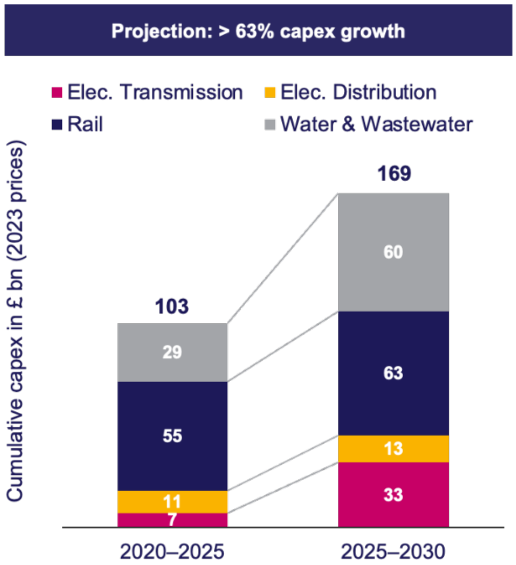
The right regulatory framework is crucial for investment

It's well understood that the next decade will be pivotal in addressing societal challenges like climate change, and infrastructure will play a major role. **Significant capital investment is needed** globally in ever-tighter timeframes.

We estimate that UK rail, water, and electricity infrastructure alone will **require over £169 billion in CapEx** between 2025 and 2030. Yet the macroeconomic landscape poses stark obstacles: the UK 10-year gilt rate neared 5% in January 2025 and global competition for capital is as high as it ever was. On top of that, balance sheets are highly geared from years of debt financing, consumer pressure is rising, and geopolitical instability appears to be growing.



Sources: Electricity Transmission: Ofgem: RFPRs & RIIO-T3 Business Plans; Electricity Distribution: Ofgem: RFPRs & DESNZ: Appendix I: Electricity Networks Modelling; Water: APRs & PR24 FD; Rail: Annual Reports (Network Rail & HS2 Ltd.) & NIC: 2nd National Infrastructure Assessment

Capex in key UK infrastructure sectors is projected to exceed £169 billion

For infrastructure, regulators are uniquely positioned to support this investment agenda. They must strike a **"Goldilocks" balance in returns**. Setting returns too low risks a failure to attract the necessary capital, causing underinvestment. Setting them too high imposes excess costs on consumers: just a 100 bps higher cost of new equity across key UK infrastructure would raise annual consumer costs by £230 million.

Returns today are underpinned by an outdated model

UK Regulators largely rely on the Capital Asset Pricing Model (CAPM) to set an allowed cost of equity using historical stock data. For a long time, this approach has worked. However, CAPM assumptions in this context are questionable – for example that returns are normally distributed, there are no environmental externalities, and there is often a single, constant WACC for the full price control period.

Issues with CAPM have become more visible in recent years. For example, Vallorii analysis shows that UK water companies are raising capital at steep discounts to RAB, indicating that investors see risks which regulators (through CAPM) do not. As a further illustration, in a poll of 19 senior leaders representing regulators, utilities, asset owners and asset managers at a recent Vallorii roundtable, only one felt that the current model was the right approach to enable future sustainable infrastructure investment.

More data and better models enable new ways forward

While the complexity of infrastructure investment have evolved, so have data and analytical tools. **Big data, AI, and machine learning can now capture broader risks**—construction, operational, interest-rate, climate, cyber, regulatory—that are not reflected in traditional financial models.

At Vallorii, we apply new data and tools that connect CAPM-era thinking to real-world conditions. Depending on context, we employ top-down models to incorporate diverse risk factors or bottom-up models that simulate thousands of cash-flow scenarios, each capturing cost overruns and other uncertainties.

Early Vallorii analysis shows how these methods can markedly shift cost of equity estimates. For example, the UK water sector's December 2024 final determination set WACC at 4.03% under notional 55% gearing; real-world 75% gearing implies 3.75%. A 20-year equity risk premium boosts the cost of equity from 5.10% to 6.64%. Bottom-up modeling for large construction projects points to around 7.50%.

Vallorii's Mission – to transform infrastructure valuation

At Vallorii, we strive to **enable key infrastructure investments** by providing transformed data and analytics, and applying AI and financial expertise to infrastructure challenges. We work with regulators to evolve their tools and frameworks; asset owners, managers and advisors to value infrastructure investments; and utilities to link operational and financial performance. We also support partners such as governmental and international bodies in navigating the infrastructure landscape. Across all our work, we emphasize the environmental and social impacts of infrastructure, recognizing that sustainability and equity are fundamental to long-term operational and financial risk management.

We see ourselves as catalysts, blending **technical expertise**, **fresh thinking, and collaboration** to help our partners finance, operate, and regulate infrastructure responsibly. Our intent is to rethink this space from first principles, spurring more resilient investment while respecting consumer and environmental needs.

For further details or to arrange a discussion, please contact Sandy Arbuthnott (sandy.arbuthnott@vallorii.com)