

The Great Grid Upgrade

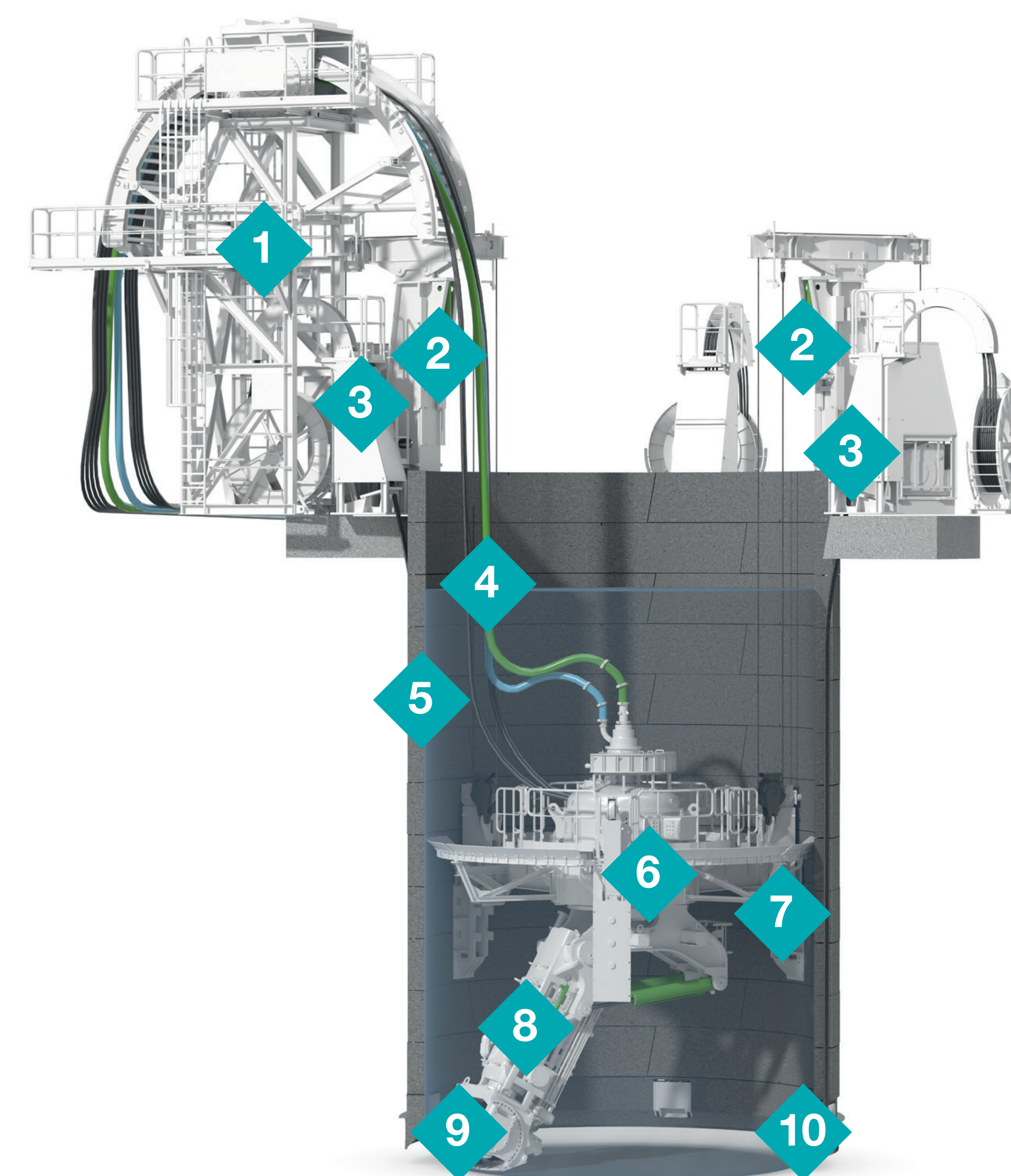
Grain to Tilbury

This is GREAT BIG work. Seriously deep engineering below.

A Vertical Shaft Machine, also known as a VSM, builds deep shafts safely and efficiently, with minimal impact above ground.

Only the second VSM ever used in the UK, Verena installs the permanent lining as she digs – speeding up construction, reducing disruption and keeping people safe — with no need for colleagues to enter the shaft during excavation.

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| 1 Energy cable tower
Guides the cables and hoses of the energy chain into the shaft - synchronized with lowering of the shaft structure. | 6 Machine frame
Supports the rotary drive of the telescopic boom and the supply units for the VSM. |
| 2 Recovery winches
The VSM is recovered using steel cables and recovery winches. | 7 Machine arms
Secure the VSM to the bottom segments of the shaft wall. |
| 3 Lowering units
Lower the entire shaft structure on steel cables attached to the shaft edge. | 8 Telescopic boom
Due to hydraulic movability and telescopic adjustment, the entire cross-section of the shaft can be reached. |
| 4 Energy chain
Consists of all the supply lines between the VSM and the surface. | 9 Cutting drum
Excavates the soil at the shaft bottom using chisel tools at high rotational speeds (max. 80 rpm). |
| 5 Shaft
Overall shaft lining made of reinforced concrete segments or in-situ concrete. | 10 Cutting edge
Cuts into the soil when lowering the shaft structure - thus, eliminating the need for an overcut. |



Fascinating Facts

- **Europe's biggest VSM** – the largest of its kind
- **six times faster** – cutting construction from 758 days to just 115 days
- **safety first by design** – more automation means safer working
- **far less digging** – 20,730 m³ less earth - around eight Olympic pools
- **lower carbon impact** – 76 tonnes of CO₂ saved
- **smaller site footprint** – less space, less disruption.

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