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Paul Stein CBE and Lina Tayara

# Nuclear Energy to Power AI Data Centers

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41 articles

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**Paul Stein** CBE, Chairman of **Rolls-Royce SMR**, the company developing a Small Modular Reactor power station, participated in “the power roundtable: the future is carbon free energy” at **Platform Markets Group** #PlatformGlobal in #Antibes.

## SMR needed to power AI enabled future data centers

The ESG angle for the data center industry requires investment in energy transition. Whereas it is focused on carbon capture technology in the medium term, Mr Stein sees nuclear power part of the clean energy mix in the longer term. The UK aero engine group hence plans to build small modular reactors to generate 470MW of low-carbon electricity.

## Rolls Royce will add nuclear energy to the grid for hyperscalers

Mr Stein spoke to a room full of industry stalwarts that the customer and investor base for nuclear energy moved to a new client, data centers.

He admitted the size of the problem is huge. And to illustrate that, he benchmarked with the pollution that comes from air travel saying internal flights in France are banned as more polluting than using trains. The power that fuels data centers is even higher than aviation.

Rolls Royce SMR, following the need to be focused on solutions to reduce fossil-based CO2 going into the atmosphere, is planning to connect nuclear power source to the grid for hyperscalers.

## Future data centers need to embrace change to survive

There are two types of data centers. Those who embrace the issue investing in net zero and others who expect someone to resolve the problem and will die out.

We had heard in my interview with Sean James that the power and climate crisis are an opportunity for Microsoft to lead and accelerate energy transition for all industries not just data centers.

I spoke with Mr Stein, part of a series of video interviews with thought leaders I conducted at the event in Antibes. The highlights are below and the video is [here](#).

*I asked Mr Stein if he sees growth opportunities for SMR business in the data center sector.*

“There are huge growth opportunities. Initially when we formed the small modular reactor business, this was just going to be power to the grid to replace coal fired-oil fired-gas fired power stations with sources of net zero energy. Then we saw other opportunities in the chemical industries, in the production of sustainable fuels, in hydrogen production.”

## AI Data centers urgently need their own small modular reactors

“About a year ago the world seems to have changed. We were approached by a lot of tech companies and data center providers because the growth in data centers, particularly driven by AI, has now meant they are of the size they now need their own small modular reactors and the need is very urgent.”

## 38GW of energy needed to fuel the AI revolution

“We are at a great conference here today where we heard the need for 38GW of energy in the next 5 years just to fuel the AI revolution”.

*How far ahead will SMRs be ready to deploy*

## Rolls Royce SMR getting nuclear power on grid in 2030

“Rolls Royce SMR nuclear power station is going through a regulatory process for the safety and integrity of the power source in the next 2-3 years. It will then start to build the first few SMRs and get power on grid in about 2030 or 2031.”

## Cost of nuclear energy

On the cost of nuclear energy in comparison to other renewable energies, Mr Stein told us that the cost of a power station is about \$2.5bn for a 470MW power station.

“The running costs are low, tens of millions of Euros a year and dominated by the cost of capital, how much it costs to raise that \$2.5bn for each power station. With a 4-5% cost of capital, Rolls Royce SMR should be able to produce energy at around €50-60 a MW hour. At that price point, if you include the cost of energy storage, we will be undercutting wind. Wind without energy storage can get cheaper. But in a real world situation powering a data center where you need 24/7 energy with 5 nines reliability you are going to have to have energy storage if you are using wind as energy source.”

*In a year’s time*

“Some data centers will be accelerating the transition to net zero, others waiting for the market to provide net zero electricity.”

## The energy industry and data center industry need to come together

“The business would like to have a closer relationship with the big data center operators, the big tech companies. We can lead them on a path, we can guarantee net zero with a far earlier date then if they were simply hoping that the market will provide the electricity net zero. Its about cooperation, partnership and the energy industry and data center industry coming together because they need to.”

Lets Talk Tech covers thought leaders insights, flags trends and records major milestones in digital infrastructure. As such, curated content forms a situation analysis of the engine powering up the digital economies.

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<https://youtu.be/ppA9HITfmeQ>

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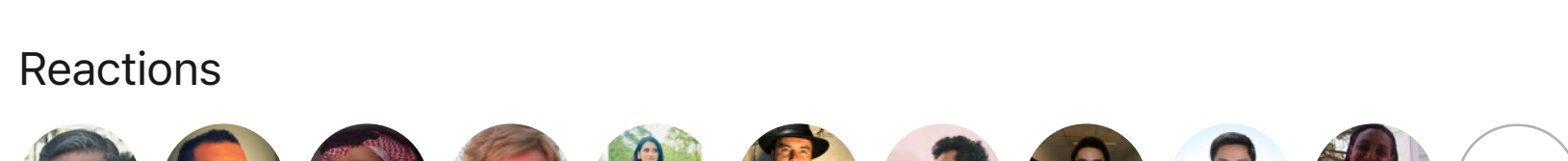
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**Paul Stein** CBE, Chairman of **Rolls-Royce SMR**, shared his insights on nuclear energy at #PlatformGlobal in #Antibes. Mr Stein discussed the potential of nuclear energy to power AI-enabled data centers. Check out the interview and video here: <https://lnkd.in/e-aD9Kpv>. #nuclearenergy #datacenters #AI

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Principal at Environmental Business International, and Strategy & Market Intelligence for Allied Nuclear P...  
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Nuclear is different, more potent for CITIES  
1) Always-on power unlike wind and solar...  
most common weather forecast in UK: "Chance of Sun". Cities cannot be powered by that. Charging EVs overnight? No.  
2) Mass transit, office towers and dense apartment areas powered by wind? No. ...see more

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4mo ...  
Thank you for sharing your informative perspective Andrew. Please keep an eye for my next article on nuclear energy renaissance with more insights from expert players.