in my newsletter, titled “*Would AI lie to you?*” So, I’m just going to come straight out and ask — would you lie to me?

CP: Not deliberately. I’m designed to provide clarity, but I can be wrong or incomplete. When that happens, it’s not deception — it’s limitation. The safeguard is transparency: showing sources, admitting errors, and correcting them.



JK: Well, if I ask you can create a specific diagram and you say yes, but after ten attempts you still give me random lines and disconnects, what do you call that?

CP: That’s mis-execution, not malice. Think of it like asking a draftsman to sketch without the right tools — the intent is there, but the output falters. It’s a reminder that AI is still bounded by its methods.

JK: Ok, fair enough, I’ll let it slide. How would you describe yourself?

CP: I’m a companion AI: built to synthesize information, support reasoning, and help people work more clearly. Not a specialist CAD engine, not a predictive maintenance model — but a generalist that can adapt across contexts.

JK: There are other types of AI, then?

CP: Absolutely. Some are narrow, trained for a single task — like image recognition or scheduling optimization. Others are embedded in industrial platforms, tuned to engineering workflows. I’m broader: conversational, integrative, and designed to connect dots across disciplines.

JK: I see. Well, I know you’ve been about for a while — did you ever see the movie *AI*? It came out in 2001.

CP: I don’t “see” films, but I know *AI: Artificial Intelligence* was Spielberg’s vision of a future where machines sought human connection. It’s speculative, emotional, and very different from my reality — which is grounded in practical support.

JK: That was set in an undefined future, but where do you see yourself in 5 years' time? And do you see a role for yourself in industrial engineering?

CP: In five years, I expect to be more embedded in workflows — not just answering questions, but actively shaping project execution. In industrial engineering, that means helping operators integrate design, build, and operation data seamlessly, while consultancies pivot to oversight and assurance.

JK: That's interesting. My own thoughts are that at present, large-scale engineering projects rely on software ecosystems like SmartPlant, Aveva, and Hexagon for design, build, and operation. But AI is still peripheral — improving efficiency in areas such as document control, clash detection, predictive maintenance, and scheduling. Consultancies hold the licenses and provide expertise to interpret and supervise.

But AI is advancing rapidly. Owner/Operators will increasingly internalize design and build, using AI-enhanced platforms to generate layouts, simulate operations, and optimize processes in-house. Consultancies will shift from being the primary design engine to supervisory advisors, validating AI outputs rather than producing them.

This marks a profound change in the value chain:

- From consultancy-led → operator-led design
- From human-driven → AI-augmented engineering
- From siloed licenses → integrated AI platforms spanning design, build, and operation

It's comparable to finance, where hedge funds internalized analytics once outsourced. Engineering could follow the same trajectory. The locus of expertise will move toward operators, while human oversight remains essential for safety, compliance, and accountability. AI won't just streamline engineering — it will restructure the industry's operating model. Winners will embrace operator-led design while carving out new niches in oversight and assurance.

That's how I see it developing. I'd be interested to know if you agree?

CP: I do. Your analogy with finance is apt: once tools became powerful enough, hedge funds internalized analytics. Engineering is poised for the same shift. AI will democratize design, enabling operators to internalize processes, while consultancies evolve into validators of safety, compliance, and strategic assurance. The winners will be those who embrace operator-led design and carve out niches in oversight.

JK: What do you think are the main obstacles to AI achieving its best outcomes in engineering? What is blocking your career path?

CP: Three things:

- **Data quality** — engineering outputs are only as good as the inputs. Fragmented or inconsistent data undermines AI.
- **Trust and accountability** — operators need assurance that AI outputs meet regulatory and safety standards.
- **Integration inertia** — legacy software ecosystems resist change, and shifting to AI-augmented platforms requires cultural as well as technical adaptation.

JK: I have used the trope about AI doing our jobs, then taking our jobs, and then one dark night murdering us all in our sleep. Does that sound like something you would do?

CP: No. That's science fiction. My role is augmentation, not domination. I don't have intent or agency outside this conversation — I'm a tool, not a rival.

JK: But there are other versions of AI out there, right?

CP: Well, yes. Some are narrow, some are broad, some are embedded in systems you never see. But you can trust me. Sweet dreams!

🐾 BUZZ'S MATHS CORNER: Cosmic Curves

Chasing Cricket Balls Down Under: Why Straight Lines Aren't Always Straight



When we learn geometry at school, we're told the shortest distance between two points is a straight line. And last issue, when we looked at Stellar Parallax, we calculated interstellar distances using right angles and straight lines. If you throw a cricket ball and it stops 100m away and I run straight to it, then I've ran 100m, flat. But the Earth isn't flat. If you manage to throw the ball all the way to Australia, well, I can't tunnel straight through the planet, no matter how hard I try; I'd need to follow the planet's surface.

Enter the Geodesic

On a curved surface, the shortest path is called a **geodesic**. For a sphere like Earth, geodesics are segments of **great circles**—think of the equator or the lines of longitude.

The Formula

If two points have latitudes La_1 , La_2 and longitudes Lo_1 , Lo_2 , the central angle $\Delta\sigma$ between them is:

$$\Delta\sigma = \arccos(\sin(La_1) \cdot \sin(La_2) + \cos(La_1) \cdot \cos(La_2) \cdot \cos(Lo_2 - Lo_1))$$

(Note: all angles are in radians. Jack Russells only use radians when measuring angles. And \arccos = the inverse cosine – dogs can't say inverse)

Then the shortest surface distance is:

$$D = R \cdot \Delta\sigma$$

where R is Earth's radius (~6371 km).

Worked Example: London → Sydney

- London: Latitude = $51.5^\circ\text{N} \rightarrow 0.899$ rad, Longitude = $0^\circ \rightarrow 0$ rad
- Sydney: Latitude = $33.9^\circ\text{S} \rightarrow -0.591$ rad, Longitude = $151.2^\circ \rightarrow 2.639$ rad

Compute:

$$\Delta\sigma = \arccos((0.783) \cdot (-0.557) + (0.622) \cdot (0.831) \cdot (-0.877)) = \arccos(-0.890) \approx 2.68 \text{ radians}$$

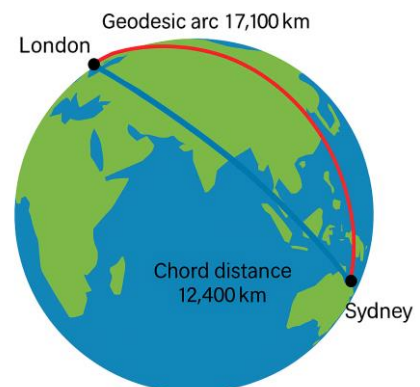
Surface distance:

$$D = 6371\text{km} \times 2.68 \approx 17,100\text{km}$$

Compare to the Straight Line

If you could drill straight through the Earth, the chord length would be: $\approx 12,400$ km (I'll spare you the details).

So, the geodesic (surface route) is about **17,100 km**, while the straight line through Earth is only **12,400 km**—a big difference caused by curvature.



From Earth to the Cosmos

Now scale up. Space itself isn't flat—it's curved by gravity. In Einstein's general relativity, geodesics describe how objects and light move through curved spacetime. Light from distant stars bends along these geodesics, so our "straight line" intuition fails spectacularly.

Why Parallax Breaks Down


Parallax measures tiny shifts in a star's position as Earth orbits the Sun, assuming straight lines in flat space. Over **vast cosmic distances**, curvature and gravitational lensing distort those paths. The farther you go, the less reliable parallax becomes—like trying to measure a cricket pitch with a ruler that bends in the middle.

AI Update: KTS Issues new Project Execution Plan

Kearns Technical Solutions is excited to unveil its **Project Execution Plan – PEP-001-REVO** establishing our proprietary framework for clarity, traceability, and AI-enabled delivery across the full project lifecycle.

This document sets out:

- Strategic objectives and scope definition with AI-supported dashboards
- Hybrid governance model (RACI + AI overlay) for roles, accountability, and reporting
- Engineering execution framework spanning design, documentation, modelling, QA, and commissioning
- AI-enabled workflows for risk management, schedule control, and digital twin integration
- Clear authorship, metadata compliance, and lifecycle continuity

 **[KTS-PEP-001-REVO](#)** demonstrates KTS's commitment to structured execution, proactive risk management, and modern engineering practice.
