

Electricity
Transmission

A low-carbon concrete solution for substation foundations

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nationalgrid



Energy Innovation
Summit

AGENDA

01 Problem

02 Innovation

03 Benefits

04 Tests

05 Looking Back

06 Looking Ahead

EVOLVING THE WAY, WE CONSTRUCT



Concrete alone generates 8% of the global CO2 emissions.

Material inefficiencies, large amount of waste, labour intensive process, lack of labour.

FROM BULKY CONCRETE...



Traditional Pad Foundation

INNOVATIVE FOUNDATION

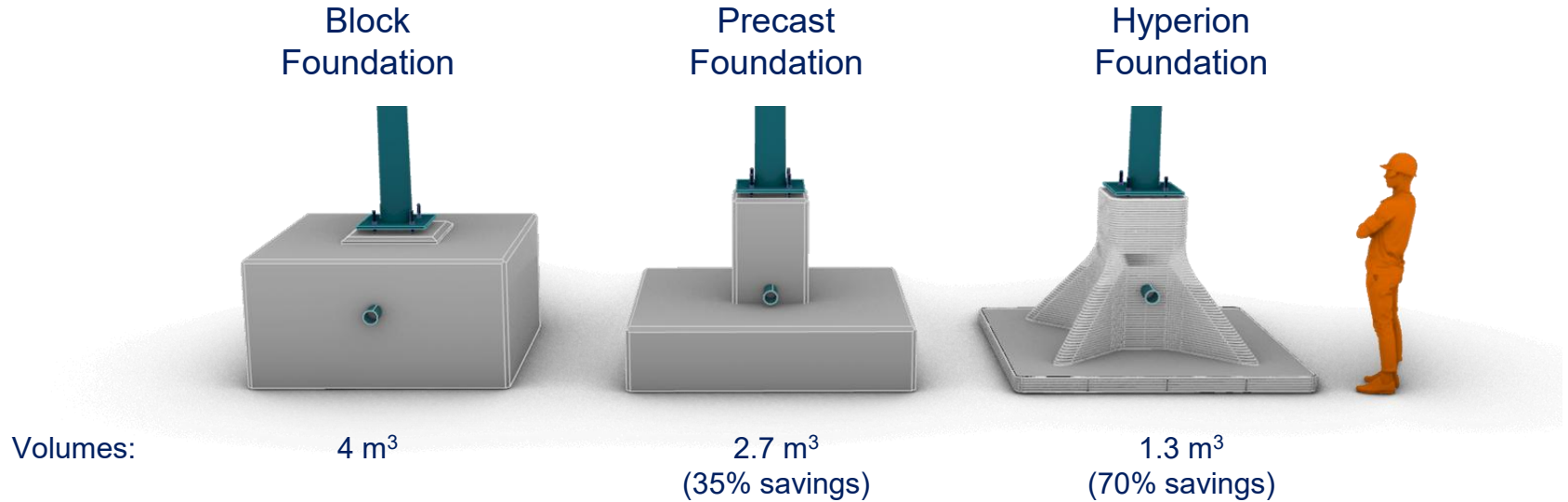
Fully integrated, highly adaptable concrete construction automation solution to save time, costs and CO2.



Traditional Pad Foundation

Hyperion Pad Foundation

COMPARISON



BENEFITS

Sustainability



Up to **70%**
Reduced CO2 emissions

Cost



10-20%
Cost savings

Execution Time

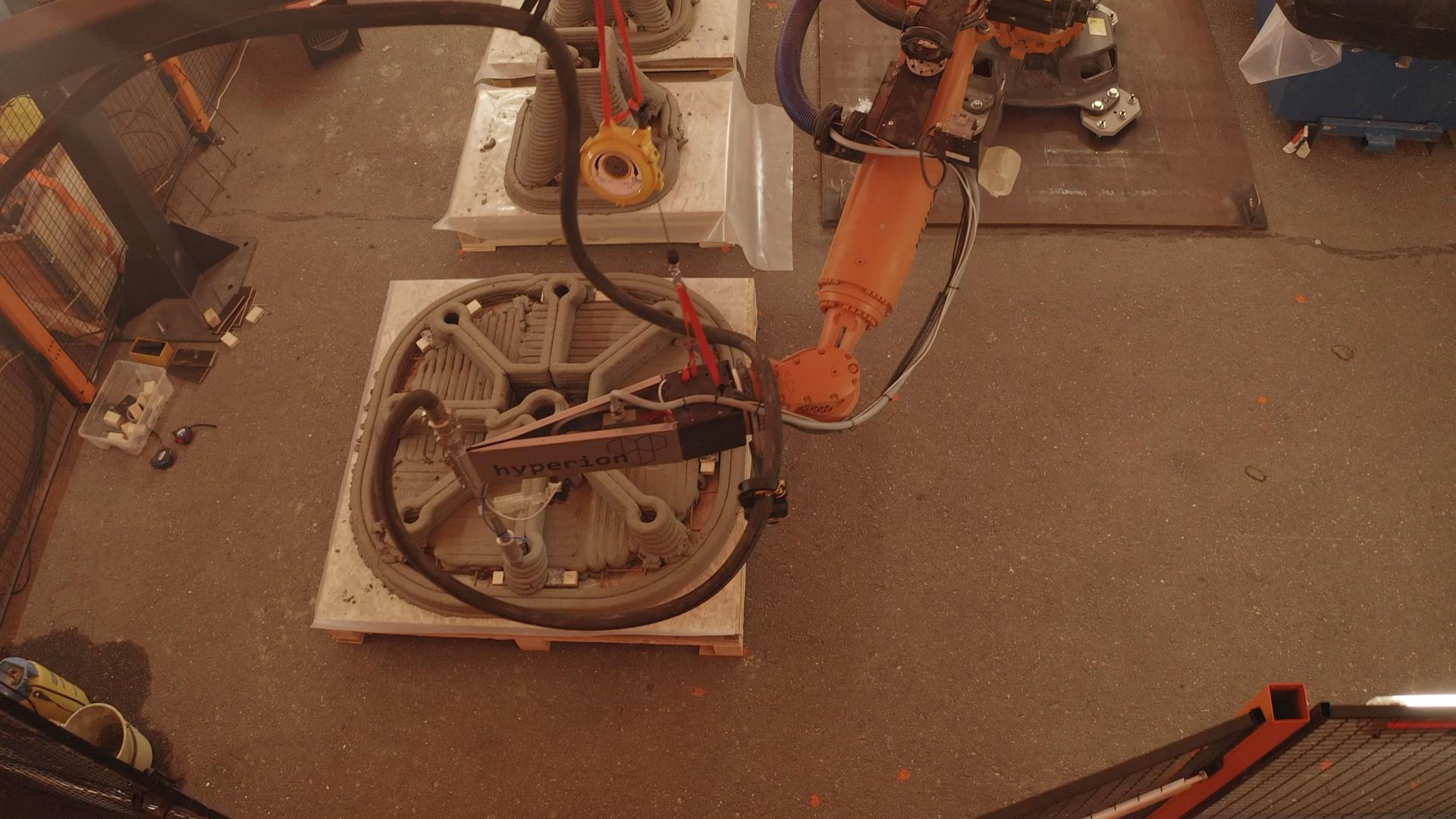


3x
Faster delivery

Health & Safety



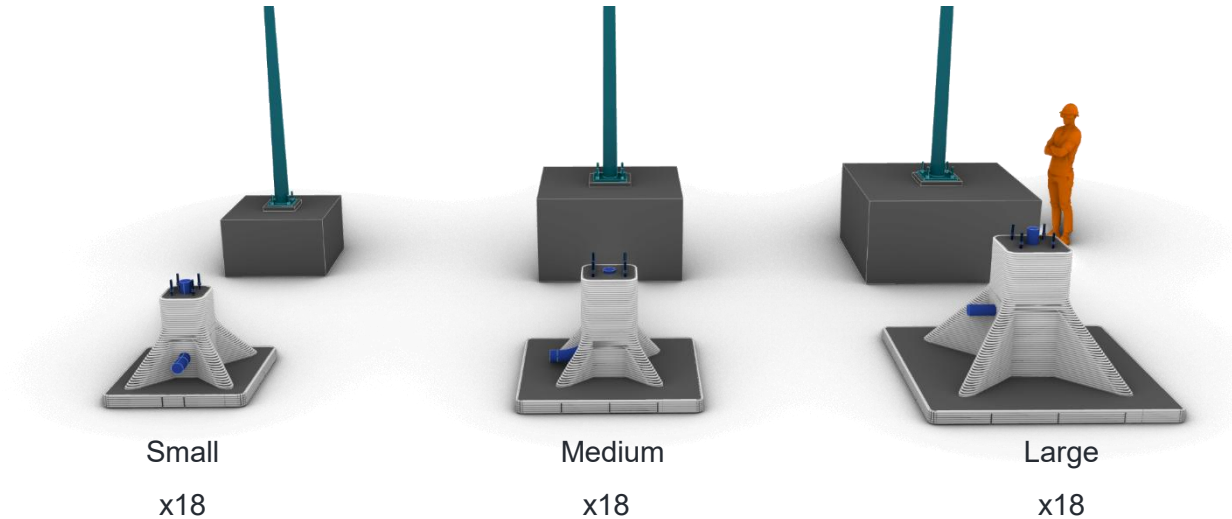
**Reduced
Risks**



OPTIMISED FOUNDATIONS

Excavation soil is re-used eliminating transportation emissions.

Accredited EPDs* for all foundations are published.



Compared to traditional mass concrete foundations, this foundation has 3 main material benefits:

- It utilises only 30% of the typical amount of material
- It saves up to 65% of eCO₂
- It saves up to 75% of excavated material removal from site

TEST OVERVIEW

KYN:

- 18no. Specimen tested (6xS, 6xM, 6xL)
- 21no. tests performed
- 3no. types of tests
- 1000kN+ of actuator forces available



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THE PROJECT



The project adopted a multi-faceted approach to deliver value and prove the concept

- 01 Designed and manufactured the foundations
- 02 Independent Design Reviews (RCL)
- 03 Assurance Review Audit
- 04 Environmental Product Declarations (EPDs)
- 05 Pull out tests, Field tests for soil conditions
- 06 Final Installation & Recommendations

THE FUTURE (MICRO-FACTORY)



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