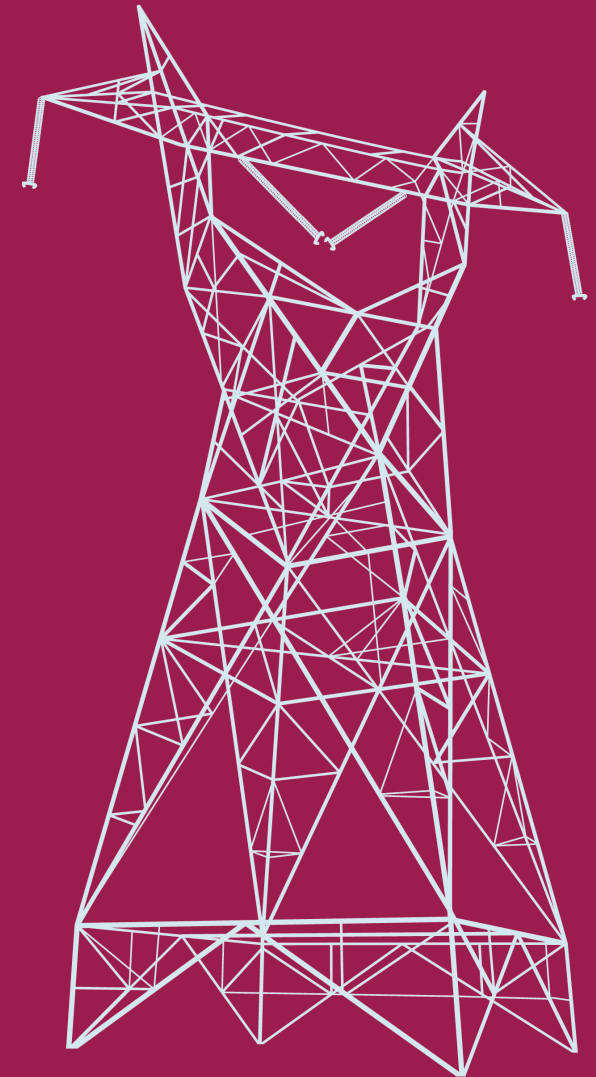


Meeting net zero

Options for network company highly anticipatory investments in a post-COVID-19 environment



**citizens
advice**

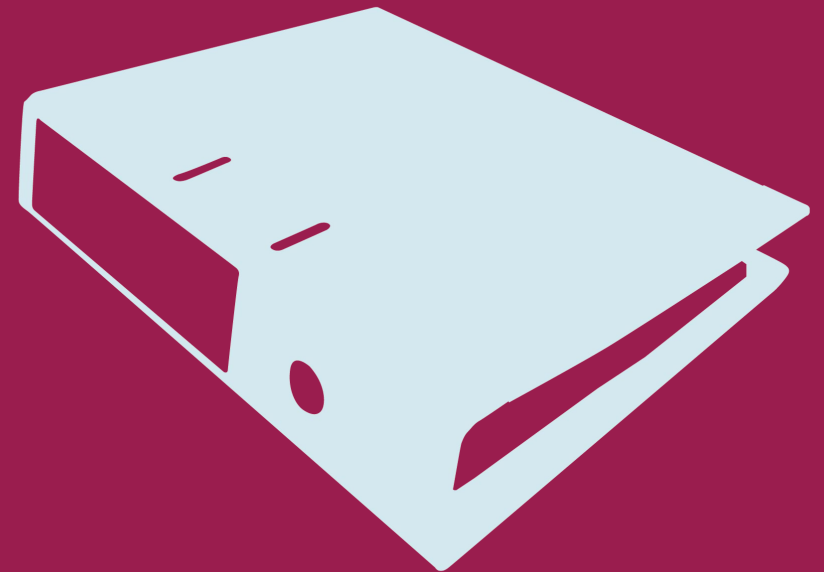
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Introduction

The government has committed to net zero by 2050.

The network companies that maintain and build our vital infrastructure may need to consider investing earlier to meet future demand, particularly in the electricity distribution and transmission sectors. These highly anticipatory investments create major challenges for network regulators that are aiming to balance the needs of current and future consumers, and to protect both current or future consumers from the risk of assets that are rarely used. An underused or 'stranded asset' could still be paid for by consumers for many decades. The COVID-19 situation creates further implications for anticipatory investments and may alter how the risks of paying for these assets should be allocated between different groups of consumers, or between companies and consumers.

Citizens Advice commissioned Europe Economics to produce 2 reports on risk allocation mechanisms for highly anticipatory infrastructure investments.

-  **The first report**, written before COVID-19, gives a comprehensive overview of 15 different mechanisms that could be used for investing in assets as an alternative to using the standard Regulatory Asset Value (RAV) price control model. The research considered mechanisms across water, energy and other industries.
-  **The second report**, considers the mechanisms in light of COVID-19.

 **This research should contribute to the debate on how to invest in our country's infrastructure to meet net zero goals in a post-COVID-19 environment. It is also directly relevant to the developing price controls in Great Britain, particularly for the electricity distribution sector (RIIO-ED2).**

Conclusions

The research concludes that likely economic changes as a result of the COVID-19 pandemic will have a number of impacts on highly anticipatory investments

- Reductions in the demand for energy may weaken the case for highly anticipatory investments
- Customer willingness to pay for improvements to the quality of service or the environment may be lower
- Affordability issues may be especially important given that many more households are struggling financially
- The case for applying real options analysis is especially strong in the current context with the value of the real option to wait now likely to be higher
- Cost and benefit analysis to value highly anticipatory investments will need to accommodate different COVID-19 scenarios and the ranges for estimated impacts are likely to be wider

When allocating risk between infrastructure companies and consumers, the COVID-19 situation may also mean that companies need to take on a higher percentage of the demand risk as many customers may be less able to bear the risk.

Companies will need to look closely at the distributional impacts on particular customer groups, including whether more risk could be borne by future consumers or by current consumers with higher incomes.

The research shows that some mechanisms would be particularly suitable to reflect the COVID-19 situation:

- Price control reopeners or interim reviews which reflect the potential advantages of waiting until more information is available (Mechanism 1 in the table below)
- Mechanisms that allow demand risk to be shared with companies such as error correction mechanisms or capex triggers based on demand exceeding a specified threshold (Mechanisms 3 and 5)
- Caps on returns from highly anticipatory investments to avoid companies earning excessive returns during a time when many bill-payers are struggling (Mechanism 6)
- Economic depreciation, where depreciation revenue from customers is profiled over time in line with usage, with the effect of allocating more risk to future customers rather than current customers (Mechanism 9)

Mechanisms for allocating risk for highly anticipatory investments

Summary table

1 Price control reopener or Interim review

Mechanism to defer decision until information is better

Description

Regulator permits new or revised funding during the price control period.

Reopeners can be for specified types of investment or to reopen the whole price control.

Timing and parameters for the reopeners are usually set in advance.

When relevant

Used when there may be material changes in circumstances or to defer a decision until better information has emerged.

Advantages

Consumers don't pay for stranded or underutilised assets.

Company is required to produce good evidence to receive funding.

Disadvantages

Increased risk of not having assets available when consumers need them.

Process to apply and approve funding can be time intensive for the regulator and company, and therefore, costly for consumers.

Who takes the risk?

Company is protected from funding risk as the company is assured payment from consumers.

Effect on cost of capital

Effect on company's cost of capital - likely minimal.

Consumer suitability



High

This mechanism is included regularly within GB price control mechanisms and will allow time for better information. Mechanism is **particularly relevant** to manage the increased uncertainties caused by the **COVID-19** situation.

Examples or potential examples of use

Ofgem RIIO-ED1 Electricity Distribution price control used reopeners for new high value projects during the price control period.

2 Ex-post prudency test

Regulatory mechanism based on ex post information

Description

Regulator decides whether assets should be included in the RAV after the investment has already been made by the company.

The regulatory decision can be made on the basis of whether 1) the assets are 'used and useful' when the regulatory decision is made, or 2) the investment appeared appropriate at the time of the investment decision, even if it was not a good investment in hindsight.

When relevant

Used for highly anticipatory investments where it may not be clear for some time whether the investment decision was appropriate as future demand is unclear.

Advantages

Consumers less likely to pay for stranded or underutilised assets.

Company must do sound due diligence and forecasting before investing as they may not recover the funding later.

Disadvantages

Increased risk of not having assets available when consumers need them.

Investment in assets or the companies may be deterred due to increased company risk.

Upside potential to the company is capped at the allowed rate of return even though the company is taking higher risk which may deter investing in such assets.

Regulatory **process can be complex and costly** for regulator and company.

Who takes the risk?

Company has the risk of not being reimbursed for their investments.

Effect on cost of capital

May require an increase to compensate for the increased risk to the company.

Consumer suitability



Low

Companies risk not being reimbursed for their investment and would be unlikely to make the investment.

Examples or potential examples of use

Australian Energy Regulator applies ex post measures to improve the efficiency of capital expenditure in the energy sector in Australia.

3 Capex trigger

Regulatory mechanism based on ex post information

Description

Regulator permits charges for the assets to be made when the investment hits certain triggers, usually either:

- **project milestones** such as when assets are commissioned for use, or
- **demand triggers** when demand for the asset hits a certain threshold.

Revenues can be increased if the trigger is met, or decreased if the trigger is not met. These 2 trigger options have different respective risk profiles for the company and consumers.

When relevant

Used where **project milestones or demand threshold triggers can be set in advance of a project.**

Advantages

Project milestone triggers will incentivise a company to make highly anticipatory investments as the company does not face any demand risk. Incentivised investment may, therefore, help to meet policy goals and meet consumer needs.

Demand triggers will incentivise a company to undertake due diligence to ensure prudent investment or they may not get reimbursed for the investment.

Disadvantages

Project milestone triggers may not encourage prudent investment as company is protected from demand risk.

Demand triggers may dis-incentivise companies from investing as they face demand risk.

Who takes the risk?

Using **project milestone** triggers, the company is protected from funding risk.

Using **demand triggers**, the company is at risk of not being reimbursed.

Effect on cost of capital

Project milestone triggers - minimal effect.

Demand triggers - may increase cost of capital to compensate for increased risk.

Consumer suitability



High, if demand triggers exceeding a certain threshold are used, as the mechanism may better accommodate the **COVID-19** situation. There may be a risk of lower investment incentives for companies.



Low, if project milestones are used as there is a higher likelihood of investment but may give rise to underutilised assets.

Examples or potential examples of use

The Civil Aviation Authority used triggers which would reduce the maximum allowable charges if Heathrow Airport did not achieve particular capital investment projects on time.

4 Ex-post removal of stranded assets from RAV

Regulatory mechanism based on ex post information

Description

Regulator removes assets from the RAV if they become stranded or underutilised.

When relevant

Used where there is a need to strongly discourage companies from investing in assets that could become stranded.

Advantages

Customers don't pay for stranded or underutilised assets.

Strong incentives on companies to do due diligence and prudent investments.

Disadvantages

Discourages investment in highly anticipatory investments so that wider policy goals may not be achieved.

Who takes the risk?

Company has the risk of not being reimbursed for their investments.

Effect on cost of capital

May require an increase to compensate for the increased risk. Potentially may create financeability issues for the company.

Consumer suitability



Low

Companies risk not being reimbursed for their investment and would be unlikely to make the investment.

Examples or potential examples of use

No example provided

5 Error correction mechanism

Regulatory mechanism based on ex post information

Description

Regulator sets an automatic revenue adjustment mechanism tied to external uncertain variables, such as the volume of demand, recognising that some outcomes or events are beyond the company's control.

Revenues can be adjusted up or down by pre-specified amounts if the out-turn differs from what was assumed.

ECM uses the best estimate of the relevant driver (e.g. volume of demand for the assets) as the baseline and corrects from deviations from it. Corrections can be linear or using 'steps'.

When relevant

Used when sharing the demand risk between the company and customers, and where there is a measurable external demand variable.

Advantages

Removes some or all of the demand risk from customers.

As it is an automatic adjustment, this removes regulatory discretion.

Disadvantages

Requires a correct estimation of future demand to set the baseline for adjustment calculations to be made.

The external variable may be not truly independent of the company and open to company manipulation.

Can be costly and difficult to set the appropriate baseline and set adjustments.

Who takes the risk?

Company has the risk of some or all of the investment not being reimbursed. Risk is shared with the **customer** with the amount dependent upon the exact adjustment mechanism design.

Effect on cost of capital

May require an increase to compensate for the increased risk.

Consumer suitability



High suitability to protect consumers in light of the **COVID-19** situation although suitability depends on the exact allocation of risk between company and customers. There is a risk that the investment will not be made as companies may not be reimbursed for some or all of their investment.

Examples or potential examples of use

Ofgem RIIO-ED1 Electricity Distribution price control used a volume driver mechanism for smart meter installation. The unit cost of installation was well known but not the number of installations. An allowance was given for a 2% call out rate with a volume driver used for installations above that rate. There was a taper mechanism so that as installation volume increased, the revenue decreased to allow for economies of scale

6 Caps and floors on return on investment

Regulatory mechanism based on ex post information using pre-set return adjustment

Description

Regulator sets a cap and/or a floor on returns. A cap stops the company earning above a pre-defined level. A floor provides the company with a minimum return at a pre-defined level.

The cap and floor can be symmetric or asymmetric to adjust the returns to the company and allocate risks between the company and customers.

Caps and floors can be used in combination with other regulatory mechanisms, e.g. in combination with an error correction mechanism.

A floor is used alone to protect the company from downside risk but permits the company all the potential upside gain.

A cap is used alone to protect customers from paying high returns to a company.

A cap and floor can be set together to both limit the upside return and downside risk to a company.

When relevant

Used often where there is a discrete and measurable asset investment (e.g. new demand connections).

Floors are appropriate to incentivise companies to undertake wider policy goals as they have some downside protection and can benefit from all the upside gains.

Advantages

Limits the risk to the company and protects customers from unexpectedly high company returns.

Caps can be used to reward customers for higher than expected returns.

Can be used asymmetrically to adjust risk profiles and returns between the company and customers.

Disadvantages

When a cap is reached, a company may be dis-incentivised to encourage further asset usage although this risk does not apply if the demand is outside the company's control.

A **cap with no floor** exposes the company to downside risk, which may dis-incentive investment.

Poor setting of the cap and/or floor may dis-incentivise the company to invest or cause the company to not undertake appropriate due diligence.

Who takes the risk?

Risk profile between company and customers depends on the design of the cap/floor mechanism.

Effect on cost of capital

A cap with no floor may increase risk to the company and may need increased cost of capital.

A floor may reduce the cost of capital for the company.

Consumer suitability



High, although suitability depends on the exact design of the cap and floor as to where the allocation of risk between the company and customers lies but this mechanism may be particularly suitable to reflect the **COVID-19** situation. There is a risk that the investment will not be made as companies may not be reimbursed for some of their investment but a floor mechanism can provide downside protection to a company that may help to incentivise investment.

Examples or potential examples of use

Ofgem used a cap and floor regime for the GB-Belgium interconnector. The regime provided downside protection to the interconnector developers and protected customers from unlimited gains by the developers.

7 Funding through outcome delivery incentives (also known as output delivery incentives)

Regulatory mechanism based on ex post information

Description

Aims to align the outcomes delivered by companies to those that matter to customers.

Comprises 2 elements:

- 1) **Performance commitments (PCs)** - services companies deliver to customers, and
- 2) **Outcome Delivery Incentives (ODIs)** - financial or reputational consequences attached to the performance commitments often set to reflect out- or under-performance of the PCs. PCs can be common to all companies in that sector, or bespoke to a specific company.

ODIs can be used in 3 ways:

- 1) **Delivery of additional capacity** - as long as the infrastructure is built, the firm will earn ODI payments, so the ODI can (with appropriate parameters) act as a straightforward cost-recovery scheme. Company has no demand risk.
- 2) **Accommodation of additional demand/generation** on the network. The ODI becomes similar to a revenue driver where the company is exposed to demand risk.
- 3) **Wider outcomes** - e.g. level of interruptions. A company may need to carry out the highly anticipatory investment to be able **to maintain PCs** if the additional demand does materialise. The company would have to consider wider PCs and ODIs when assessing the investment decision.

The ODI can be designed to recover 100% of the investment costs subject to demand materialising under options 1) and 2) or it can be designed with some as a base allowance and some investment cost recovery via the ODI.

When relevant

Used particularly when the **wider outcome** (e.g. level of interruptions) **is to be maintained or improved.**

Advantages

- 1) **Additional capacity delivery ODI** incentivises company to make the investment as there is no demand risk and therefore would meet wider policy goals.
- 2) **Accommodation of additional demand/generation ODI** has the same advantages as the ECM (see mechanism 5 above), e.g. pre-defined automatic adjustments reduce regulatory discretion.
- 3) **Wider outcomes ODI:** company faces some demand risk and therefore is incentivised to undertake prudent investment and due diligence.

Disadvantages

- 1) **Additional capacity delivery ODI** may dis-incentivise the company to undertake prudent investment as the company carries no demand risk.
 - 2) **Accommodation of additional demand/generation ODI:** similar to the disadvantages of the ECM (see mechanism 5 above), e.g. requires good calibration of baseline and incentives to work appropriately.
 - 3) **Wider outcomes ODI** may dis-incentivise the company to undertake the investment due to carrying some demand risk.
- All ODIs** - Can be complex and costly for the company and the regulator to design and monitor ODIs.

Who takes the risk? /Effect on cost of capital

- 1) **Additional capacity delivery** - the company has no demand risk and therefore no effect on cost of capital.
- 2) **Accommodation of additional demand/generation** - similar risk profile to ECM (see mechanism 5) - the company carries some demand risk and this may increase the cost of capital.
- 3) **Wider outcomes** - the company may carry some demand risk as it depends on the design of the incentive and therefore there may be some effect to increase cost of capital.

Consumer suitability



High

Included regularly within GB price control mechanisms as the incentives align company outputs with the needs and priorities of consumers. Reduced consumer willingness to pay for investments may mean that recalibration is needed for output delivery incentives.

Examples or potential examples of use

Ofwat in its PR19 price control reviewed and allowed over 670 PCs across the 17 water and wastewater companies operating in England and Wales. Some of the PCs/ODIs were cost-recovery mechanisms. They were permitted if 1) there was clear customer benefit and support for the scheme, 2) if the scheme was not supported by another mechanism, and 3) the financial consequences were for outperformance to incentivise innovation by companies.

8 Ring-fenced funding from customers who use the new infrastructure

Mechanism affecting risk allocation between consumer groups

Description

Costs are recovered only from those using the new infrastructure. This protects the general customer base from being charged for assets used only by a specific customer group. Shifts the demand risk to the company as there may be a shortfall if the costs cannot be met (in full) by the specific customer group. There could be a deterrent effect on new customers if charges increase to cover shortfalls in customer demand.

Useful to allocate risks to certain customer groups. Therefore there is no effect on the general risk allocation between the company and the general customer base.

When relevant

Used when there is a standalone or discrete project with a clear customer base. Therefore not useful where the investment is in common assets used by the general customer base.

Advantages

Allows the company to charge different customer groups for new assets according to usage.

Customers only pay according to their usage.

Disadvantages

It may be difficult to ring-fence certain assets to only certain customer groups.

Future users of the infrastructure may avoid paying for the investment.

There may be increased complexity in designing special charging arrangements.

Unit charges may go higher than expected due to lower than expected usage creating further downward pressure on demand.

The company could lose money on the investment if not enough users materialise and therefore there would be a dis-incentive to undertake the investment.

Who takes the risk?

The general risk allocation between the company and the general customer base is not affected. But if there is less demand than expected, the company bears the risk of not being reimbursed.

Effect on cost of capital

The company may carry some demand risk and the cost of capital may increase to compensate.

Consumer suitability



Medium

The general consumer base is protected from paying for unused assets which is a positive, however, if demand is lower than expected, companies may not recover funding which may dis-incentivise anticipatory investment.

Examples or potential examples of use

Ofwat has laid down infrastructure charges for new water or wastewater connections. These charges are additional to the costs of any physical connection work and allows companies to recover the costs of new infrastructure laid by them.

9 Economic depreciation

Mechanism affecting risk allocation between consumer groups

Description

Depreciation is the second part of the return element, the other being the return on past and present investments. Depreciation can be calculated in a number of ways and in this mechanism uses an economic depreciation methodology. This method aims to mimic the operation of a competitive market by seeking to identify the optimal profile of cost recovery over time.

It takes into account the change in the asset's earning power over time reflecting the asset's utilisation, i.e. the discounted present value of expected revenues from the output of the asset less the present value of associated future operating costs.

The effect is to stop the company from increasing the prices it charges even if the asset becomes stranded and is underutilised. In accounting depreciation, the company could increase its charges to cover the lower utilisation. Therefore, the demand risk is passed to the company.

When relevant

Used where the usage of an asset is likely to vary substantially over time.

Advantages

Economic depreciation would allow for a lower charge of depreciation in early years when expected usage is lower, and more to be charged in later years as demand increases. This stops current customers being charged where later users will benefit from the assets. The current customer versus future customer issue is therefore mitigated.

The company is incentivised to undertake appropriate due diligence on the asset investment as the company carries some or all of the demand risk.

Disadvantages

Requires complex models that may not be readily transparent.

Requires the recalculation of cost of capital which further adds complexity and costs of the mechanism.

Who takes the risk?

The demand risk lies with the company.

Effect on cost of capital

The company may carry some demand risk and the cost of capital may increase to compensate.

Consumer suitability



High, in light of the **COVID-19** situation. The cost could be allocated more to future consumers (in line with expected usage) rather than current consumers.

Although companies risk not being reimbursed with may dis-incentivise anticipatory investment.

Examples or potential examples of use

Ofcom used an economic depreciation mechanism within its mobile termination charges on 2G networks.

This mechanism allowed for cost recovery in the early years of the asset's life to be deferred to later years, when usage would be higher.

10 Negotiation between infrastructure provider and customers

Market-based mechanism

Description

The regulator allows users to directly participate in the regulatory process by negotiating with the company. In the UK, this is generally known as 'constructive engagement'. In the US and Canada, this is known as '**negotiated settlement**'.

The regulator sets the parameters that are to be negotiated upon and whether the negotiation is to be binding or not. The parameters could include timing of construction, volumes, capacity sizes, level of capital expenditure, and the risk allocation carried between the company and its customers.

This mechanism can be used, for instance, between a company and its large industrial customers.

When relevant

Used where there is a limited number of infrastructure users, and where there is an organisation that can represent future infrastructure users.

Not usually relevant where the assets are to be used to deliver statutory requirements.

Advantages

The risk allocation between the company and customers can be designed specifically for this particular investment or scenario.

More flexibility to resolve issues relating to highly anticipatory investments.

Parties can negotiate and agree on issues of particular significance to them including agreeing the level of demand risk borne by each.

Disadvantages

May be insufficient numbers of large customers willing to commit in advance of the investment for a negotiated contract to be put in place.

Large industrial customers may opt not to participate in the hope that the investment is funded via the traditional regulatory process without having to underwrite in this way.

Other parties who may be future users may be disadvantaged if they are not included in the negotiations. Some parties could cut out future users from using the asset.

May not incorporate wider public interest issues or address government concerns.

May appear to be a less transparent process (behind closed doors).

Failure to agree a settlement may mean default back to a regulatory process thereby representing a waste of time and resource.

The regulator may not accept the negotiated settlement as binding.

Direct negotiation may dis-incentivise firms from undertaking highly anticipatory investments as incumbent users could use the negotiation to keep out potential new/future users (constrain capacity) and reward the infrastructure provider by reducing their demand risk.

The process is time and resource intensive.

Who takes the risk?

Depends on the negotiated settlement outcome.

Effect on cost of capital

Depends on the negotiated settlement risk allocation.

If a large supplier or suppliers fail, demand risk may fall back on the company.

Consumer suitability



Medium

Consumer risk depends on the risk allocation between customers and the company. Future consumers may be disadvantaged if their views are not represented. There may be increased risk to companies from the **COVID-19** situation as large customers may be at higher risk of bankruptcy.

Examples or potential examples of use

US Federal Energy Regulatory Commission (FERC) facilitates negotiation between parties for interstate pipelines, including ratepayers and pipeline companies. If no decision is reached, the FERC can arrange a hearing in front of an Administrative Judge.

11 Market-based investment incentive

Market-based mechanism

Description

The regulator links investment incentives to the market demand for the additional capacity generated. The mechanism can be used in addition to a Regulated Asset Value (RAV) allowance scheme. Baseline outputs are capped within the wider price control but market-based incentives will allow the company to earn more from the extra capacity.

When relevant

Where there exists a market for selling additional capacity generated via the new investment, or where a market can be set up.

If the market for the additional capacity does not already exist, then setting one up will depend on feasibility.

Advantages

It is a pro-competitive regulatory tool which moves highly anticipatory investments closer to that which would occur in a competitive market.

It should incentivise efficient investment if properly designed and, in theory, remove the risk of stranded assets since at the margin, firms' decisions whether or not to invest will be driven by market signals rather than RAV-based regulation.

Lower costs for company and regulator compared to a regulatory capex scrutiny system.

Disadvantages

Market demand for these long-life assets is hard to predict and likely to only be revealed in the future. It may be difficult to judge what should be in the baseline and what is additional to respond to market signals which may distort the investment incentives.

It can only be used if there is a market for the additional capacity or one can be set up. It may be expensive to set up or design the relevant market and the market-based investment incentive.

Who takes the risk?

Consumers don't carry downside demand risk. Companies carry the risk of not having some of the investment reimbursed.

Effect on cost of capital

The company may carry some demand risk and the cost of capital may increase to compensate.

Consumer suitability



Medium

Consumers are partly protected from downside demand risk and companies should be incentivised to provide the investment.

Examples or potential examples of use

Ofgem established a Capacity outputs incentive scheme for the 2002-2007 price control for Transco (gas transmission) using auctions of capacity. The allowed revenue was set using agreed defined capacity levels at entry and exit onto the National Transmission System (NTS). Then Transco auctioned these agreed levels of capacity in 5 yearly, annual, monthly and daily auctions.

Transco keeps any additional revenue from investing to deliver capacity over and above those levels for the duration of the price control.

12 Capital grants from government

Mechanism involving subsidy

Description

Typically a company submits a plan detailing likely demand which is approved by the funder as a one-off grant. There is no need to raise funds from investors or via bills. Ultimately the investment is paid for via general taxation.

When relevant

This mechanism strongly encourages companies to invest in infrastructure where stranding or under-utilisation is a possibility. It therefore is suitable where highly anticipatory investments relate to government policy goals.

Useful where the company invests in solely new infrastructure but does not have a sufficiently large customer base to recover the cost of the investment.

Advantages

Powerful mechanism to encourage investment in highly anticipatory energy infrastructure as it removes downside risk faced by the company

Supports and incentivises government policy goals.

Customers benefit from the infrastructure sooner than waiting for the demand to emerge.

Disadvantages

Reduces incentive for the company to do due diligence on investments.

Citizens could end up paying for stranded or under-utilised assets via tax bills.

Costs fall on all citizens generally rather than those in the area of usage.

High costs in setting up a new evaluation process.

Who takes the risk?

Consumers bear the risks via taxes.

Effect on cost of capital

Effect on company's cost of capital is likely minimal.

Consumer suitability



Medium

Consumer bears all the demand risk and there are potentially high costs to establish the grant allocation mechanism which would make this low suitability. However, use of capital grants may allow for more progressive payment via taxation which may be more suitable for financially strained consumers as a result of the COVID-19 situation.

Examples or potential examples of use

No example provided.

13 Demand assurance

Mechanism involving subsidy

Description

The government 'tops-up' the company where the demand is less than expected. There are different options for the top-up. Either sufficient subsidy to cover the cost of capital or a subsidy that tops up to a predetermined level that can be lower than the cost of capital. The second type of subsidy exposes the company to some demand risk.

The subsidy is provided either directly from the government (i.e. recovered via citizens via general taxation) or via a levy on monopoly energy networks passed to bill payers.

When relevant

Used where there is a need to encourage highly anticipatory investment that relates to wider government objectives.

Used also where the investment requires sufficient economies of scale and, without demand assurance, the company may be unwilling to invest.

Also useful for decarbonisation policies where the potential customer base is low or the market newly developed. RAV-based mechanisms may not allow sufficient recovery if the customer base is too low.

Advantages

Powerful mechanism to encourage highly anticipatory investments as downside demand risk removed from companies.

Supports wider policy goals.

The advantage over capital grants is that funds only have to be provided if the demand does not materialise thus reducing the burden of subsidies on citizens or bill payers.

Consumers get the benefit of the use of assets sooner.

Disadvantages

This mechanism could encourage companies to undertake investments that do not ultimately benefit customers as the funding is covered by citizens via general taxation or a bill levy. This risk could be mitigated if the 'top-up' is lower than the cost of capital.

Demand assurance would also reduce incentives for the company to win and retain customers as if there is insufficient demand, they are protected (fully or partially - depending on the subsidy structure).

Costs of administering the scheme for both regulator and company could be significant.

Either citizens via taxation or bill payers could end up paying for assets that are stranded or under-used.

If demand falls short of anticipated levels multiple times, then there may be bill fluctuations.

Who takes the risk?

Consumers bear the risks if the 'top-up' covers the cost of capital. If 'top-up' is lower than the cost of capital, then the company bears some of the demand risk.

Effect on cost of capital

Effect on company's cost of capital is likely minimal if the top-up covers the cost of capital, but could increase the cost of capital if the 'top-up' is set below the cost of capital.

Consumer suitability



Low

Depends on the design specifics. Consumers may bear all the demand risk, or the company may bear some of the demand risk. This mechanism may be less suitable for use as a result of the lower demand due to the **COVID-19** situation as companies may be encouraged to build under-utilised infrastructure.

Examples or potential examples of use

The Heat Networks Task Force has proposed this mechanism for investment in heat networks. If demand falls below the expected heat network level, then the government would 'top-up' at least to the cost of capital providing a safety net for investors.

14 Management incentives

Other risk allocation mechanism

Description

Generally companies set their own management incentive schemes, but in some cases regulators can do so when there are no private sector shareholders. The drive is to incentivise companies to make prudent investment decisions via management remuneration incentives.

When relevant

Usually where there are no private shareholders and there are limited management incentives from debt markets to encourage appropriate investment decisions.

Advantages

It could incentivise management to make prudent and efficient investments.

Stranded assets would penalise managers through lower or no performance-based bonuses

May get better managers/better credit ratings.

Incentive can be tailored to the needs of each highly anticipatory investment in part or in full.

Disadvantages

The mechanism could be seen as too interventionist.

There would be a long time period between decisions and the outcomes and managers could have left long before outcomes.

Substantial demand risk is outside management control and managers could get windfall gains or losses.

Who takes the risk?

Only a very small part of the demand risk moves to company management. Consumers continue to bear the vast majority of the risk.

Effect on cost of capital

Effect on company's cost of capital is likely minimal.

Consumer suitability



Low

Consumer bears almost all the demand risk which is likely outside of management control. The incentive mechanism is unlikely to have the desired effect due to lack of close tie between outcome and management payout.

Examples or potential examples of use

Network Rail, a public body with no private shareholders, used a Management Incentive Plan in 2018-19. Part of the remuneration scheme was linked to milestones for certain projects.

15 Availability-based payments

Other risk allocation mechanism

Description

The regulator/government pays for generation capacity (availability) whether or not it is actually used. The mechanism is used to ensure electricity demand is always met.

Can be fixed payments or auctions where the regulator buys capacity.

For highly anticipatory investments for increased generation capacity, the company would receive a fixed, predetermined payment for the capacity being available to generate, whether used or not.

When relevant

Used to ensure companies make generation capacity available through a highly anticipatory investment.

Used when the impact on customers from service disruptions or shortages could be significant and/or where there could be large costs for customers from purchasing in the wholesale market when capacity is scarce.

Advantages

Reduces downside risk for companies of stranded assets.

Supports wider goals, e.g. security of supply and investment in low carbon technology like nuclear or renewables generation.

Use of auctions brings an element of competition.

Disadvantages

Reduces incentives for companies to do due diligence when proposing investment in highly anticipatory investments.

Citizens could pay, via taxes, (or bills), for stranded or under-utilised assets.

Who takes the risk?

Company bears some demand risk as the level of outturn demand would affect the stream of revenue received for generating electricity.

Consumers bear the risk of stranded assets either via general taxation or via bills (if via suppliers under wholesale electricity market rules).

Effect on cost of capital

Reduces the overall exposure to demand risk for a company and reduces cost of capital.

Consumer suitability



Medium

Consumers bear the risk of stranded assets but may avoid some future costs if there is scarce capacity. The need for additional generation capacity is likely to have fallen due to the **COVID-19** situation which may make this mechanism less suitable.

Examples or potential examples of use

Integrated Single Electricity Market (I-SEM), a single wholesale electricity market operating across the whole island of Ireland, uses the Capacity Remuneration Mechanism. This provides payments for electricity generators in exchange for being ready to supply electricity to the grid when demand arises.

It is an auction system. Successful bidders get regular payments for each MW of capacity sold. If a generator fails to provide the capacity, they may incur substantial charges.

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Published August 2020

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Citizens Advice is the operating name of The National Association of Citizens Advice Bureaux. Registered charity number 279057.