

An aerial photograph of a river with white water rapids, overlaid with glowing blue energy lines that curve across the right side of the image. The text is centered on the left side of the image.

# Balancing Costs: Annual Report and Future Projections

*Industry Webinar*

May 2024





- ESO’s first Annual Balancing Costs Report to be published today
- ESO continues to be transparent on balancing costs and we are always looking for improved ways of achieving this
- This report will contain, a look back at previous costs, future projections and outline ESO continued efforts to minimise balancing costs

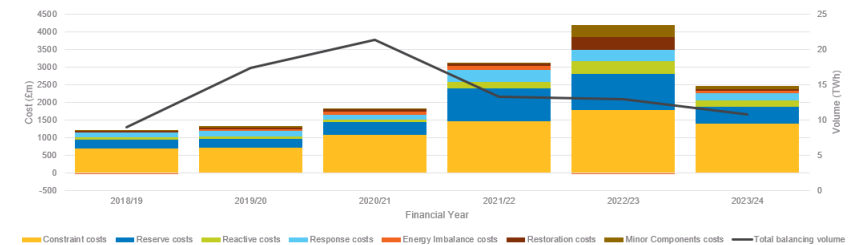
### ESO initiatives create savings worth ~£18bn before 2030

In our efforts to operate a decarbonised system, we have been undertaking a wide range of initiatives within our balancing costs strategy that are aimed at minimising balancing costs. Outlined below are a few key initiatives that are delivering or expected to deliver further balancing cost savings. For more information on the full range of balancing cost initiatives please see the [Balancing Cost Report 2024 – Technical Report](#).

Thermal Constraints	Response and Reserve	Voltage Constraints	Stability Constraints	Improving System Operation
<p><b>Network delivery in 2030 is expected to deliver £13.1bn savings in constraint costs across asset lifetimes.</b></p> <p><b>The Constraint Management Intertrip Service (CIMS) looks for intertrip services from new providers to help manage network congestion. CIMS B6-Intertrip cost savings totalled £300m in 2022/23.</b></p> <p><b>The Constraints Collaboration Project. This project is intended to enable the ESO and industry to work together to find solutions for thermal constraints, whether through new markets or using flexible assets more effectively.</b></p>	<p><b>Reform to the response and reserve markets is expected to increase liquidity and optimise service acquisition. Several new services are being introduced for reserve and reform.</b></p> <p><b>The ESO held the first auction for the Balancing Reserve (BR) service on 12 March. The BR service will see us move to day-ahead procurement of the energy reserves we need to respond to system demand in real time, rather than the current on-the-day system – reducing costs and improving system security. Savings are estimated to total £630m over 2024-2027.</b></p>	<p><b>Voltage Network Services Procurement looks for the most cost-effective ways to address high voltage system issues created by the need to absorb more reactive power on the transmission network. Mersey contracts started in April 2022 and cost savings totalled ~£13m in the first year.</b></p> <p><b>ESO is investigating proposed solutions to reform the reactive power services through the development of an Enduring Voltage Market. The project looks to enable more participants across technologies and connection types, through introduction of long-, mid- and short-term markets.</b></p>	<p><b>Stability Network Services Procurement looks for the most cost-effective way to address stability issues in the electricity system. Contracts signed under Phase 1 started delivering in April 2020 and has achieved £20m savings to date.</b></p> <p><b>The Stability Market Design project is considering current GB stability arrangements and investigating the best option for an end-to-end stability market design, including long-term, mid-term, and short-term stability procurement. Initial assessment indicates the recommended approach would reduce re-dispatching costs by up to ~£50m in 2030.</b></p>	<p><b>The Open Balancing Platform (OBP) went live in December 2023. Control room engineers can now send hundreds of instructions to smaller Balancing Mechanism Units and battery storage units at the press of a button, which is expected to provide £15m consumer benefit per annum.</b></p> <p><b>Integration of Distributed Energy Resource (DER) into ESO, DSO and TO decision making Roadmap is being co-created with industry, setting out 5 DER visibility programme phases, with full implementation targeted by 2030. Initial work has identified consumer benefits of up to £150m / year.</b></p>

### Outturn balancing costs and volumes

Figure 1. Outturn balancing costs and volumes 2018/19-2023/24



Overall Balancing Costs are significantly lower in 2023/24 (total spend £2.4 bn) compared to 2022/23 (total spend £4.1 bn). Absolute Balancing Volumes have also reduced in 2023/24 (10.8 TWh) and are much lower than the 2020/21 peak (21.4 TWh).

This decrease in costs can be attributed in part, to a substantial reduction in wholesale energy prices. The ESO has also directly contributed to this reduction through implementation of the initiatives outlined in our balancing costs strategy and elaborated upon in this report.

## Key messages

### Balancing costs are projected to rise out to 2030.

Although wholesale prices have been a major driver of balancing costs in recent years, constraint costs are also rising due to significant changes to the GB generation mix, with up to 80 GW connecting by 2030 in our most ambitious decarbonisation scenario. Constraints will be the main driver of future balancing costs. ESO initiatives are mitigating this increase.

### Decisions made now will shape balancing costs into the 2030s.

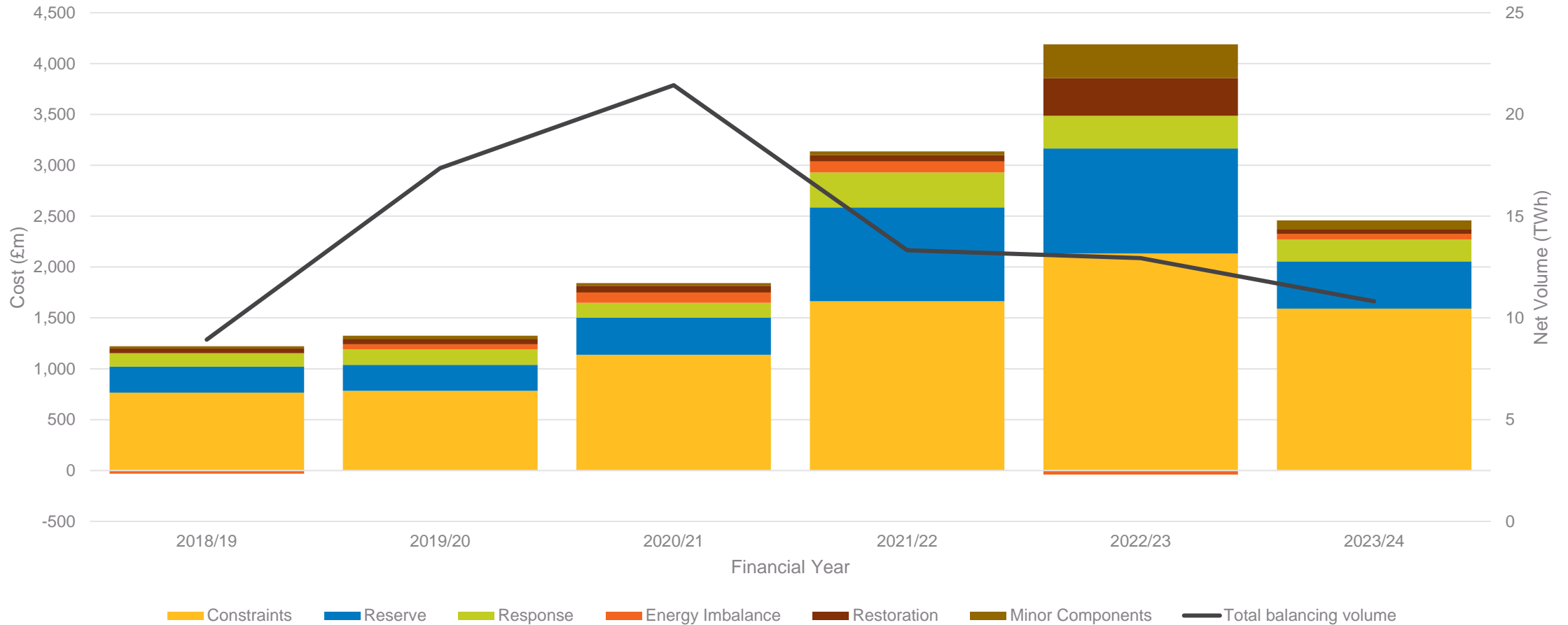
As we take on new roles in whole system planning, we can have a positive impact post-2030. Key decisions that will impact Balancing Costs include those considered in REMA, and those in Network Development, Connections, and new markets to aid balancing.

### ESO initiatives create savings worth ~£18bn before 2030.

Future balancing costs are not fixed and can still be influenced by proactive initiatives from us and industry to reduce costs. We have been undertaking a wide range of initiatives within our balancing costs strategy that are aimed at minimising balancing costs, including our Beyond 2030 report, ASTI, new markets such as Balancing Reserve, and many others.

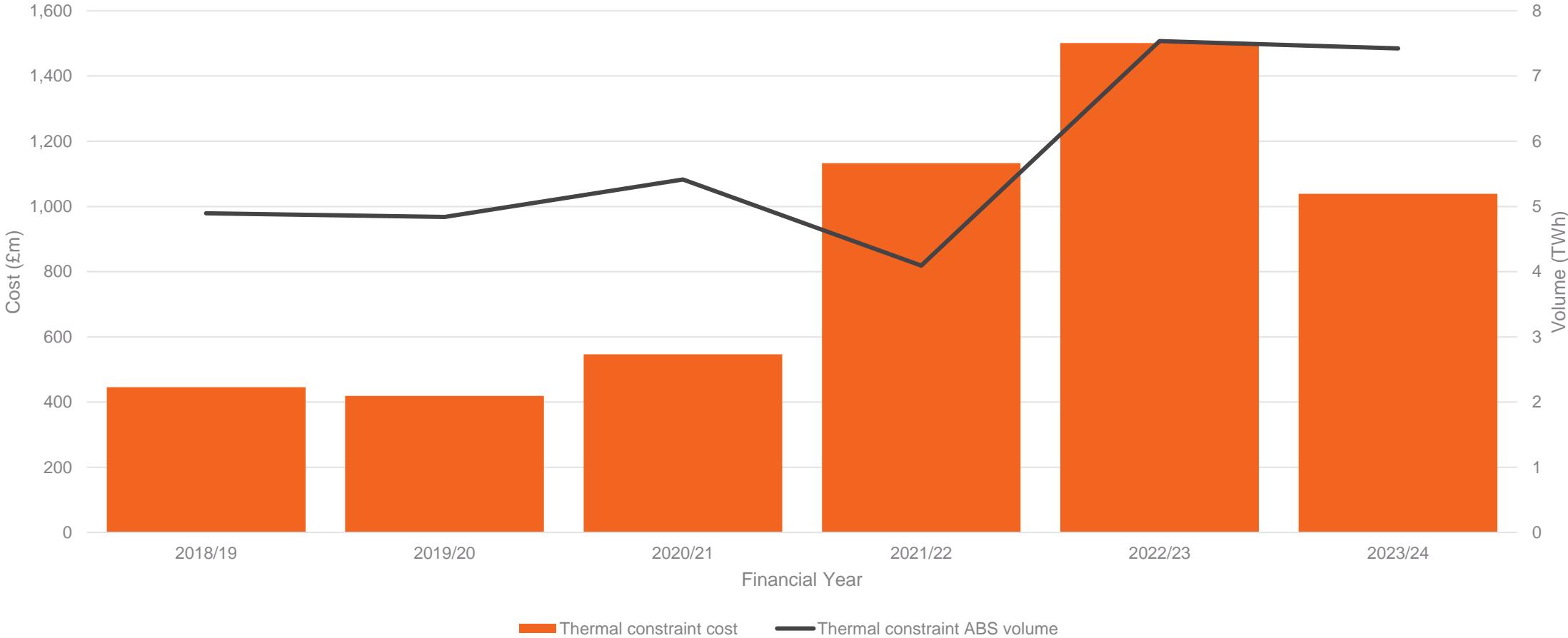
# Overview of balancing costs and volumes in recent year

Figure 1. Outturn balancing costs and volumes 2018/19-2023/24



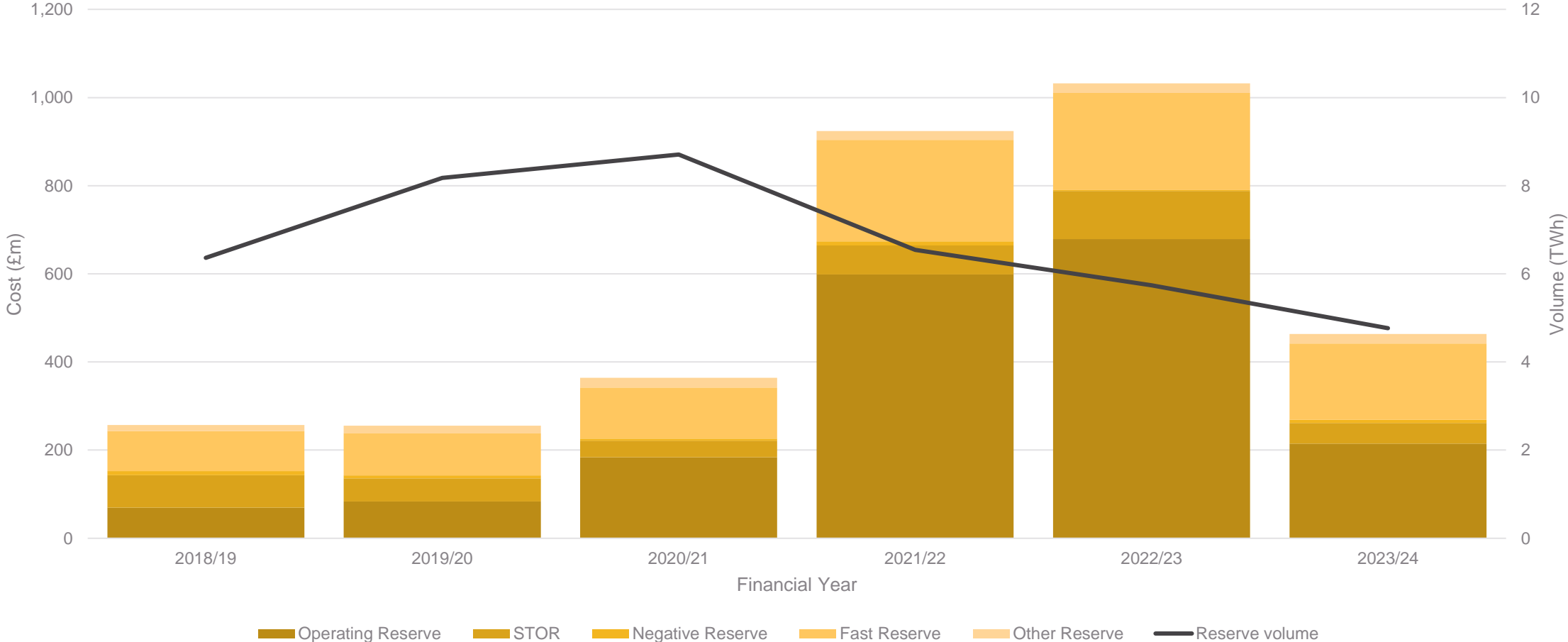
# Overview of thermal constraint costs and volumes

Figure 2. Outturn thermal constraint costs and volumes 2018/19-2023/24



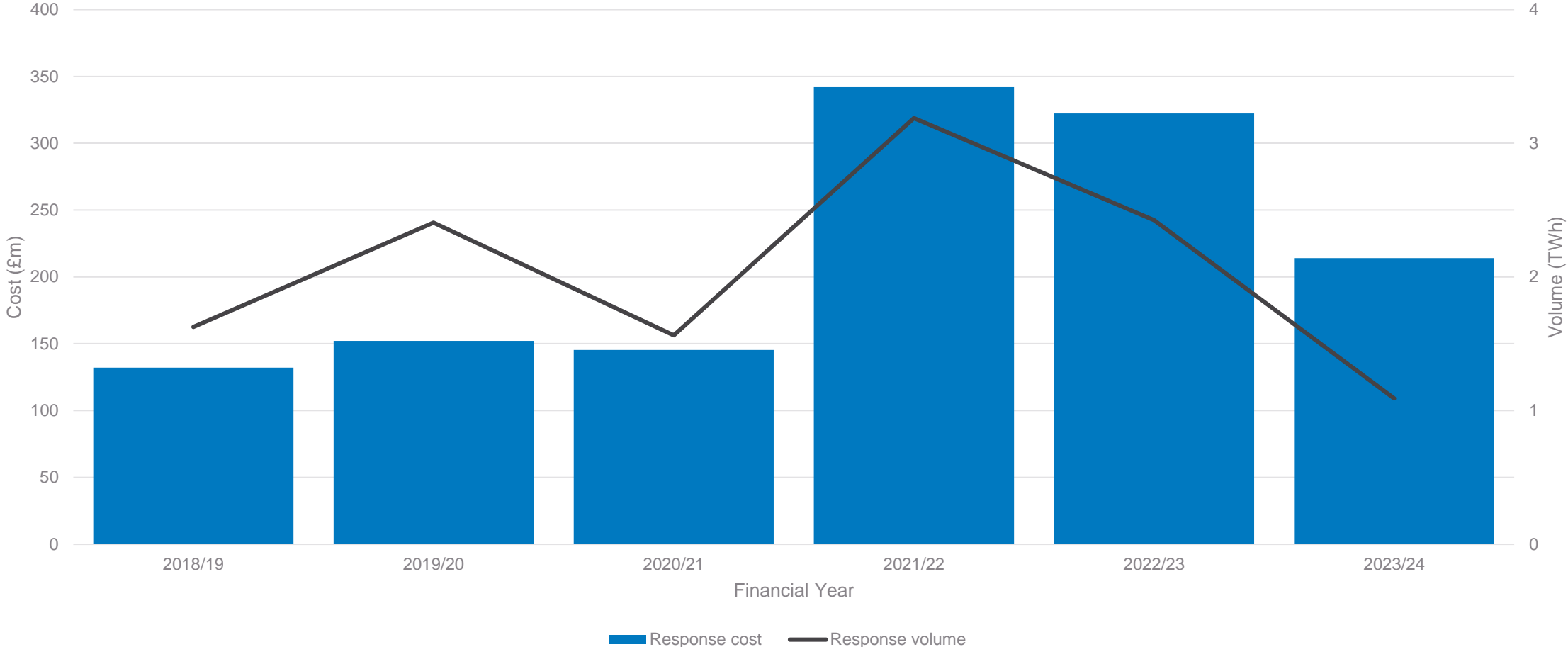
# Overview of reserve costs and volumes

Figure 3. Outturn reserve costs and volumes 2018/19-2023/24



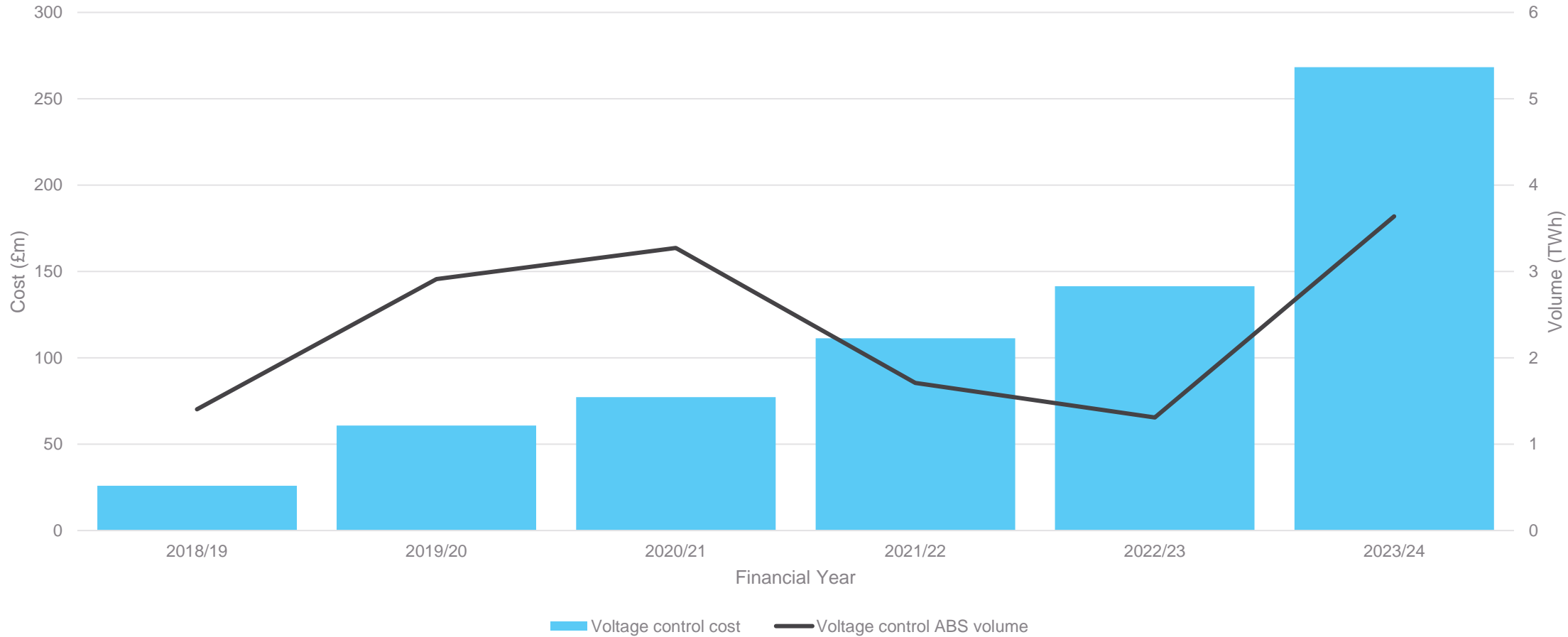
# Overview of response costs and volumes

Figure 4. Outturn response costs and volumes 2018/19-2023/24



# Overview of voltage costs and volumes

Figure 5. Outturn voltage costs and volumes 2018/19-2023/24





# Overview of inertia costs and volumes

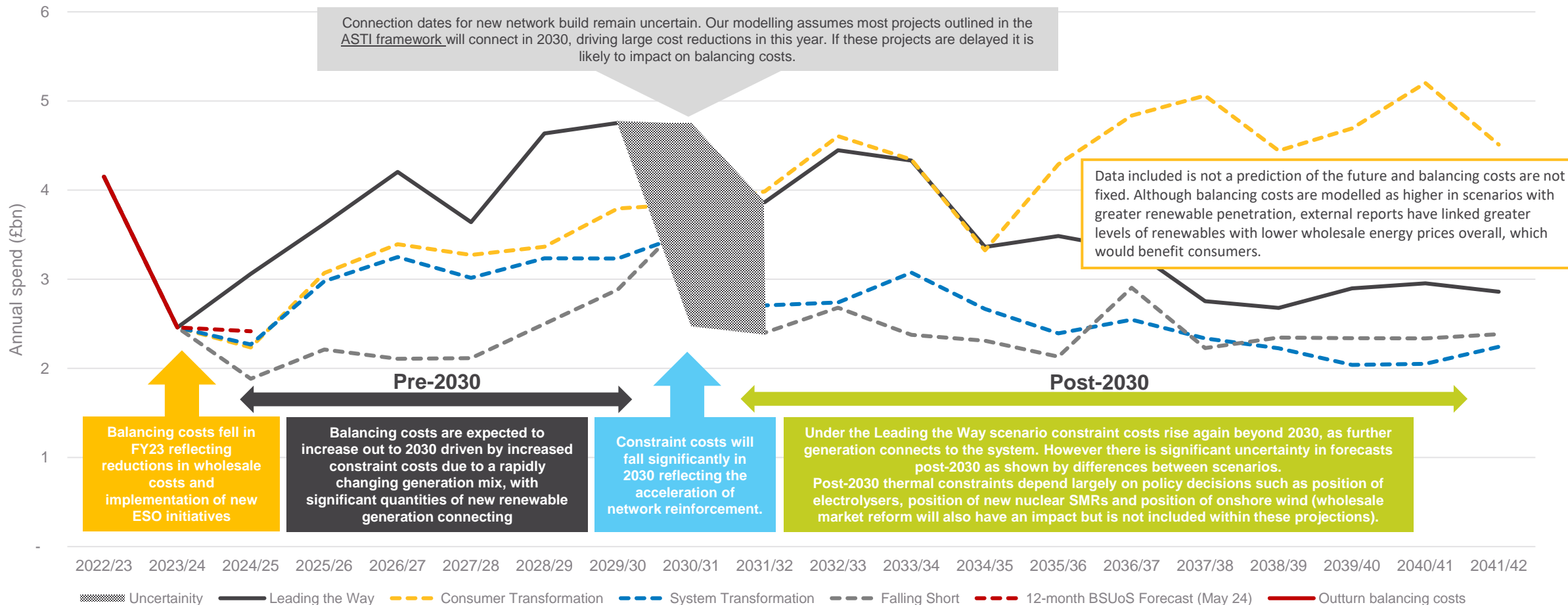
Figure 6. Outturn inertia costs and volumes 2018/19-2023/24



# Balancing costs are projected to rise out to 2030 and decisions made now will shape balancing costs into the 2030s

Balancing costs currently contribute to ~4% of electricity bills for an average domestic consumer, making them a minor component of electricity bills.

Figure 7. Projection of balancing costs extrapolated from Leading the Way residual thermal constraint projection



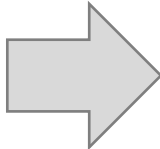
For more information on pathways see our latest [Future Energy Scenarios \(FES\) report](#)



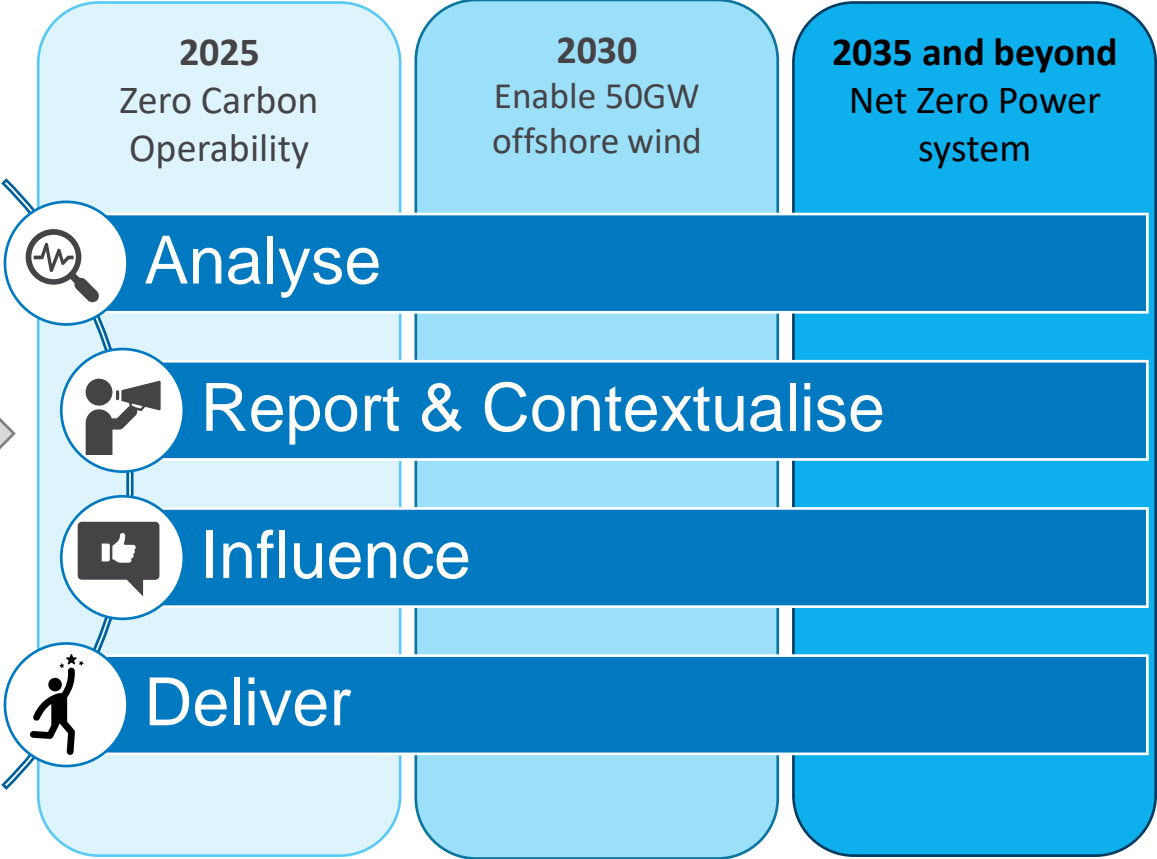
# ESO's Balancing Cost Strategy

## Levers to minimise balancing costs

<p><b>Network Planning &amp; Optimisation</b></p> <p>Designing the GB network and managing delivery of changes to optimise availability and reduce Constraints.</p>	<p><b>Commercial Mechanisms</b></p> <p>Designing and Procuring new services, with greater competition at an optimised price.</p>
<p><b>Research, Innovation, Engagement</b></p> <p>Experimenting with first in sector approaches and technologies, collaborating with Industry and Academia.</p>	<p><b>ESO Capabilities</b></p> <p>Using enhanced products and services provided to the Control Room, optimising security, supply and cost.</p>



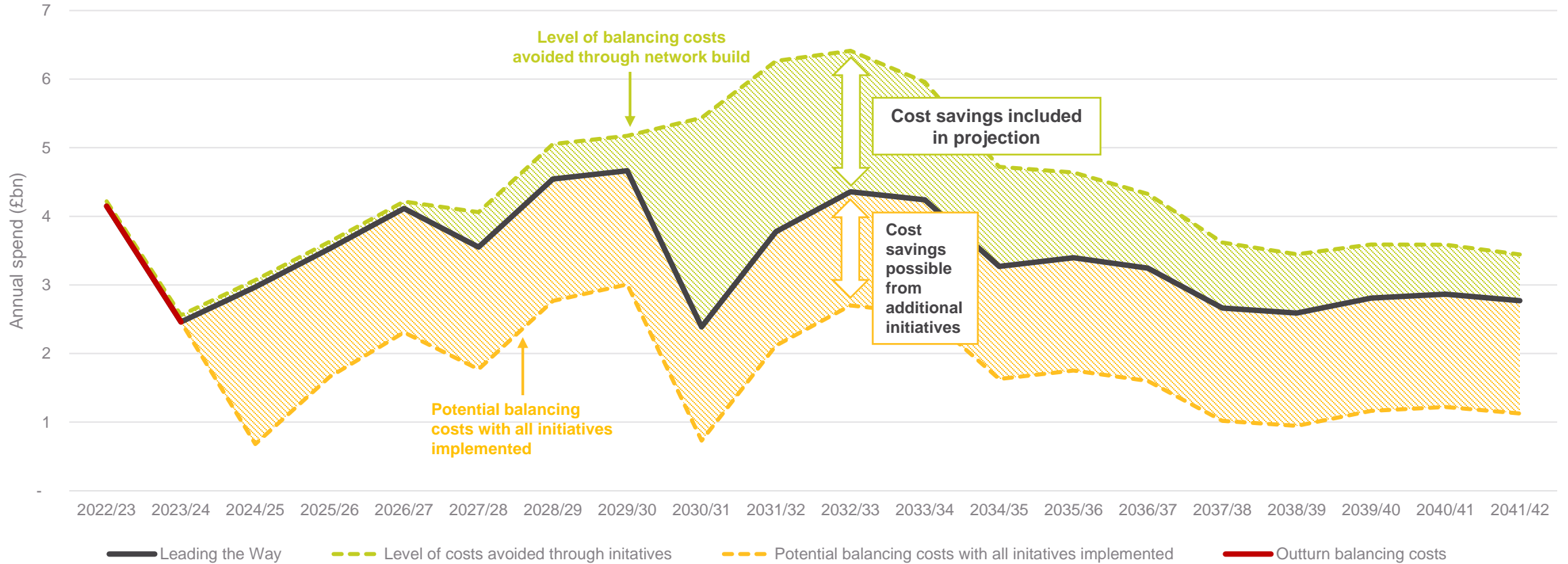
## How we use these levers



See our full Balancing Cost Strategy [here](#)

# ESO initiatives create savings worth ~£18bn before 2030

Figure 8. Balancing cost savings delivered through network reinforcement and initiatives



Some cost saving initiatives are already baked into the cost projection and are therefore already reflected in our baseline balancing cost assumptions. These avoided costs (green), largely account for network reinforcement projects outlined in initiatives such as the Holistic Network Design (HND) that aim to manage thermal constraints. Network delivery in 2030 is currently expected to deliver £13.1bn savings in constraint costs across asset lifetime, significantly lowering costs around this period.

The ESO is also undertaking a number of further initiatives that have the potential to reduce balancing costs below the projection. Additional potential savings (orange) consider a much broader range of options to lower costs associated with reserve, voltage, response, inertia, ESO operations, and market activities.



# ESO initiatives create savings worth ~£18bn before 2030

We continue to implement innovative solutions to build on our already delivered consumer savings of £5.6 bn in Business Plan 1 (2021-2023)

Thermal  
Constraints

Response and  
Reserve

Voltage  
Constraints

Stability  
Constraints

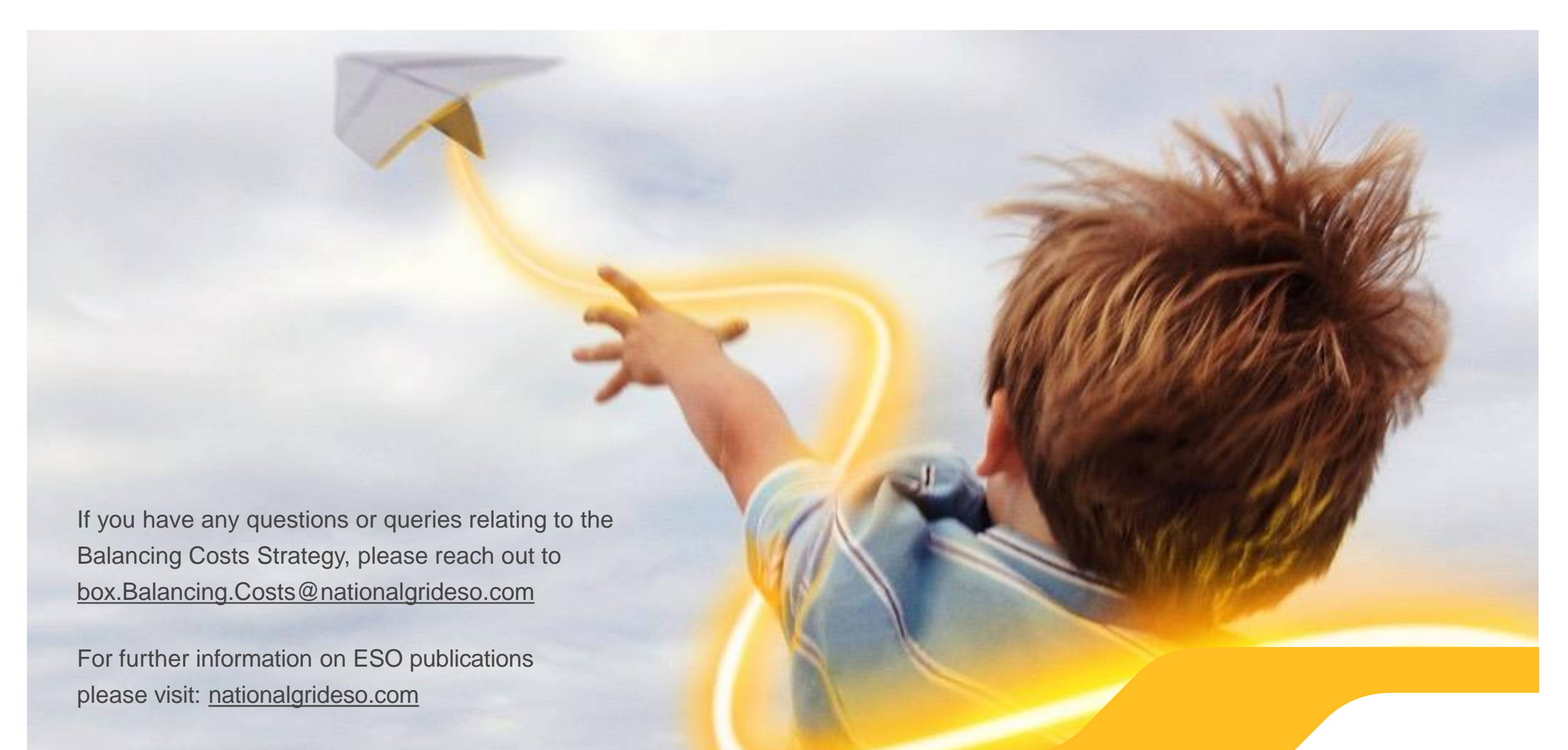
Improving  
System  
Operation



Balancing costs Portfolio

#BC\_2024

ESO



If you have any questions or queries relating to the Balancing Costs Strategy, please reach out to [box.Balancing.Costs@nationalgrideso.com](mailto:box.Balancing.Costs@nationalgrideso.com)

For further information on ESO publications please visit: [nationalgrideso.com](http://nationalgrideso.com)