How affordability impacts infrastructure investment and regulation

Roundtable, 21st January 2026

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Introducing Vallorii: In 2025 we developed 4 novel products, established a community of thought leaders and delivered first evidence-based impact.

Platform Built

Vallorii moved from concept to operating platform

1. **Cost of Capital Lab**
2. **Research Lab**
3. **Vallorii Price of Risk (VAPRI)**
4. **Vallorii Asset Resilience index (VARI)**

Community Established

Established a trusted forum across the infrastructure system

16 founding members
spanning investors, utilities and public-sector stakeholders

150+ senior leaders engaged across 6 roundtables, regulator workshops, and CEO events

Evidence & Impact Delivered

Vallorii's research is shaping market and regulatory debate

>20 research publications
on cost of capital, asset risks, macroeconomics, and asset resilience

Analysis referenced in The Economist, The Guardian, and Utility Week

We are just getting started: In 2026, we will continue to develop VAPRI whilst providing ready-to-use Cost of Equity models in the CoC Lab.

Focus today

Vallorii Price of Risk Model (VAPRI)

Company-specific cost of capital estimates based on granular assessment of risks and diversification mandates

Vallorii Valuations

Independent valuations of core infrastructure assets based on cost of capital and balance sheet accounting

Cost of Capital Lab

Leverage traditional and modern financial models to make your own CoC estimates (CAPM, MfMs, ...)

Research Lab

Access previous roundtable materials and exclusive publications

Introducing our new investor: Jeremy Palmer

- **Senior Advisor of PhysicsX**, a deep-tech AI company building next-generation simulation and engineering AI software
- **Former Chairman & CEO of QuantumBlack**, McKinsey's advanced analytics and AI arm focused on practical enterprise transformation
- **Senior Partner at McKinsey & Company**, where he helped scale analytics and AI capabilities globally
- **Pioneer in applying AI analytics to business performance**, bringing hybrid intelligence and machine learning into consulting and software development

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Risk-adjusted CoE impacts differ between network companies due to different magnitude of capital programs

Cost of Capital Lab 

Additional features for analysis and learning rolled Jan 2026

Company database 

New beta version available to Founding Members

IRR database 

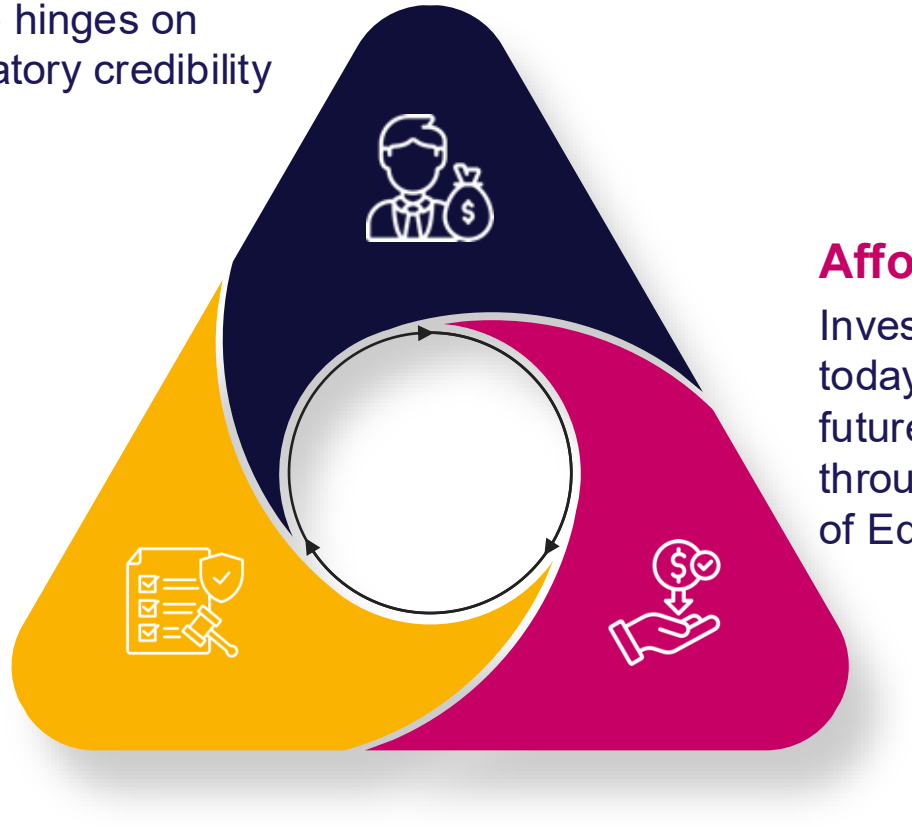
Under development

Sector	Asset	CAPM, real (notional company)	VAPRI CoE (actual company)
Electricity Transmission *Case Study today*	National Grid	**5.7%** (Ofgem T3 FD)	**5.4 – 6.8%**
	SSE		**7.8 – 8.7%**
	SP Energy Networks		**7.7 – 8.5%**
Electricity Generation	Offshore wind (2025 AR7 CfD)	**~14%** (DESNZ)	**9.7 – 10.6%** (~10% AR7)
	Hinkley Point C (2015 CfD)	**5.7 – 7.3%**	**13.5 – 15.5%**
	Sizewell C (RAB)		**10.0 – 12.0%** (10.8 FID)
Telecoms	5G Auctions	**5.5 – 7.9%**	**10.4 – 13.1%**
Water (Sewage)	Beckton Water Recycling DPC	**6.3%**	**9.2 – 9.6%**
	HARP & Cheddar II DPC		**7.7 – 8.5%**
Water (combined)	Anglian	*Excluding short-term default risk* **5.9%** (CMA prov. Appeals decision)	**6.7 – 7.5%**
	Severn Trent		**6.4 – 6.8%**
	Southern		**7.1 – 7.9%**
	South West (Pennon)		**6.4 – 6.8%**
	Thames		**10.3 – 11.9%**
	Wessex		**7.1 – 7.5%**
	Yorkshire		**6.8 – 7.2%**
Airports	London Heathrow (excl. 3rd runway)	**8.87%** (LHR BP)	**7.0 – 8.5%**
	London Gatwick (excl. 2nd runway)	**8.6%** (CoC Lab)	**7.4 – 8.9%**
	Manchester		**7.5 – 9.0%**

The affordability cycle: Lower consumer affordability diminishes investor confidence, reinforcing high costs.

Investor appetite

Investor appetite hinges on continuing regulatory credibility



Affordability

Investor appetite today supports future affordability through lower Cost of Equity

Regulatory commitment

Affordability is a key driver of the credibility of the regulatory regime

UK macro backdrop

- ~30% cumulative inflation since Covid-19 pandemic
- Higher interest rate environment, with potential for rate spike

UK political backdrop

- Polls show bills/cost of living remain top priority ahead of GE (by 2029)
- Affordability pressure increases likelihood of intervention in bill-setting

Agenda

Vallorii Price of Risk Model (VAPRI): AI-enabled, forward-looking return & valuation analysis

1 What is the risk that future consumers will be unwilling to pay for current infrastructure investments?

- It's bad: UK bills 7.3% of income, compared to 3-5% in European comparators.
- It's getting worse: Wages grow 6% until 2040, utility bills grow 21-25% until 2040 driven by large capital projects in electricity generation, electricity networks, and water & wastewater investments.
- It's unsustainable: Utility bills peak in 2040, at 9% of median household income, up from today's 7.3% (based on NESO Holistic Transition scenario).

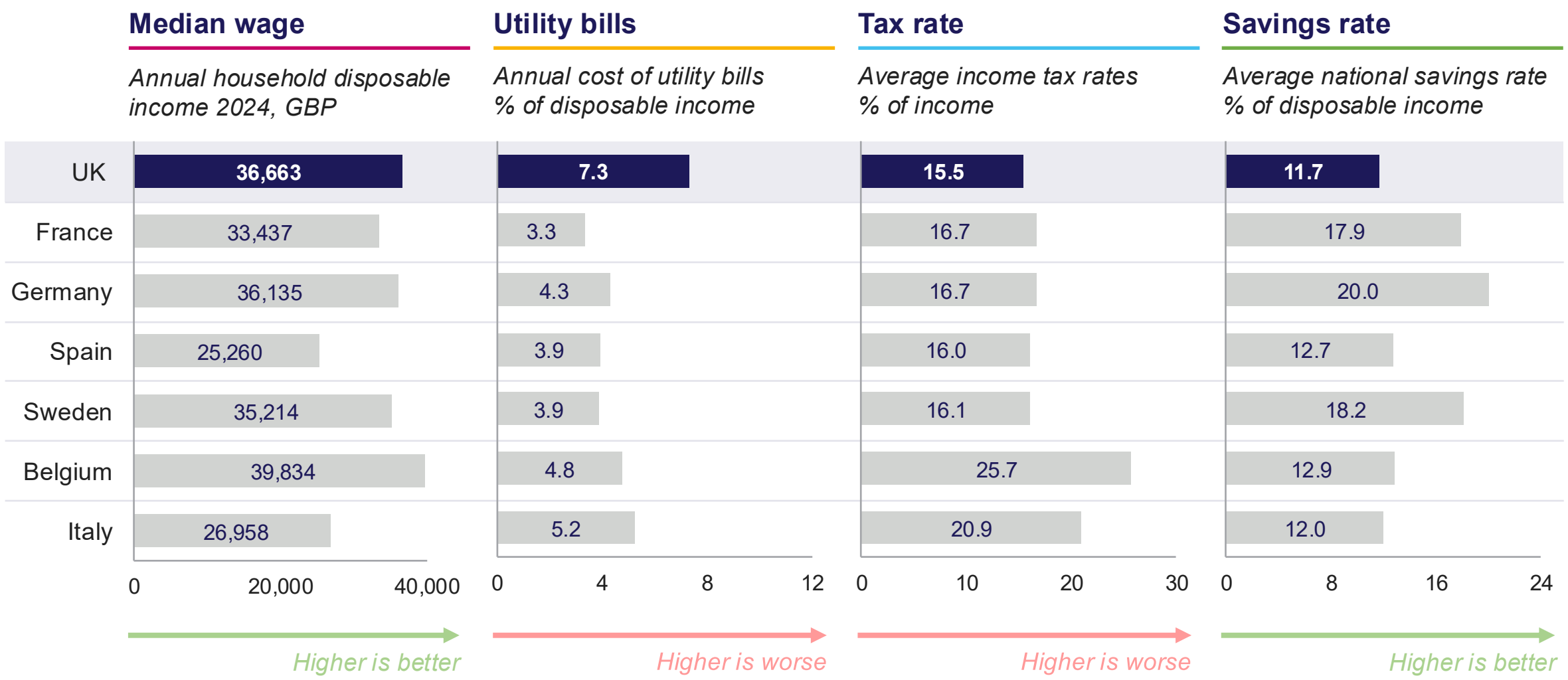
2 How does affordability-driven political risk impact cost of equity and valuation in infrastructure?

- Affordability impacts valuations and the cost of equity through heightened regulatory and political risk.
- ***Case study:*** VAPRI estimates 30-130 bps cost of equity impacts in electricity networks due to rising political risks ahead of the next general election.

3 What can be done to improve affordability of large capital programs?

- Regulatory framework: regulatory contract and cost recovery timelines.
- Progressive re-allocation of bills can lower the risk for low-income households.

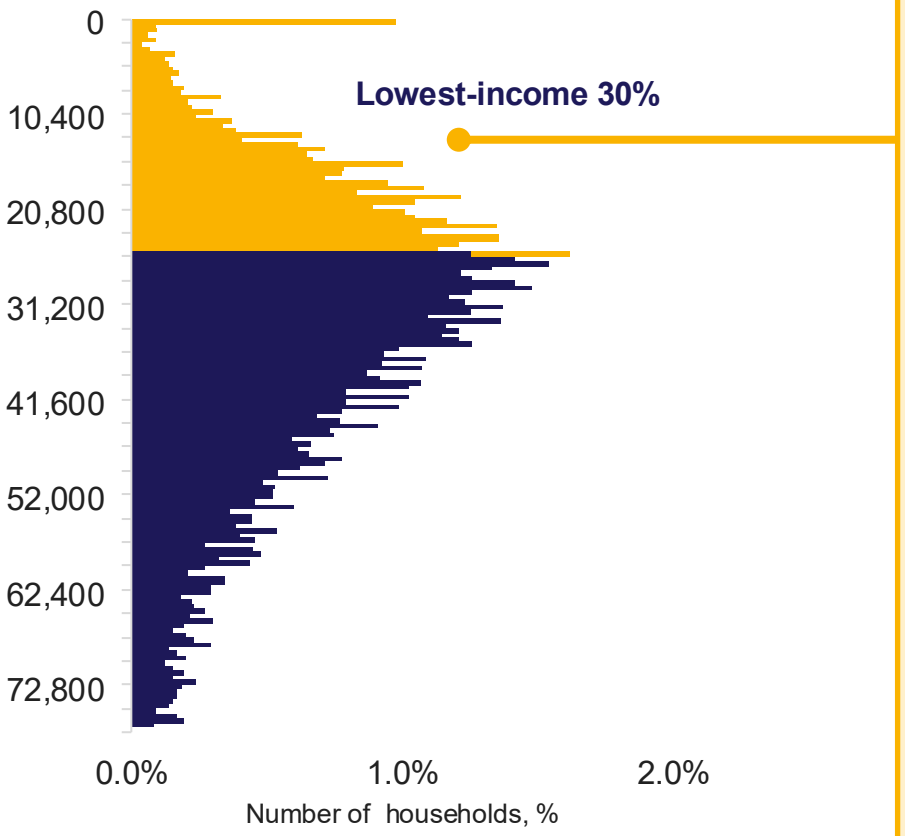
UK median household spends >7% of disposable income on utilities, compared to 3-5% across European comparators.



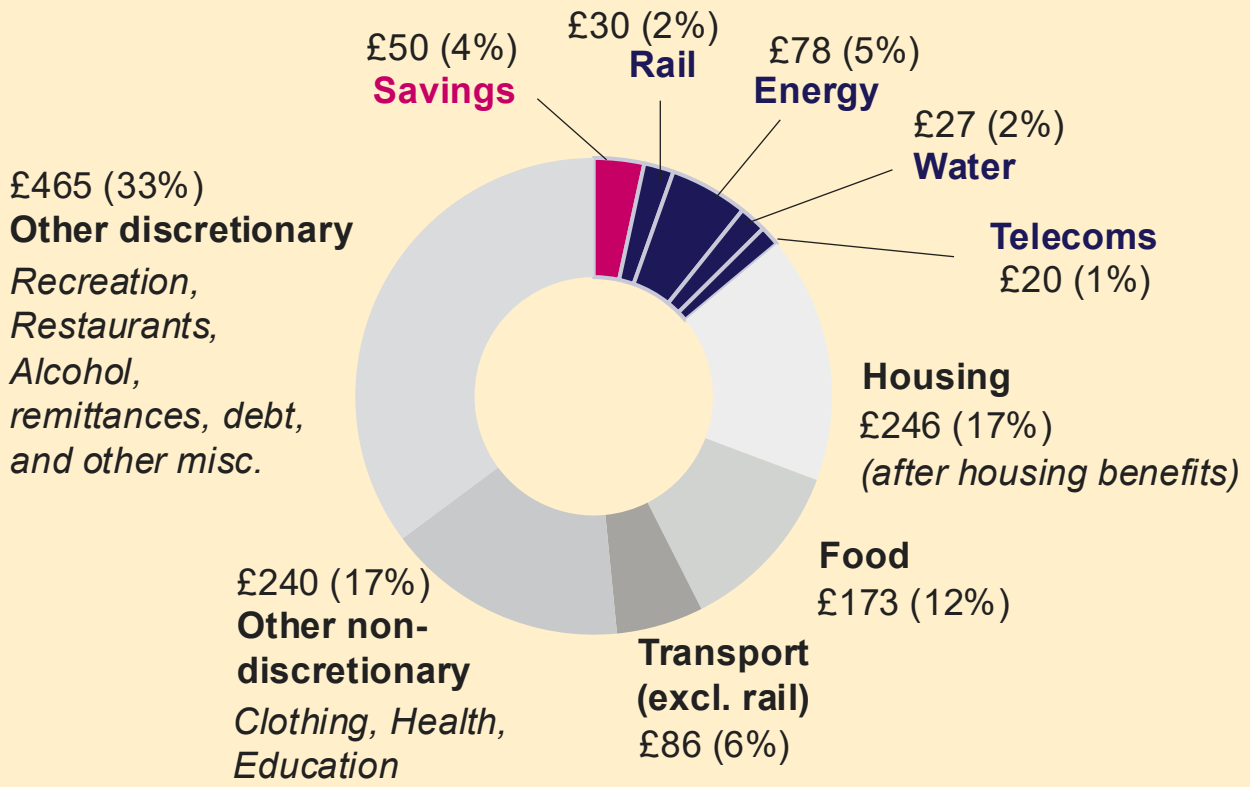
Source: OECD; Eurostat; UK Office for National Statistics (ONS). Savings from OECD household savings rates. Taxes, utilities, and median household income from Eurostat and ONS. Utility bill data for EU countries are based on 2022 values and are estimated for 2024 using relevant HICP inflation indices. Median household wages for EU countries are scaled to match ONS equivalisation methodology. Utility bills include charges for water, wastewater, electricity, gas and other fuels.

For the lowest-income 30% of UK households, savings rates shrink to 4%, depressing additional headroom for future bill increases.

Net annual household income,
GBP



Median monthly expenditure of lowest-income 30% of households,
GBP (% of wallet)



Source: ONS Living Costs and Food Survey, 2025 utility bills are adjusted for inflation using HCI inflation for Income Decile 1-3. Chart shows median monthly expenditure in GBP (% of wallet). UK income distribution data is from UK Office for Budget Responsibility data. Chart shows net household income, calculated before housing costs.

POLL #1: Will consumer bills across sectors (energy, water, transport, telecoms) increase or decrease in the next decade?

Decreasing bills – Investments will pay for themselves
(e.g., electricity network investments reducing congestion)

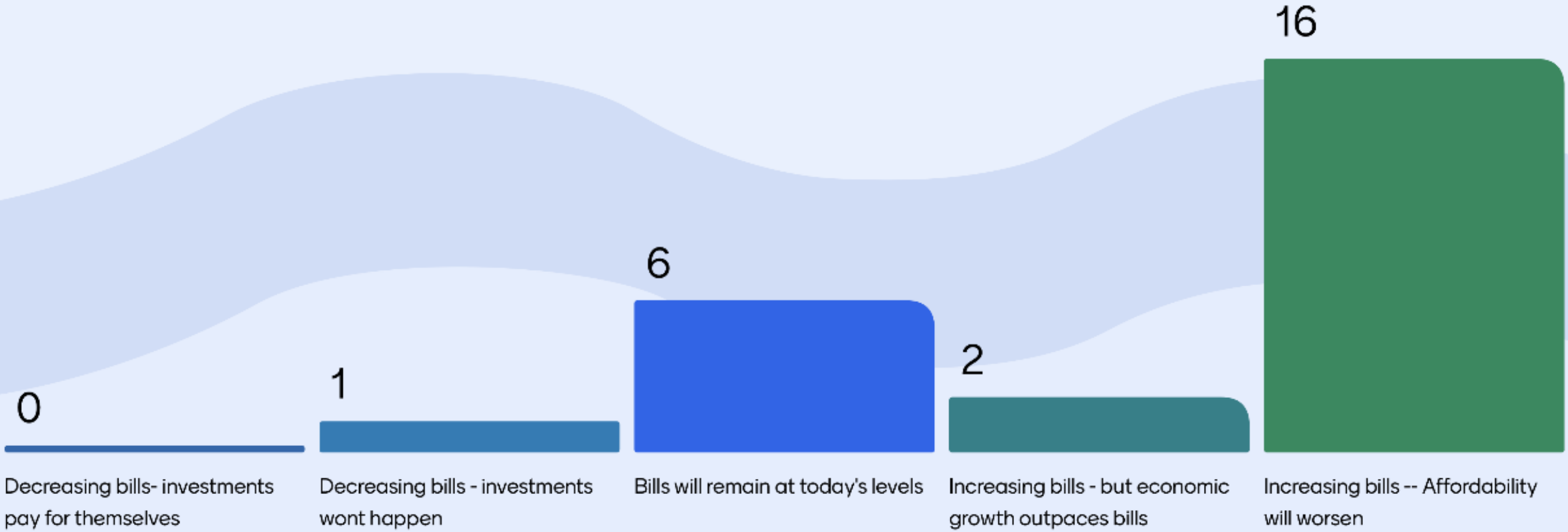
Decreasing bills – Planned investments will not happen
(e.g., Wastewater CapEx programs will get cancelled)

Bills will remain at today's level

Increasing bills – but economic growth will outpace bills
(e.g., NESO FES 1.6% annual GDP growth 2025-35)

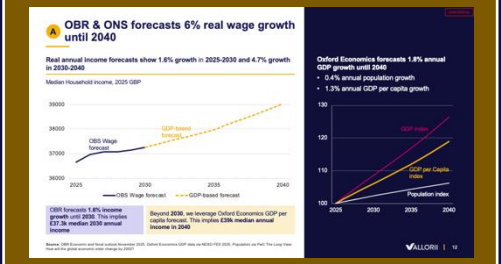
Increasing bills – Affordability will further worsen
(e.g., further decrease in savings and general consumption)

Will consumer bills across sectors (energy, water, transport, telecoms) increase or decrease in the next decade?



We quantify affordability by forecasting utility bills and household income. Low affordability means high bills as % of household income.

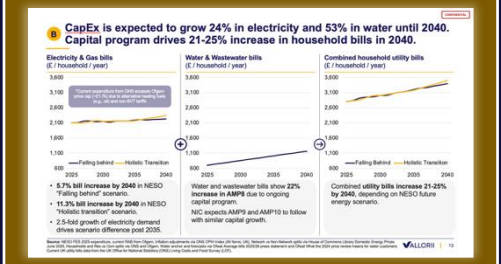
A Consumer income



We forecast customer income based on

- OBR & ONS average wage forecast
- Vallorii forecast for income inequality (Gini coefficient)

B Utility bills



We forecast utility bills (energy, water) based on

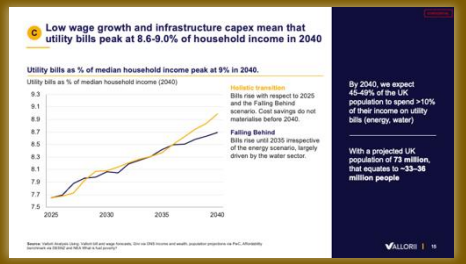
- NIC forecast for water investments
- NESO future energy scenario costs
- Ofgem PAYG rates, depreciation rates, Cost of Capital

Arrears and debt socialization

Consumer debt is socialized amongst other consumers, adding to bills.

We do not consider additional costs from bill socialization today.

C Bills as % of income

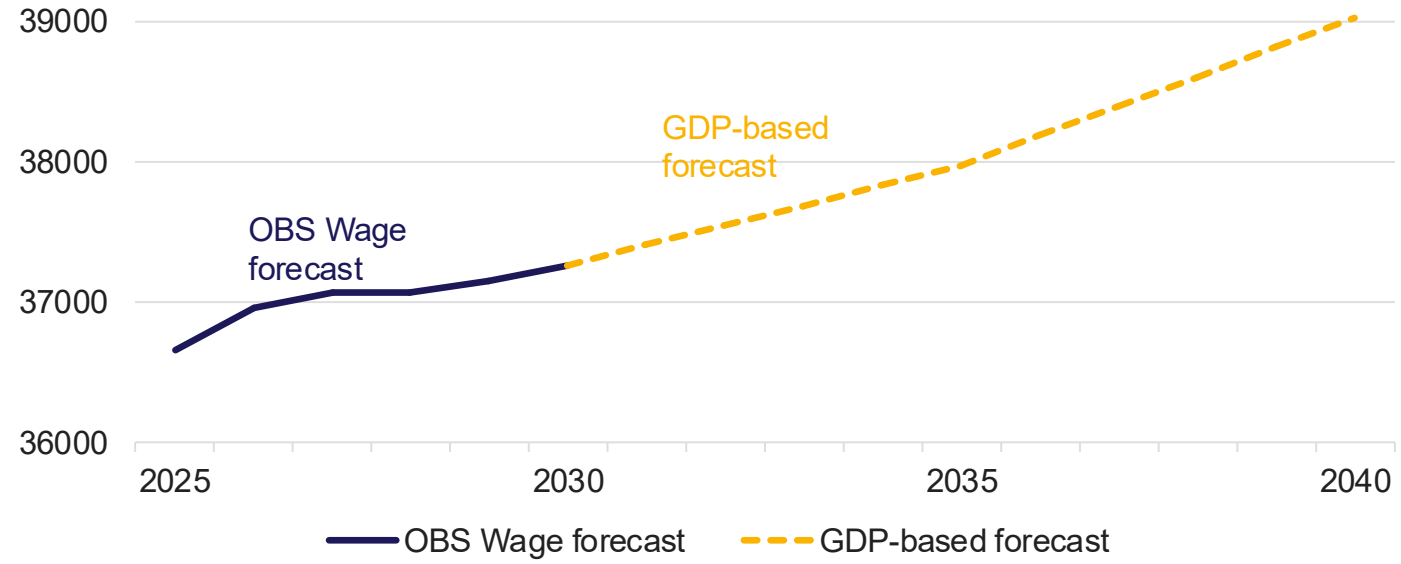


The affordability of utility bills depends on the bill amount and household income

A OBR & ONS forecasts 1.6% real annual wage growth until 2040.

Real annual income forecasts show 1.6% growth in 2025-2030 and 4.7% growth in 2030-2040

Median Household income, 2025 GBP



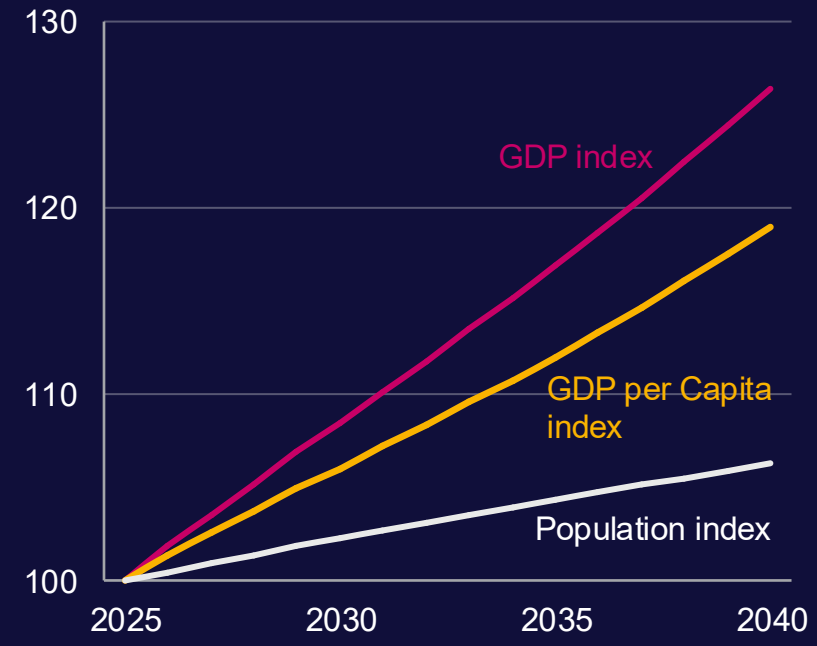
OBR forecasts **1.6% income growth** until **2030**. This implies **£37.3k median 2030 annual income**

Beyond **2030**, we leverage Oxford Economics GDP per capita forecast. This implies **£39k median annual income in 2040**

Source: OBR Economic and fiscal outlook November 2025, Oxford Economics GDP data via NESO FES 2025, Population via PwC The Long View: How will the global economic order change by 2050?

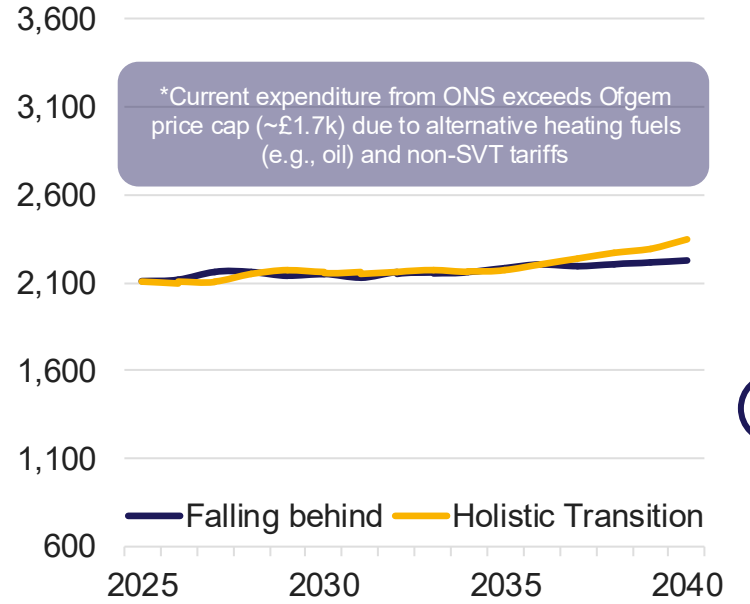
Oxford Economics forecasts 1.8% annual GDP growth until 2040

- 0.4% annual population growth
- 1.3% annual GDP per capita growth



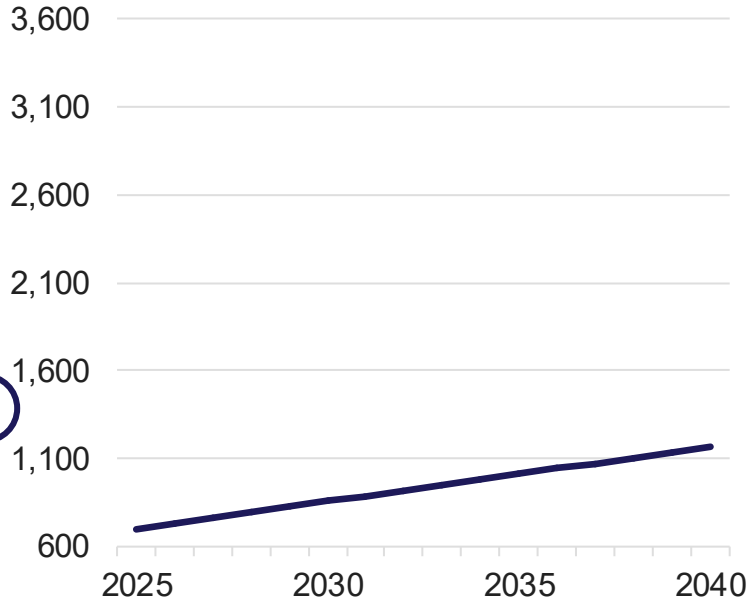
B CapEx is expected to grow 24% in electricity and 53% in water until 2040. Capital program drives 21-25% increase in household bills in 2040.

Electricity & Gas bills
(£ / household / year)



- **5.7% bill increase by 2040** in NESO "Falling behind" scenario.
- **11.3% bill increase by 2040** in NESO "Holistic transition" scenario.
- 2.5-fold growth of electricity demand drives scenario difference post 2035.

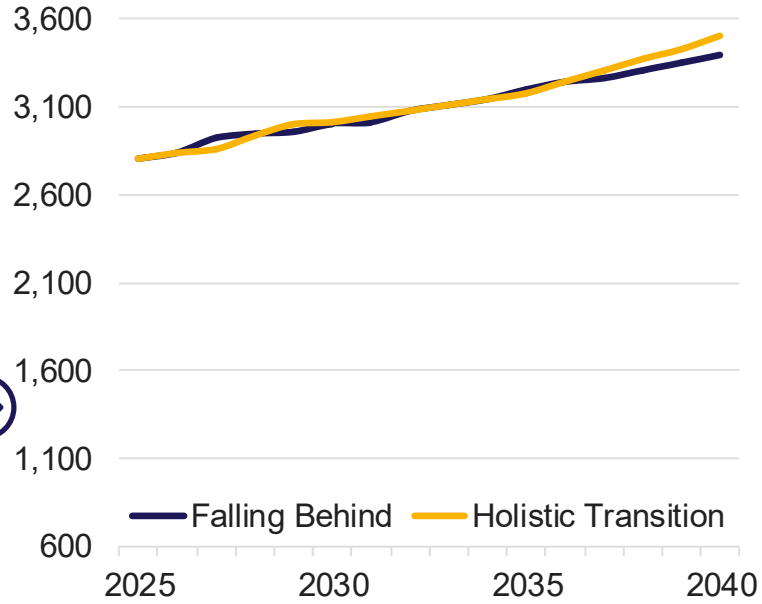
Water & Wastewater bills
(£ / household / year)



Water and wastewater bills show **22% increase in AMP8** due to ongoing capital program.

NIC expects AMP9 and AMP10 to follow with similar capital growth.

Combined household utility bills
(£ / household / year)



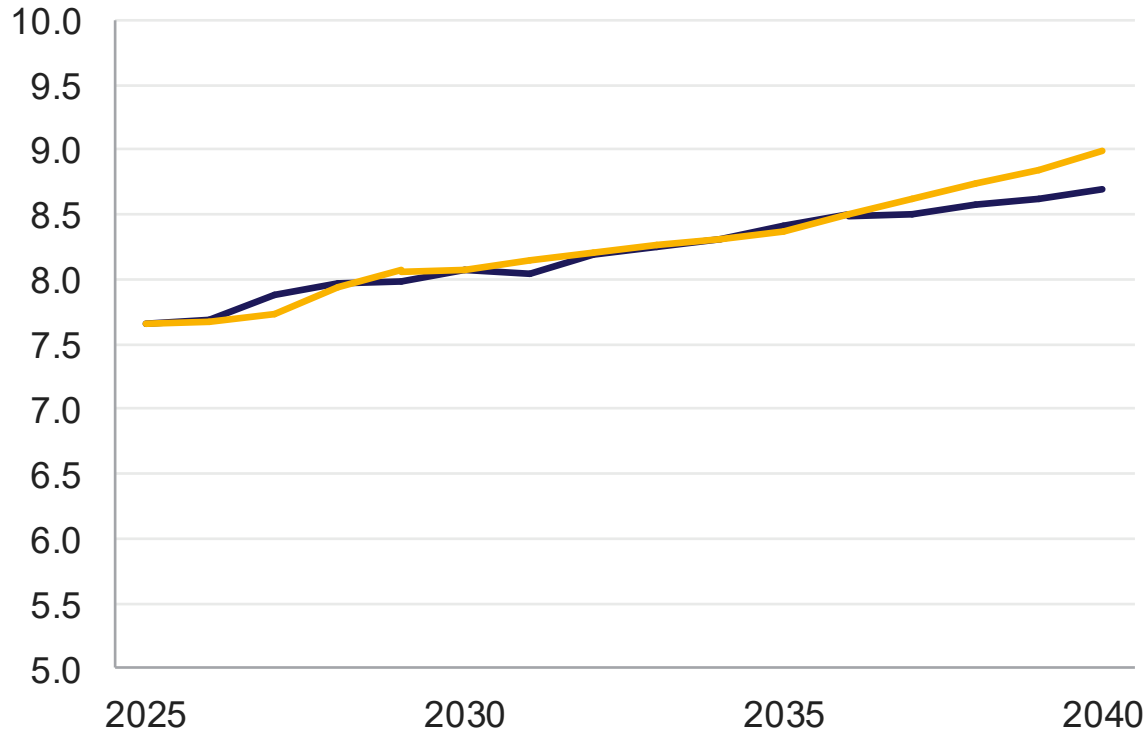
Combined **utility bills increase 21-25% by 2040**, depending on NESO future energy scenario.

Source: NESO FES 2025 expenditure, current RAB from Ofgem, Inflation adjustments via ONS CPIH Index (All Items, UK), Network vs Non-Network splits via House of Commons Library Domestic Energy Prices June 2025, Households and Res vs Com splits via ONS and Ofgem. Water anchor and forecasts via Ofwat Average bills 2025/26 press statement and Ofwat What the 2024 price review means for water customers. Current UK utility bills data from the UK Office for National Statistics (ONS) Living Costs and Food Survey (LCF).

C Low wage growth and infrastructure capex mean that utility bills peak at 8.6-9.0% of household income in 2040.

Utility bills as % of median household income peak at 9% in 2040.

Utility bills as % of median household income (2040)



Holistic transition
Bills rise with respect to 2025 and the Falling Behind scenario. Cost savings do not materialise before 2040.

Falling Behind
Bills rise until 2035 irrespective of the energy scenario, largely driven by the water sector.

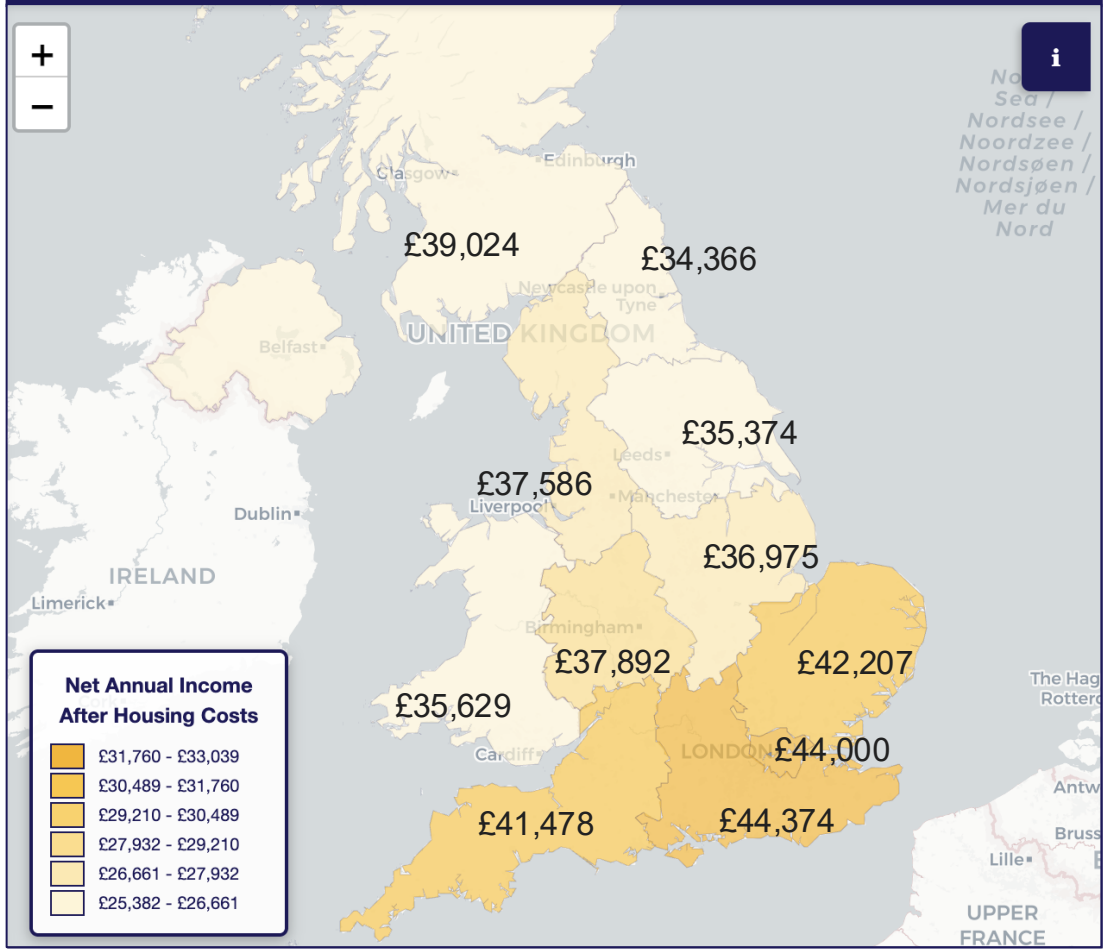
By 2040, we expect 45-49% of the UK population to spend >10% of their income on utility bills (energy, water)

With a projected UK population of **73 million**, that equates to **~33–36 million people**

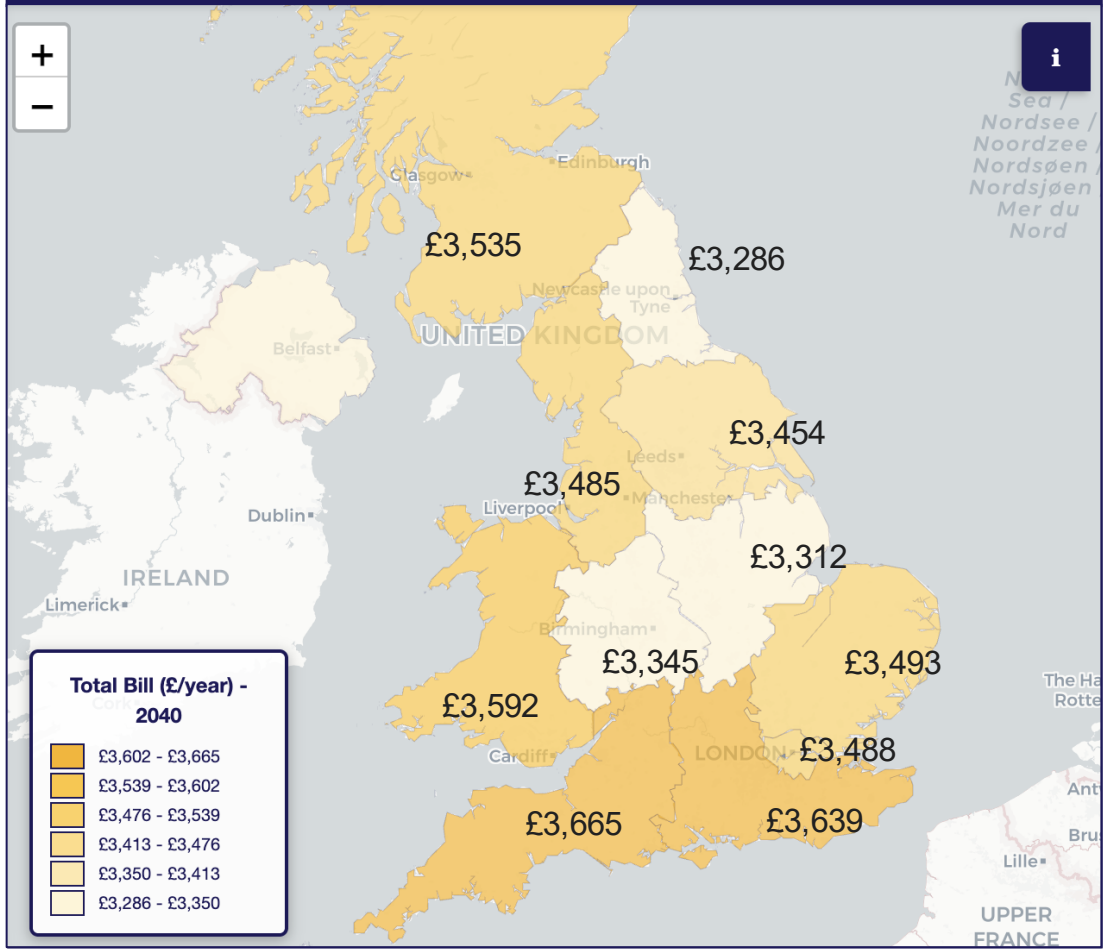
Source: Vallorii Analysis Using: Vallorii bill and wage forecasts, Gini via ONS Income and wealth, population projections via PwC, Affordability benchmark via DESNZ and NEA What is fuel poverty?

Vallorii Affordability Dashboard shows regional population, income, bills, and political polling.

Regional income 2040 (£ / household / year)



Regional bills 2040 (£ / household / year)



Source: ONS Household Income after Housing, ONS Estimates of the population, House of Commons General election 2024 results, House of Commons General election results from 1918 to 2019, Ofgem Network Charges by Region, Open Geography portal NUTS, level 1 (January 2018) Boundaries UK BGC, Vallorii bill and wage forecasts
Disclaimer: Forecasts exclude RNP

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Vallorii Price of Risk Model (VAPRI): AI-enabled, forward-looking return & valuation analysis

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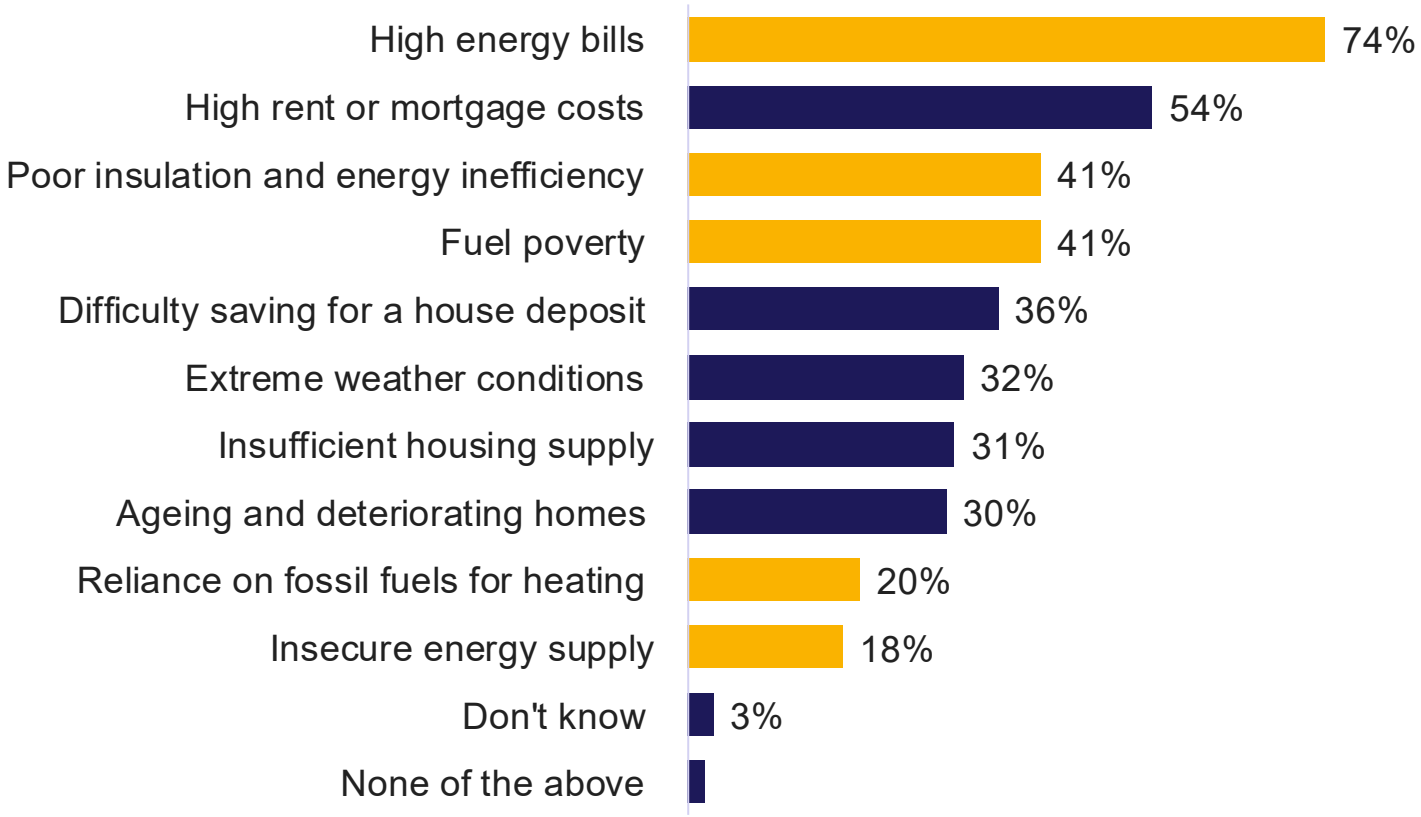
- Affordability impacts valuations and the cost of equity through heightened regulatory and political risk.
- ***Case study:*** VAPRI estimates 30-130 bps cost of equity impacts in electricity networks due to rising political risks ahead of the next general election.

3 What can be done to improve affordability of large capital programs?

- Regulatory framework: regulatory contract and cost recovery timelines.
- Progressive re-allocation of bills can lower the risk for low-income households.

High utility bills are the key concern amongst UK voters. 74% are particularly concerned with high energy bills.

Most important issues facing British homes and housing (Nov 2025)



40%

Of consumers feel more financially vulnerable this winter than last

Source: Survey results obtained from Public First, *Domestic Heat Decarbonisation Insight: Final report*, prepared for the National Energy System Operator (NESO), April 2025. Additional statistics are sourced from regular surveys provided by Cadent Gas.

POLL #2: How should consumer affordability be reflected in the Cost of Equity for new electricity infrastructure investments?

Higher – Affordability creates *material* and *non-diversifiable* political risks

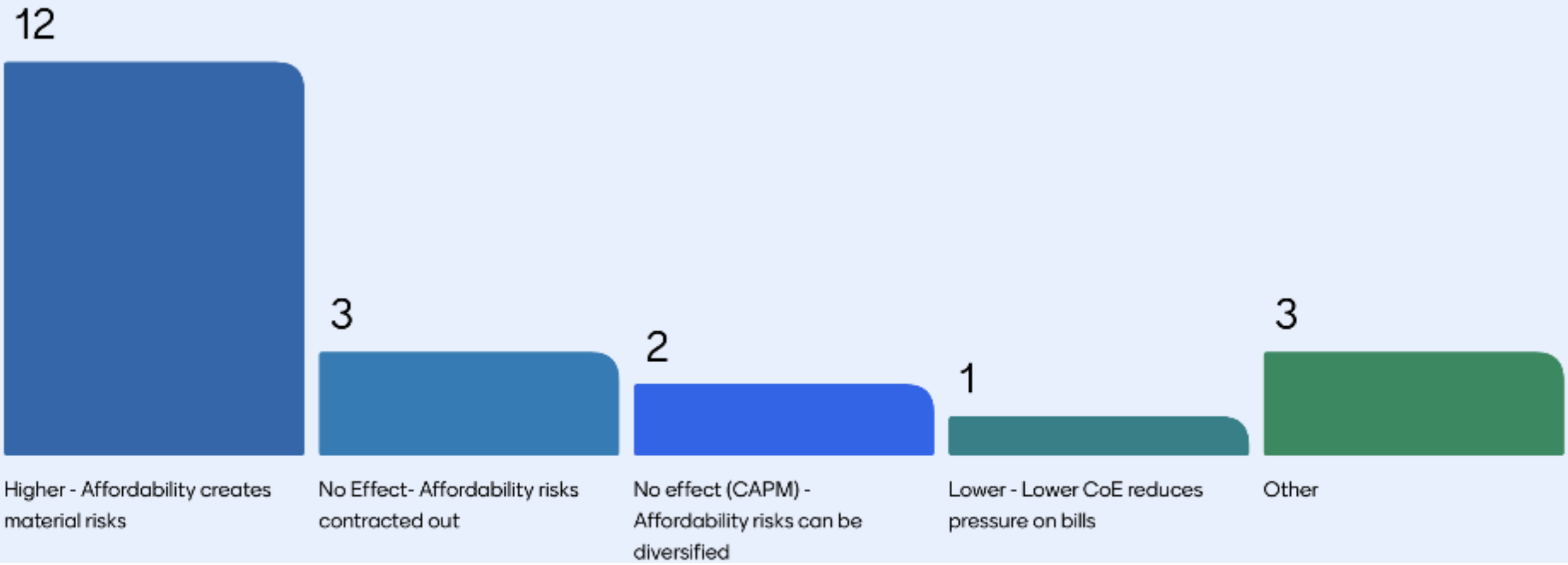
No effect – Affordability risks can be *contracted out*

No effect (CAPM) – Affordability risks can be *diversified*

Lower – Lower the Cost of Equity ⟷ *reduce pressure on bills*

Other (get ready for follow-up question)

How should consumer affordability be reflected in the Cost of Equity for new electricity infrastructure investments?

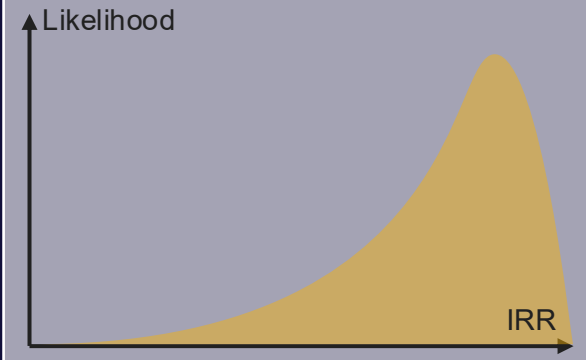


Cost of Equity Recap:
Idiosyncratic risks impact IRR and hurdle rates for new capital projects.

Internal rate of return for capital projects, %

IRR describes the equivalent **annual return of a capital project**. It is based on uncertain future Cash Flows.

P50 IRRs must at least exceed **hurdle rates** for a positive investment decision.



Hurdle rates: Cost of Equity for capital projects, %

Hurdle rate ≠ Stock market Cost of Equity

Hurdle rates are set by Investment Committees taking into a variety of considerations, including

- the desired returns and risk tolerance,
- the perceived riskiness of a specific investment,
- the true "cost of equity" (as determined by the true risks) of each specific investment.

Capital projects are frequently irreversible.

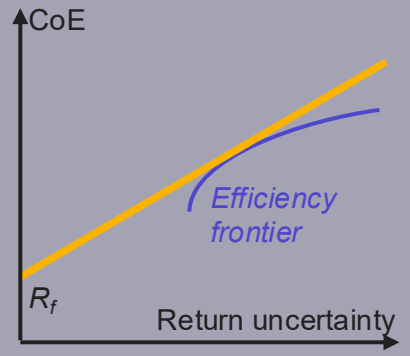
Irreversible projects warrant higher hurdle rates due to the time-asymmetry (option value).

Project risks differ from the existing portfolio (and CAPM).

Stock market Cost of Equity, %

CoE describes the **return a listed stock should generate**, given its volatility, to be attractive to a marginal investor with a diversified portfolio.

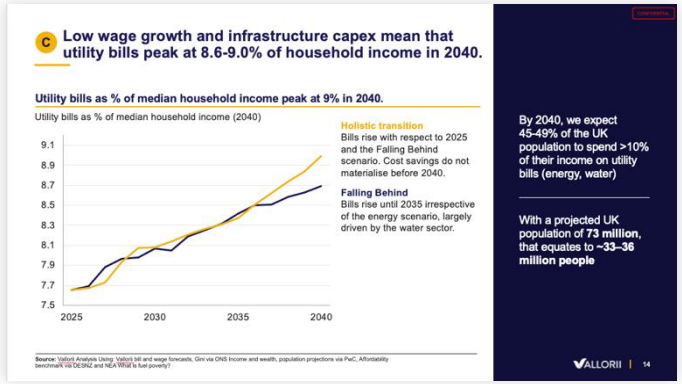
Marginal investors are assumed to be able to **freely diversify idiosyncratic uncertainty**.



Source: McDonald & Siegel (1986), McDonald (1998), Gormsen & Huber (2024)

Low Affordability increases political risks. Higher political risks warrant higher hurdle rates, not least because capex decisions are irreversible.

2026-2040: Affordability will likely decrease

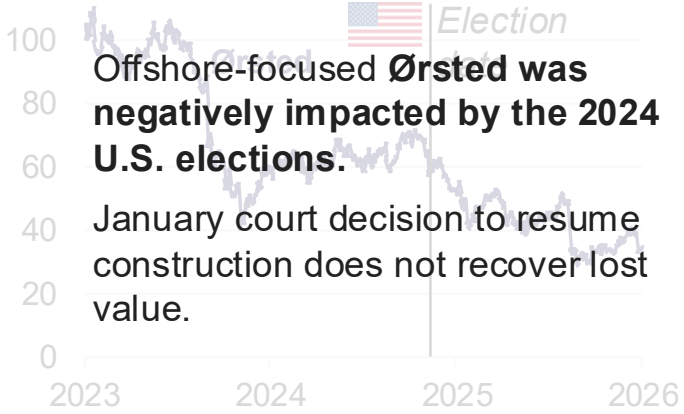


Utility bills as % of median increase are expected to increase from **~7.6% today to 8.6-9.0% in 2040**.

- 4.7% wage increase until 2040.
- 21-25% bill increase until 2040.

2026-2040: Political risks will likely increase

Ørsted Stock price, indexed to 2023



Offshore-focused **Ørsted was negatively impacted by the 2024 U.S. elections.**

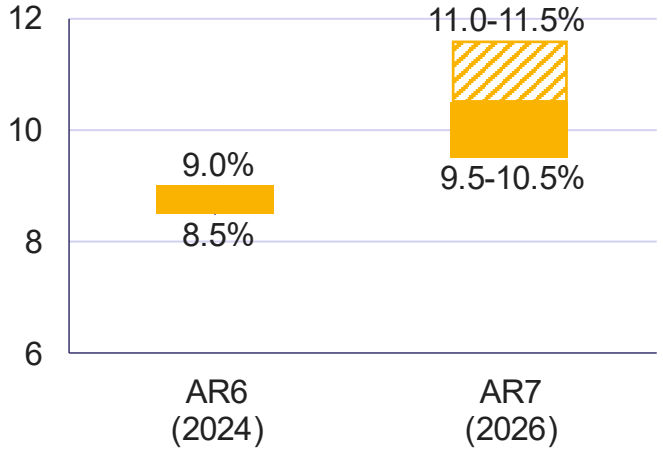
January court decision to resume construction does not recover lost value.

Richard Tice, January 14 2026:

"Reform UK, we've told them, we're gonna rip up these [Ar7 CfD] contracts. They're a con."

Today: Hurdle rates for capital projects increase

Cost of Equity for UK CfDs, % real

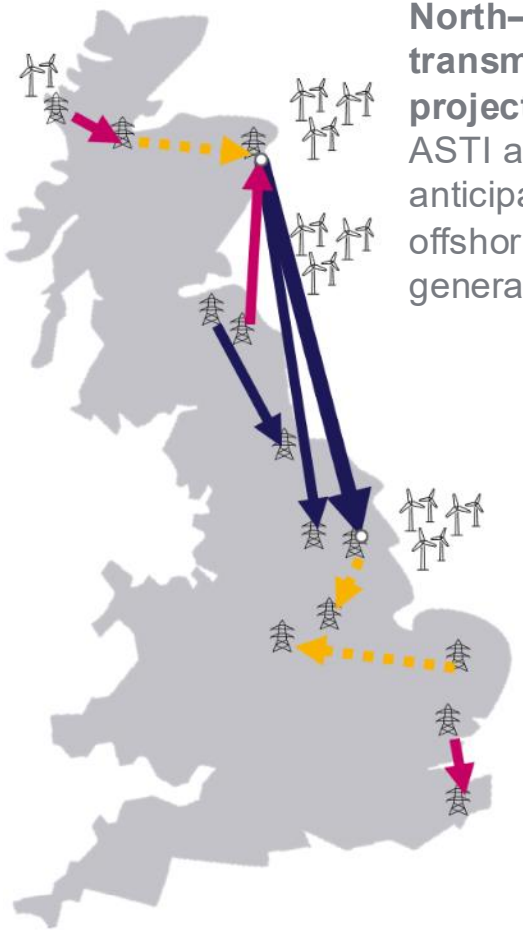


CoE for the AR7 CfD bids has increased by 150-250 bps, largely due to increased **political risk** in UK Offshore.

This underestimates true CoE uplift since the CfD price is contingent on the Final Investment Decision.

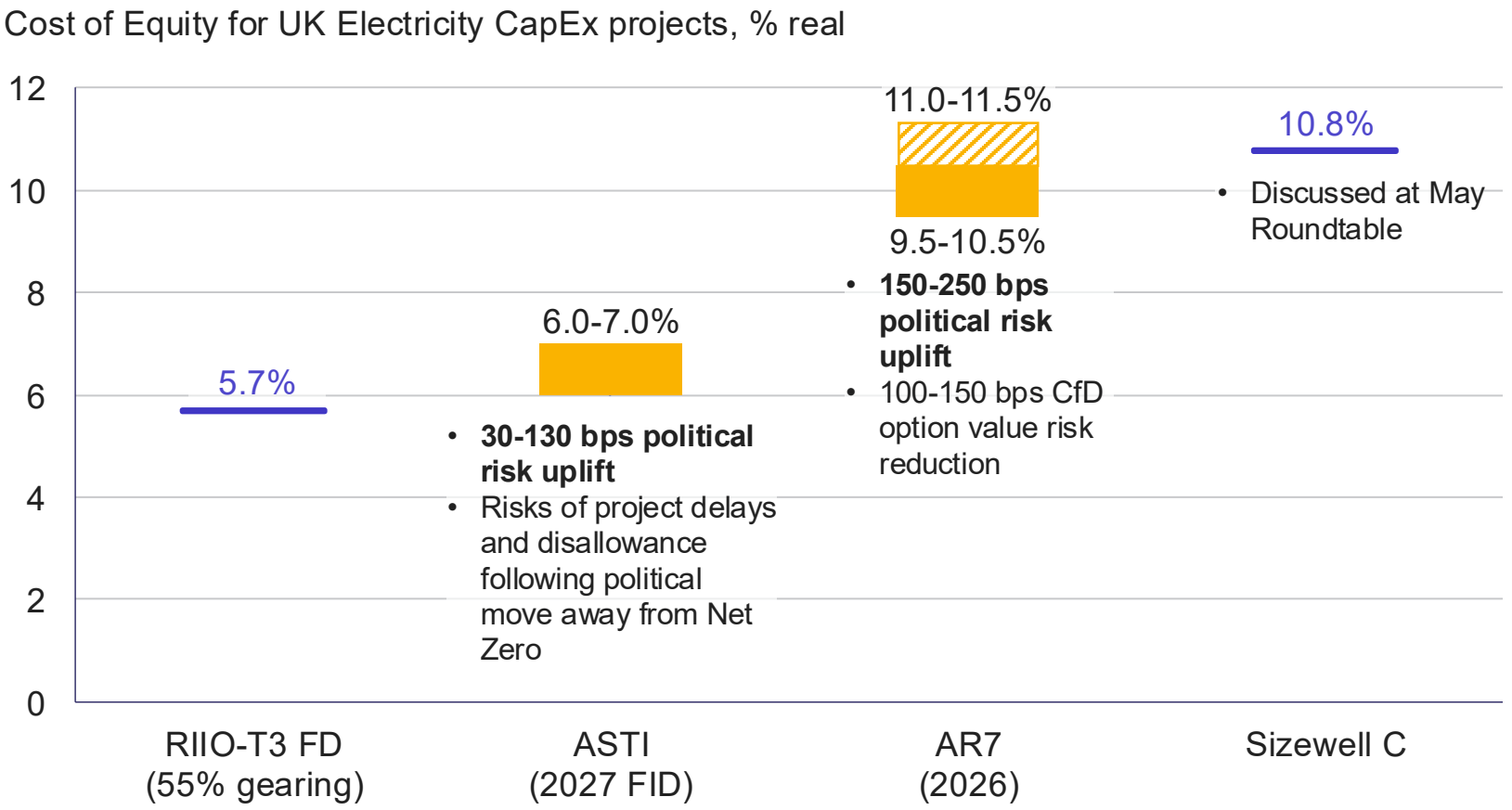
Source: Vallorii analysis

Case study: Political risks increase CoE of some transmission projects by 30-130 bps since they are driven by expected offshore wind demand.



North–south transmission projects under ASTI are in anticipation of offshore wind generation.

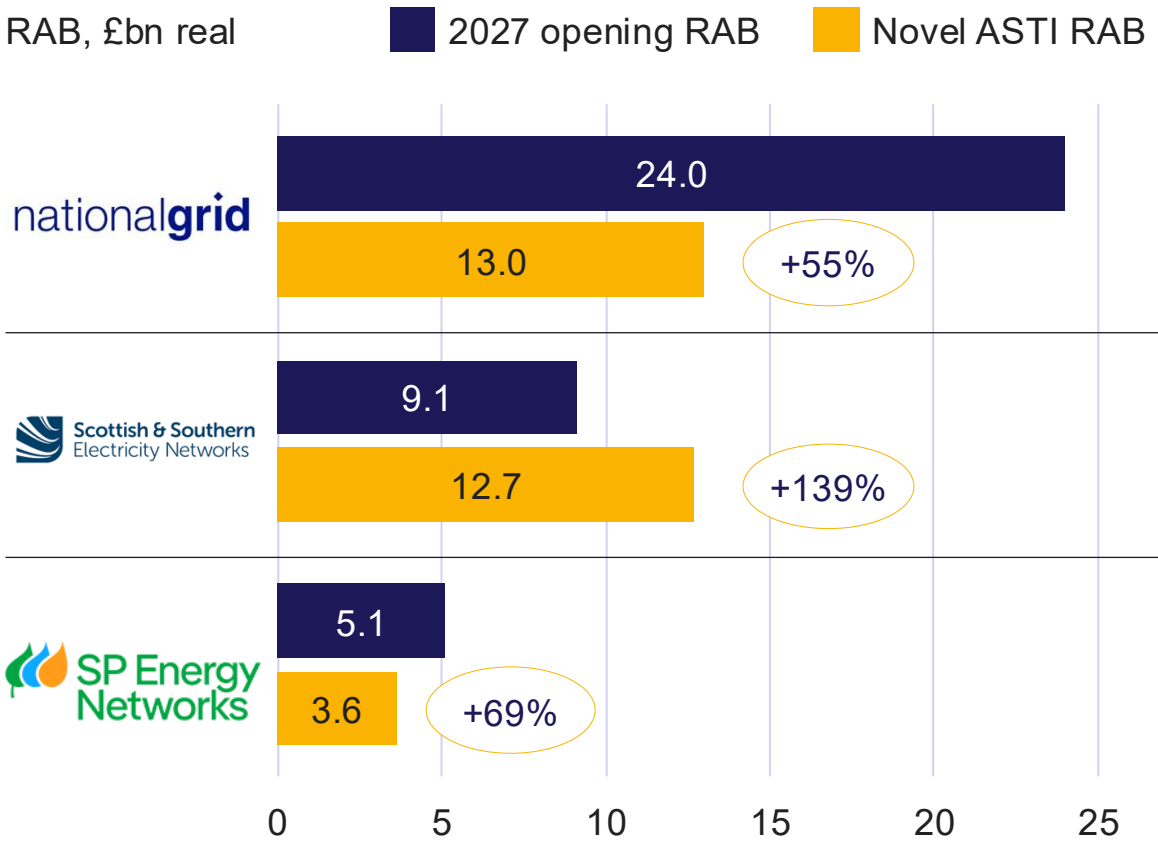
ASTI projects driven by expected offshore wind supply:
30-130 bps CoE premium



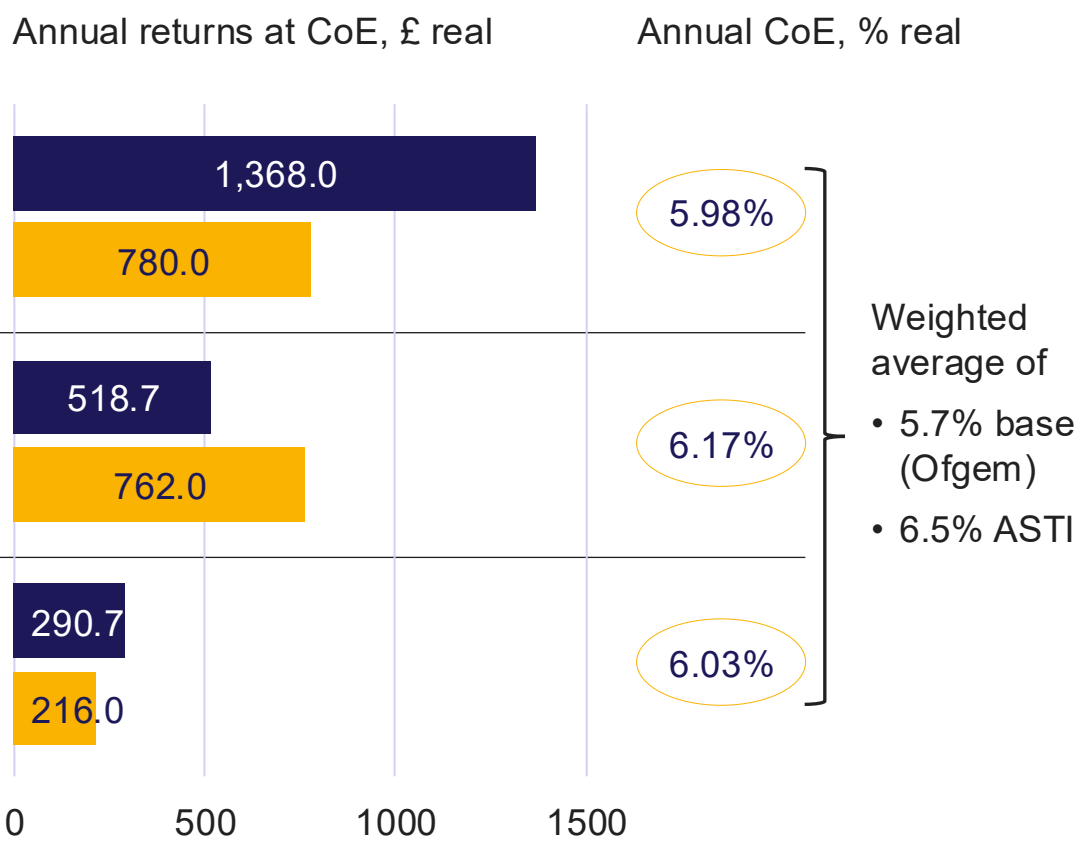
Source: Vallorii CfD Workshop, Ofgem RIIO-T3 FD,

Case study: Exposure to ASTI risks differ by Transmission Operator. SSEN-T shows 33 bps CoE impact due to potential 139% RCV growth from ASTI.

ASTI potentially represents a 55-139% addition to the existing transmission RAB



At 30-130 bps CoE uplift for ASTI projects, this lifts the company-level CoE by 28-33 bps



Source: Ofgem RIIO-3 Final Determinations – Finance Annex, Ofgem RIIO ET3 BPFM Final Determinations.

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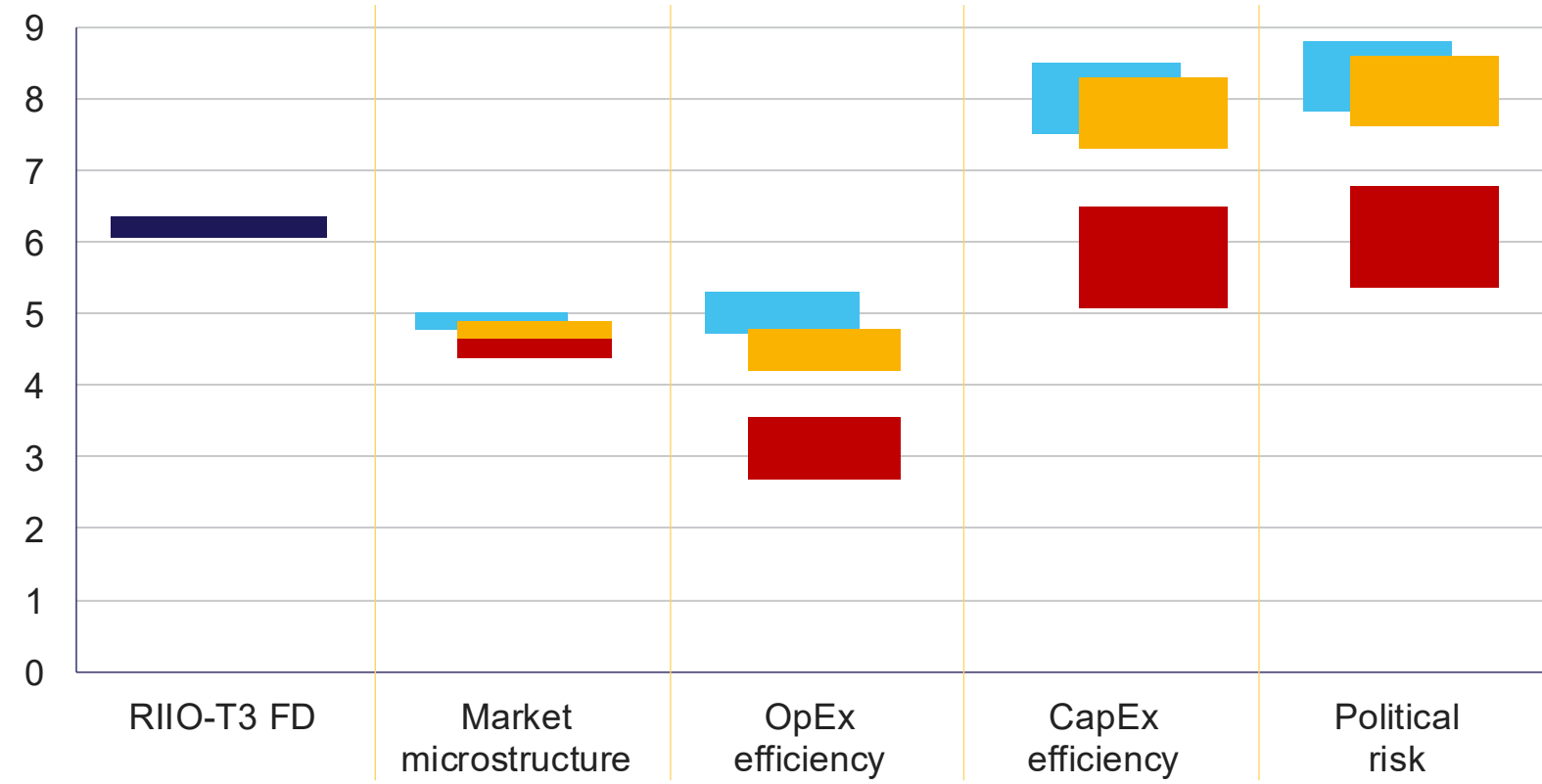
	SSE		7.8 – 8.7%
	SP Energy Networks		7.7 – 8.5%



Agenda

Vallorii Price of Risk Model (VAPRI): AI-enabled, forward-looking return & valuation analysis

1 What is the risk that future consumers will be unwilling to pay for current infrastructure investments?

- It's bad: UK bills 7.3% of income, compared to 3-5% in European comparators.
- It's getting worse: Wages grow 6% until 2040, utility bills grow 21-25% until 2040 driven by large capital projects in electricity generation, electricity networks, and water & wastewater investments.
- It's unsustainable: Utility bills peak in 2040, at 9% of median household income, up from today's 7.3% (based on NESO Holistic Transition scenario).

2 How does affordability-driven political risk impact cost of equity and valuation in infrastructure?

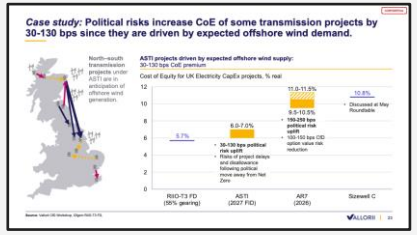
- Affordability impacts valuations and the cost of equity through heightened regulatory and political risk.
- ***Case study:*** VAPRI estimates 30-130 bps cost of equity impacts in electricity networks due to rising political risks ahead of the next general election.

3 What can be done to improve affordability of large capital programs?

- Regulatory framework: regulatory contract and cost recovery timelines.
- Progressive re-allocation of bills can lower the risk for low-income households.

Regulators can reduce premia to the Cost of Equity through longer regulatory periods, faster cost recovery, or more progressive consumer pricing.

Cost of Equity premium



30-130% of CoE premium due to affordability-driven political risks

Case examples

MOODY'S Implicit affordability premia in debt markets from rating impacts

NYU STERN Political risk premia are commonly added the CoE in corporate finance functions

Lengthened price review period

Extend ASTI price control beyond RIIO-T3 to provide higher confidence in long-term return on capital

Case examples

Ofcom

Tideway

openreach

Sizewell C The power of good for Britain

Faster cost recovery for investors

Recover capital costs more quickly to reduce reliance on future regulatory decisions

Case examples

US "cost tracker" for accelerated recovery between rate cases

Accelerated recovery through corporate tax deferral in Latvia and Estonia

Progressive cost recovery (e.g., taxation)

Move some of the costs to general taxation to reduce affordability pressure on low-income households

Case examples

Renewables obligation now funded via general taxation

national highways

THE NORTHERN IRELAND COMMUNITY INFRASTRUCTURE FUND

Source: Vallorii analysis

POLL #3: How can regulators effectively mitigate affordability risks for large capital projects (e.g., energy networks, enhancement capex in water)?

Free Lunch:
Consumer affordability will increase with investment

No Free Lunch – bills will increase:
Extend price review period

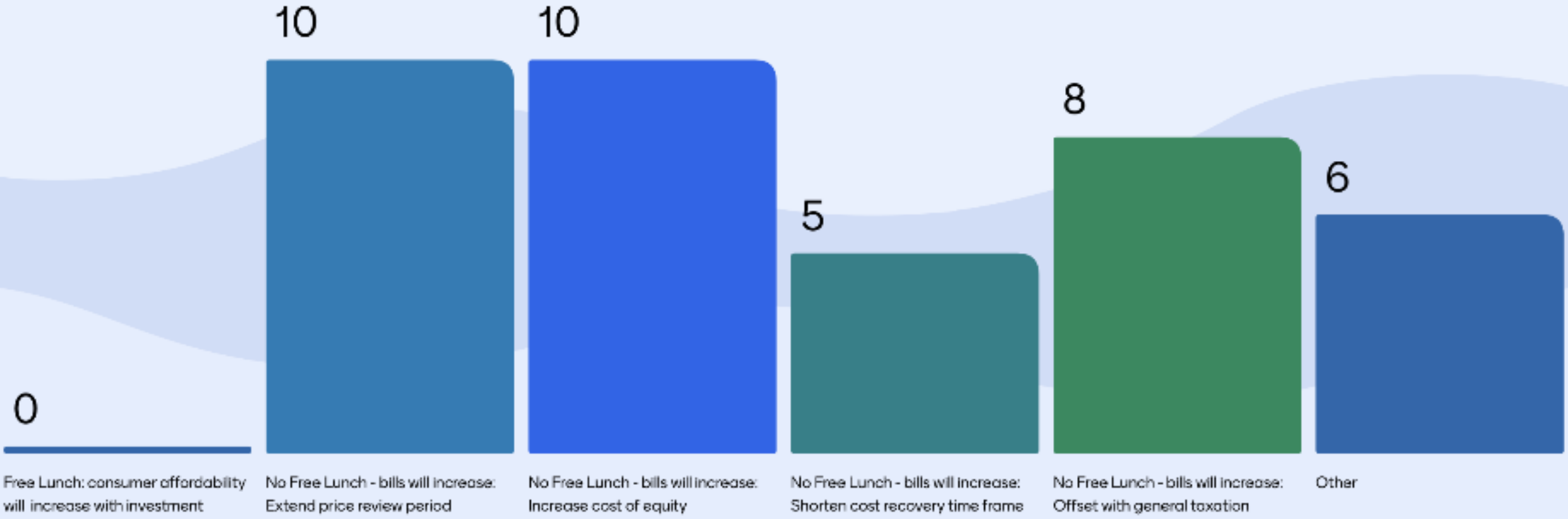
No Free Lunch – bills will increase:
Increase cost of equity

No Free Lunch – bills will increase:
Shorten cost recovery time frame

No Free Lunch – bills will increase:
Offset with general taxation

Other

How can regulators effectively mitigate affordability risks for large capital projects (e.g., energy networks, enhancement capex in water)?



Our outlook for 2026:
We build the VAPRI risk catalogue and discuss immediate impacts.

Preliminary

January

Affordability

How to balance infrastructure investments with affordability envelopes?

March

Depreciation

What does it mean to depreciate infrastructure assets?

May

Financial resilience

How do we ensure financially resilient infrastructure assets?

July

Geopolitics

What impact does geopolitics have on infrastructure and the Cost of Equity?

September

Vallorii Leaders Forum

Invitation-only gathering of 50 senior leaders to explore how we can deliver infrastructure

September

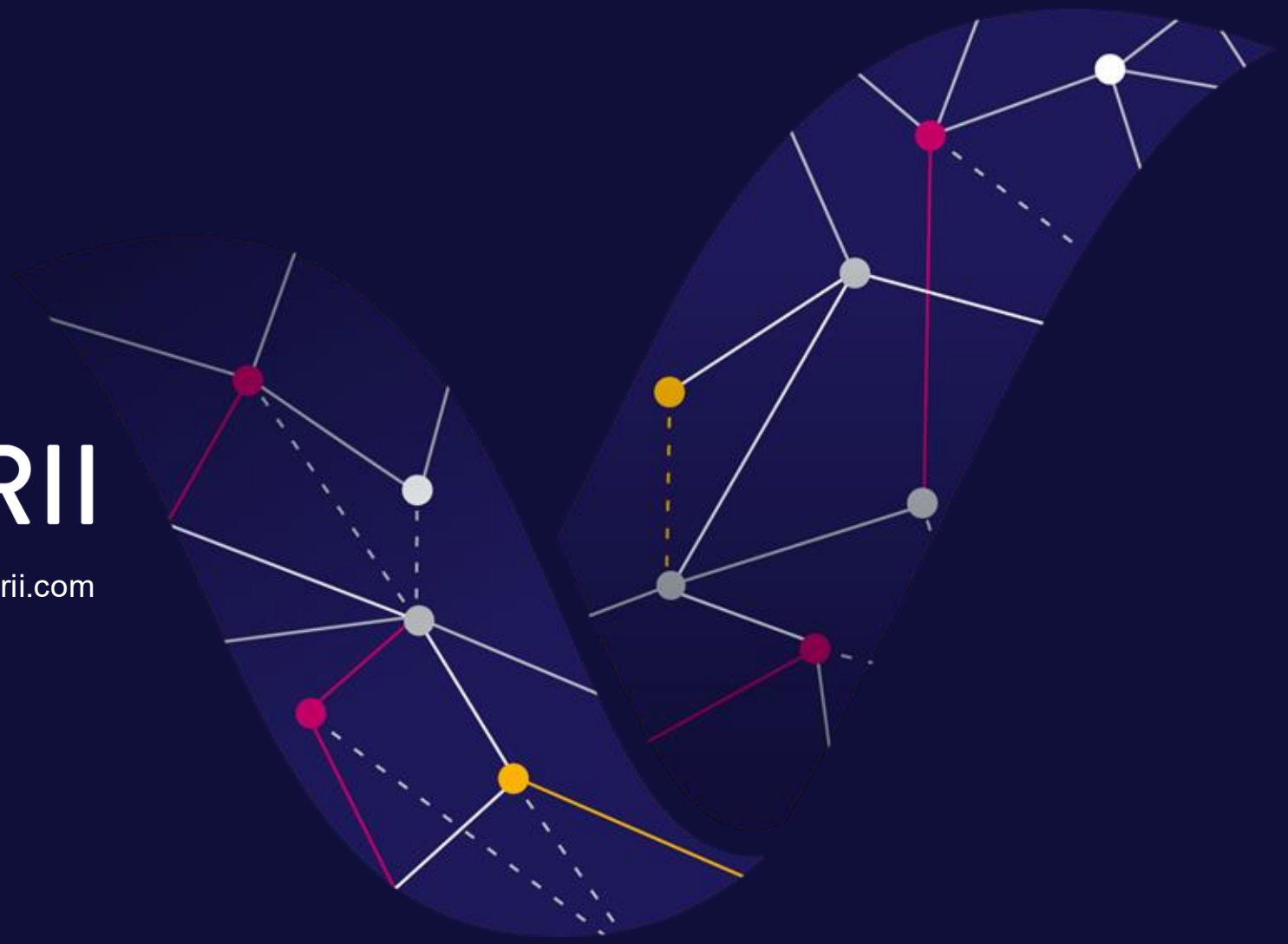
Liquidity

What is liquidity and how does it impact the Cost of Equity?

November

Stock markets

What does the stock (& public fund) market tell us about the CoE?



VALLORII

Visit us at Vallorii.com

VAPRI translates risks into actionable insights for corporate finance & regulation.

Risks & opportunities for investors and consumers

Risk of cost overruns in **capital projects.** — July Roundtable

Bond market volatility: future market expectations — September Roundtable

Vallorii asset resilience index — November Roundtable

Consumer affordability: *Focus today*

Will consumers pay for infrastructure investments?

The Guardian
Rise in energy prices leaves 1m UK households behind on bills

BBC
Energy grid investment of £28bn to push up household bills

BBC
Thousands on benefits could have energy debt cancelled by Ofgem

Downside mitigation, upside amplification

Corporate finance
- Gearing ratio
- Amortization
- Dividend policy
- …

Regulation & government support
- Licencing model
- Gov. underwriting
- Incentives
- …

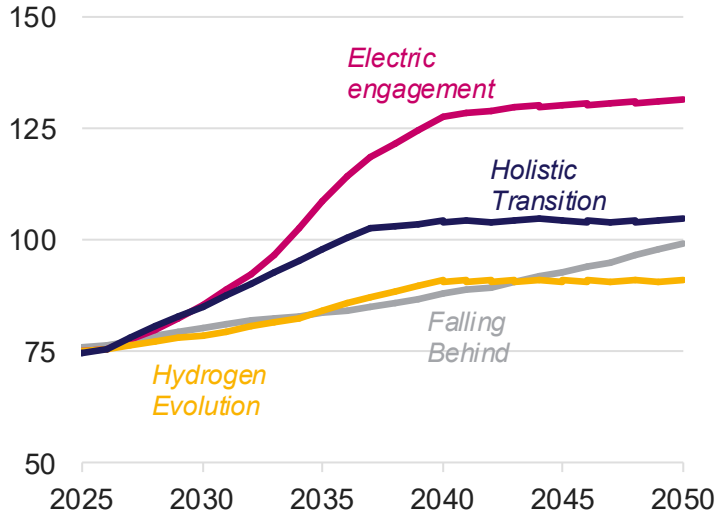
Contracting & Diversification
- Contr. underwriting
- Hedging strategy
- Fund diversification
- …

VAPRI
Cost of Equity

B NESO ”Holistic Transition” scenario bills increase 5% w.r.t. “Falling behind” scenario in 2035-2040 due to increased electrification efforts.

Peak electricity continues increasing after 2035 due to electrification

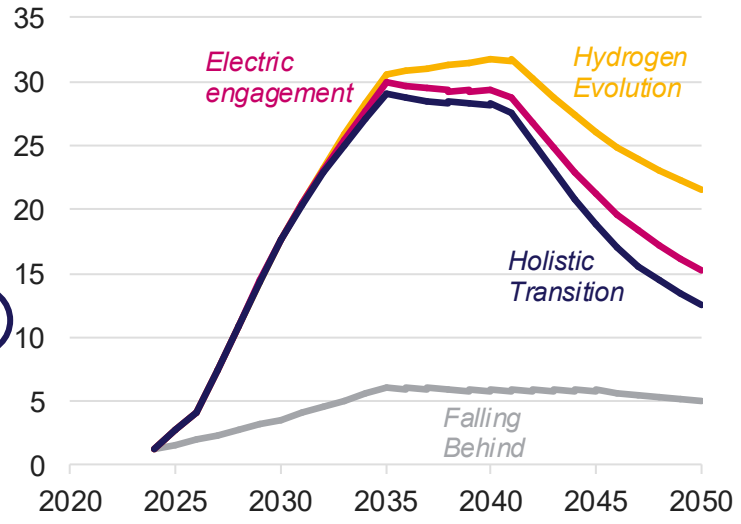
Electricity demand in NESO scenarios, TWh



On average across the scenarios, **98% of the increase in electrification occurs by 2040**.

Flexibility and efficiency benefits flatten after 2035

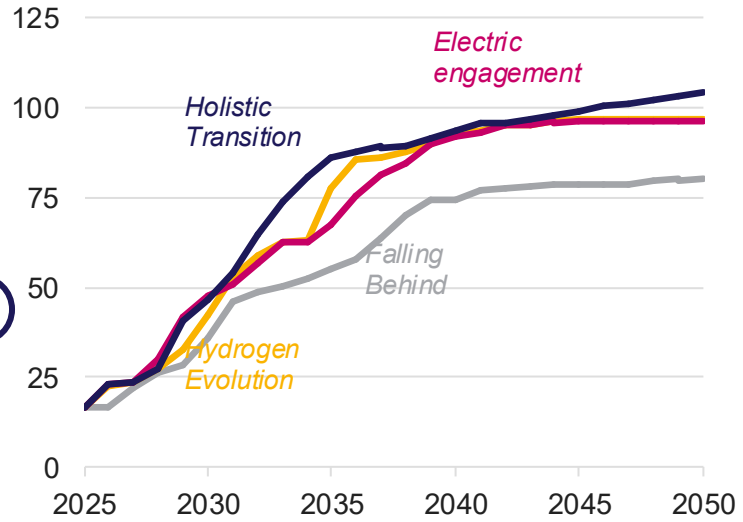
Energy savings from efficiency gains, TWh



Electrification scenarios show large energy savings in the next decade. **After 2035, energy savings stagnate** as most efficient fuel switching technologies are exhausted.

Offshore wind and transmission build-out accelerate after 2035

Offshore wind capacity, GW



45-52% of GB’s 2050 generation comes from offshore wind across scenarios**.**

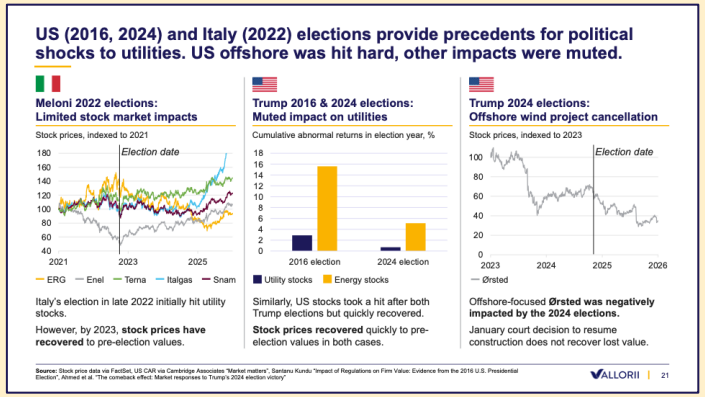
Continued growth in the sector requires significant network infrastructure investment.

Source: NESO FES 2025 data workbook.

There are different methods to estimate the CoE impact of affordability: stock-market premia, credit risk spreads, and regulatory impact modelling

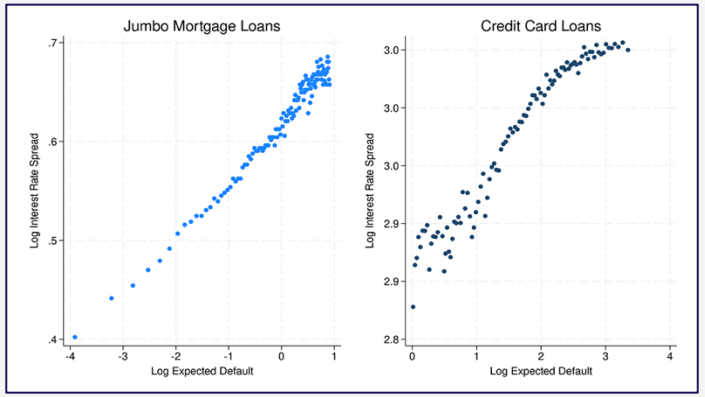
Stock market impacts (event study)

Focus today



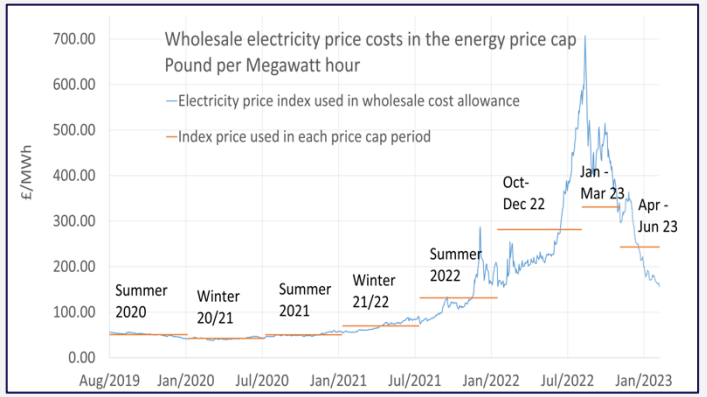
- US (2016, 2024) and Italy (2022) elections provide **precedents for political shocks** to utilities.
- **Impacts have been mixed**. Offshore wind developers were hit by the second Trump term. Impact on other utilities were muted in all cases.

Credit risk spreads (default rate impacts)



- Income and **leverage-to-value ratios** drives mortgage default risks and credit spreads
- Ambrose, LaCour-Little, Sanders (2004) show the impact of income and leverage-to-value ratios on credit spreads

Regulatory impact modelling (response functions)



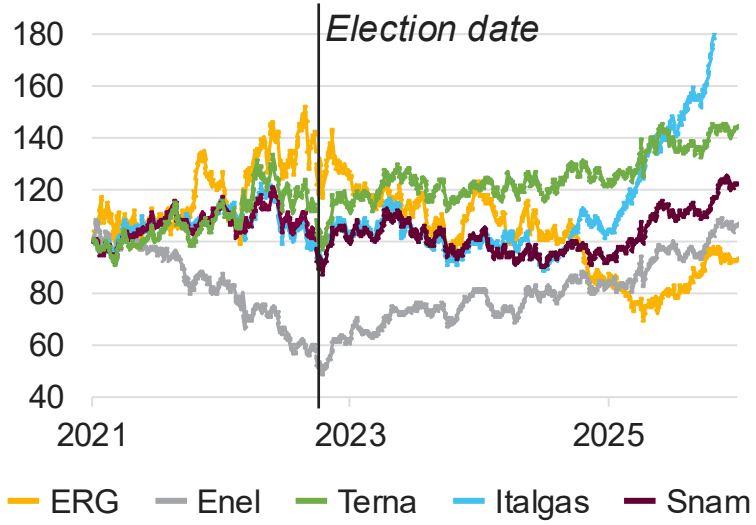
- Affordability increases **pressure on Ofgem** to lower the relative price caps
- Lower affordability **reduces allowed returns in future regulatory decisions**. We model regulatory impact for ASTI projects in RIIO-4 and RIIO-5 bottom-up

Source: https://doi.org/10.1509/jm.15.0229; Ambrose, LaCour-Little, Sanders (2004), https://doi.org/10.1111/j.1080-8620.2004.00102.x; Abdymomunov et al. (2025), Ofgem

US (2016, 2024) and Italy (2022) elections provide precedents for political shocks to utilities. US offshore was hit hard, other impacts were muted.

Meloni 2022 elections: Limited stock market impacts

Stock prices, indexed to 2021

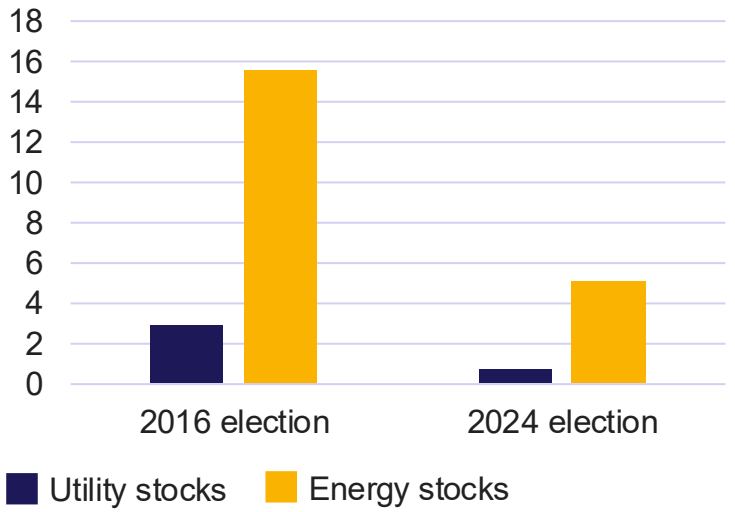


Italy's election in late 2022 initially hit utility stocks.

However, by 2023, **stock prices have recovered** to pre-election values.

Trump 2016 & 2024 elections: Muted impact on utilities

Cumulative abnormal returns in election year, %

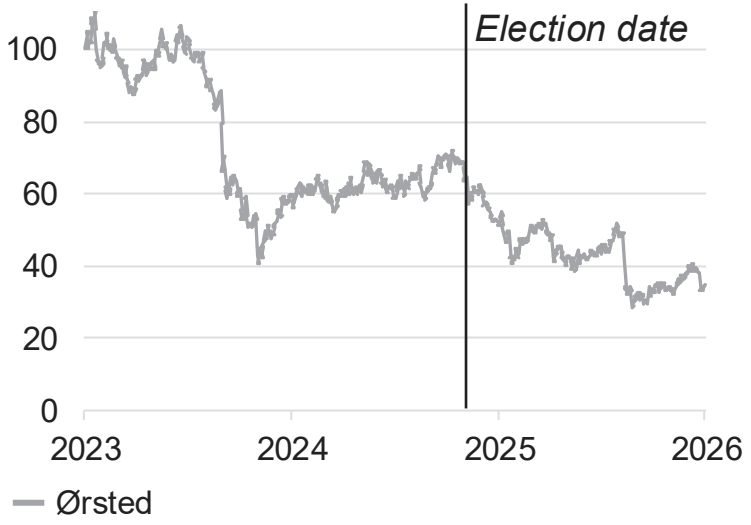


Similarly, US stocks took a hit after both Trump elections but quickly recovered.

Stock prices recovered quickly to pre-election values in both cases.

Trump 2024 elections: Offshore wind project cancellation

Ørsted Stock price, indexed to 2023



Offshore-focused **Ørsted was negatively impacted by the 2024 elections.**

January court decision to resume construction does not recover lost value.

Source: Stock price data via FactSet, US CAR via Cambridge Associates "Market matters", Santanu Kundu "Impact of Regulations on Firm Value: Evidence from the 2016 U.S. Presidential Election", Ahmed et al. "The comeback effect: Market responses to Trump's 2024 election victory"