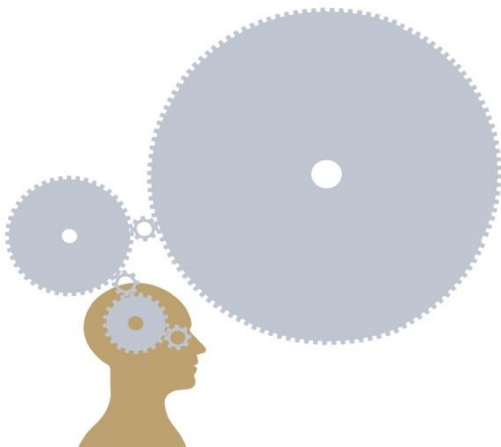


# Best practice for district heat price regulation: pluses and minuses

Energy Days 2013: How to provide affordable comfort?  
Estonian Power and Heat Association conference,  
Vihula Manor, Estonia

Dr Leonardo Mautino, Managing Consultant

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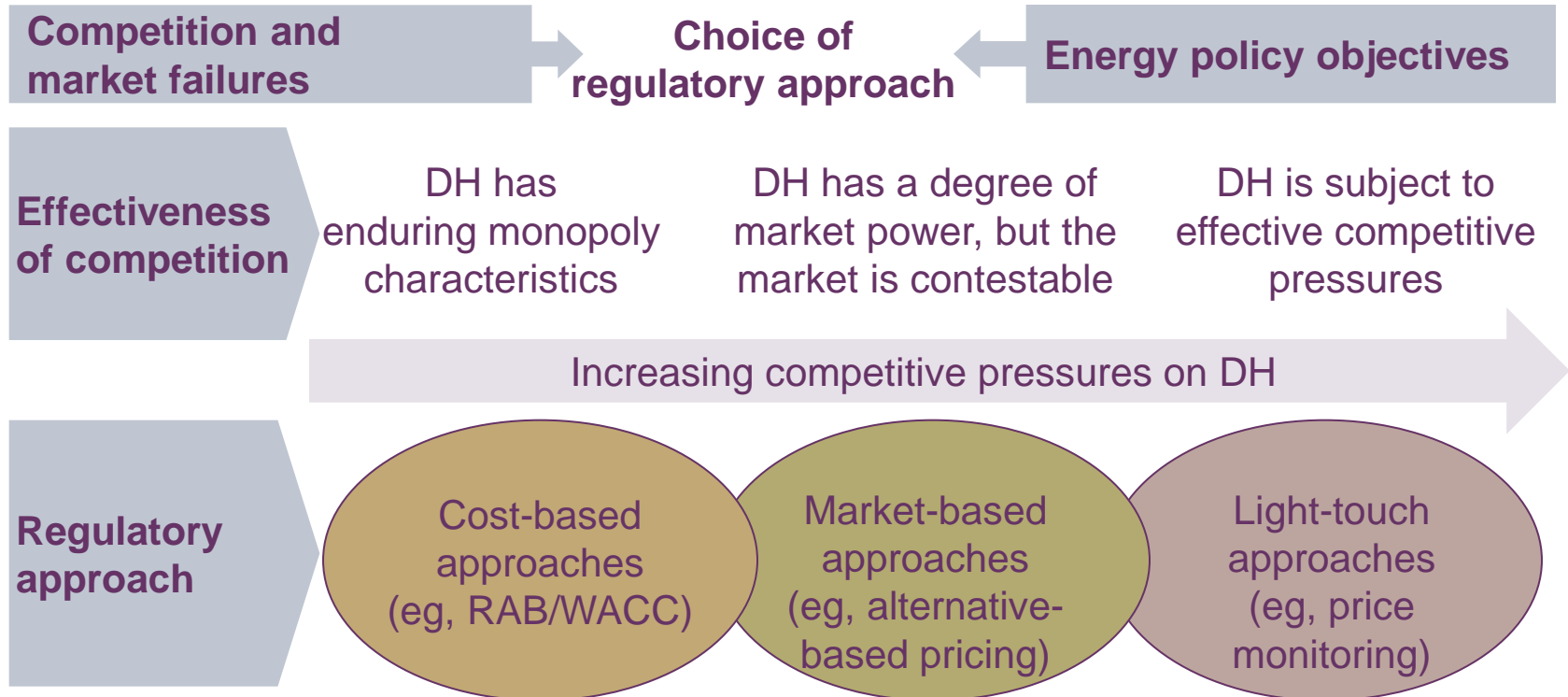
# Overview

- context: models of regulation
- moving towards clearer and simpler rules
- access regulation
- concluding messages

## The role of regulation

- increased deployment of renewables, energy efficiency and energy infrastructure are key elements of the EU long-term energy strategy
- the heat and cooling sector has an important role to play in the transformation of the European energy system, as recently noted by the European Parliament
- district heating (DH) systems in Eastern Europe are in need of significant investment to enable them to meet EU energy policy requirements
- the regulatory approach to market design and pricing methodologies can significantly influence the development of well-functioning heat markets

# Choice of regulatory approach



What would be required for a less intrusive regulatory regime to be acceptable to regulators?

- **in economic terms** → some evidence that competition in the heat market is a realistic prospect
  - precedent from countries in which DH companies set competitive prices and pricing is monitored based on competition law
- **in political terms** → acceptability of market mechanisms, profit variability, and the role of consumers

# Specific models of regulation

## Market-based approaches

- aim to deliver economically efficient price signals
- more relevant where there is a prospect of competition
- imply cash-flow uncertainty and possible perception of over-recovery
- risk of asset-stranding

## Cost-based approaches

- aim to reduce investment risk and to guarantee cost recovery
- mostly relevant where the activity has enduring market power
- may imply limited upside of high-return scenarios

### Long-run incremental cost-based pricing

Reflects hypothetical competition with alternative/new technologies (eg, telecoms)

### Alternative-based pricing

Reflects possible competition with different providers/ technologies (eg, DH)

### Cost-plus

Constrains profits, but provides few incentives for efficiency

### Price (revenue) cap + 'add-ons'

Strong incentives for cost-cutting. Provides incentives designed to reflect regulatory objectives (could be suitable for DH where there is limited competition from alternatives)

# Regulatory regimes in DH vary across Europe

## Current regulatory regimes in Eastern Europe/Baltic States

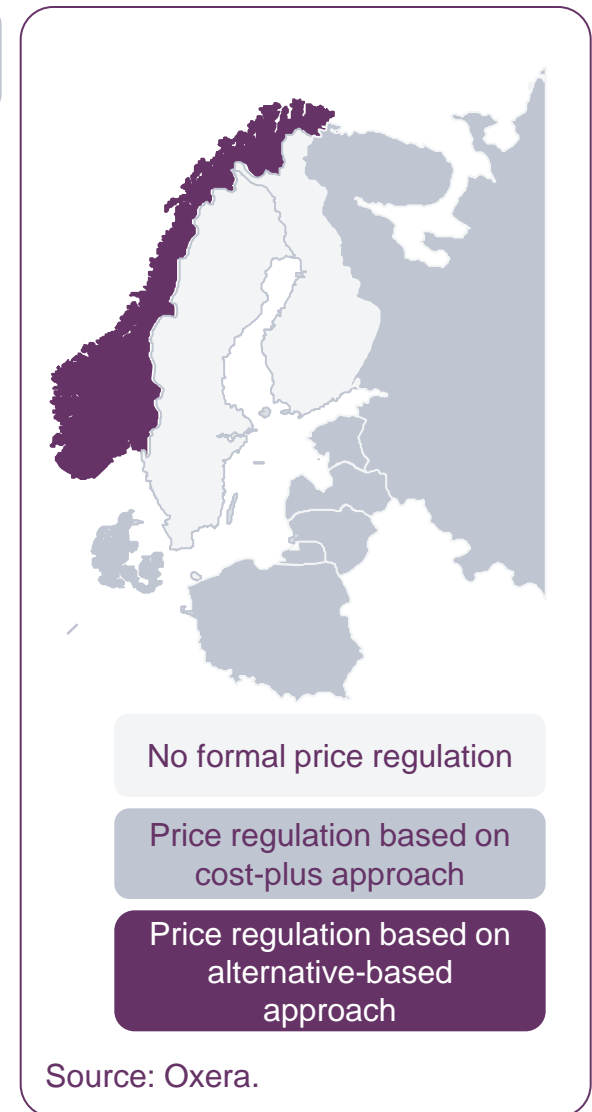
- low levels of regulatory engagement with stakeholders
- limited transparency and lack of justification of decisions
- lack of proportionality in investigations
- lack of high-powered incentive regimes (eg, uncertainty over CAPEX recovery in context of short control periods)

## Obstacles to regulatory change

- fuel poverty and political salience of heat prices
- scope for political intervention in regulatory process
- low regulatory capability

## Key steps for moving towards best practice

- transparency and clarity in regulatory decision-making
- investment and certainty of cost recovery
- potential and incentives for efficiency improvements
- potential to simplify cost assessments and regulatory burden



# Current situation in some Eastern European and Baltic States

## Other external pressures for change

- a need to develop stepwise approaches towards heat market liberalisation, along with EU and national energy strategies and policies
- ensuring long-term affordability of energy (including heat)
- incentivising heat production from local, more stable renewable fuels (biomass, waste) away from costly fossil fuels (gas)
- a need to make energy policy more independent from social policy

## Key issues that need addressing

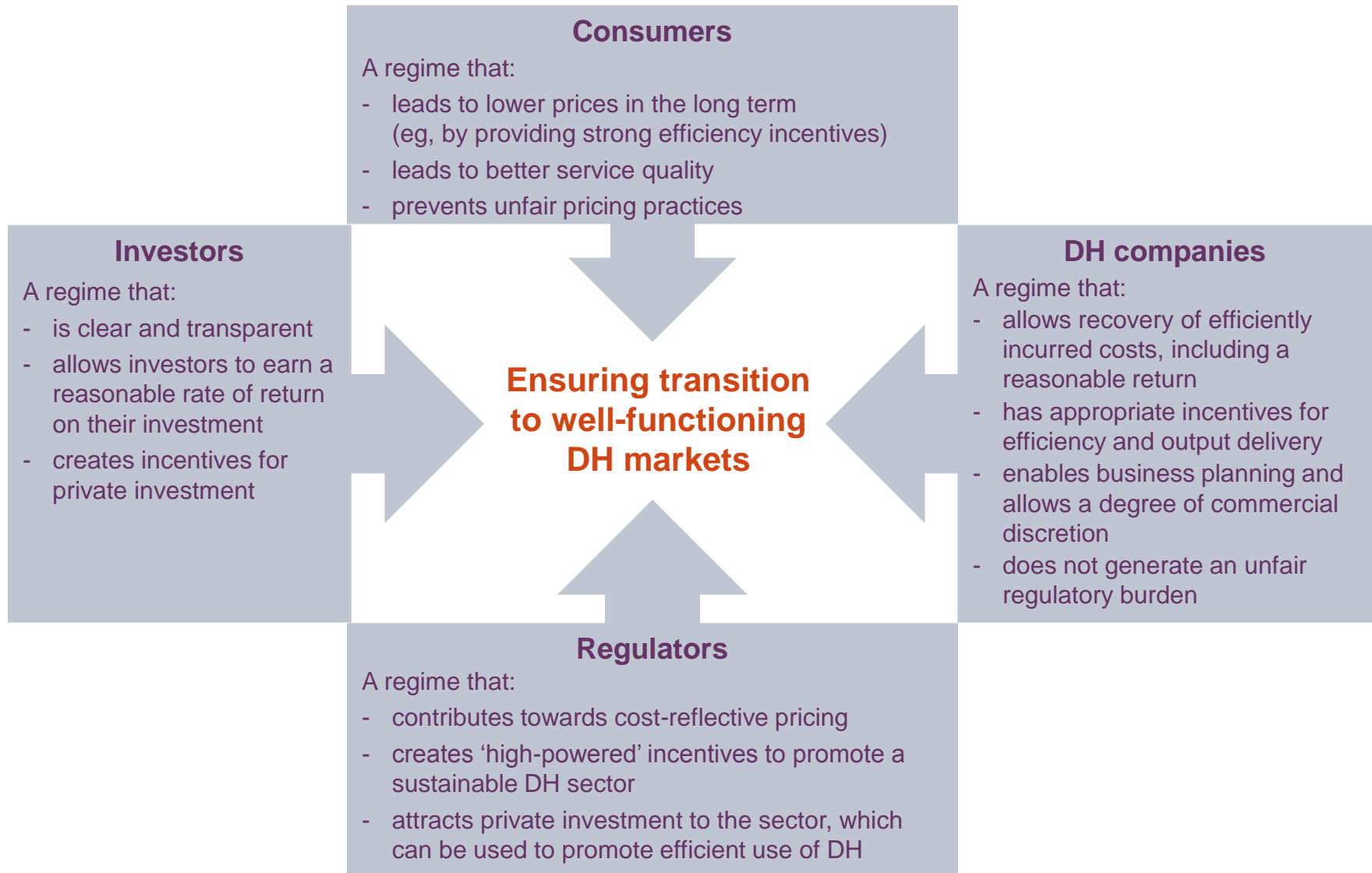
- the duration of price controls and degree of regulatory burden
- mechanisms to ensure long-term cost recovery
  - in particular, allowing an appropriate rate of return on debt and equity
- using appropriate benchmarking tools to incentivise cost efficiency and establish predictable benefit-sharing mechanisms
- developing mechanisms to move from current regulatory frameworks to best-practice regulatory regimes and more cost-reflective tariffs

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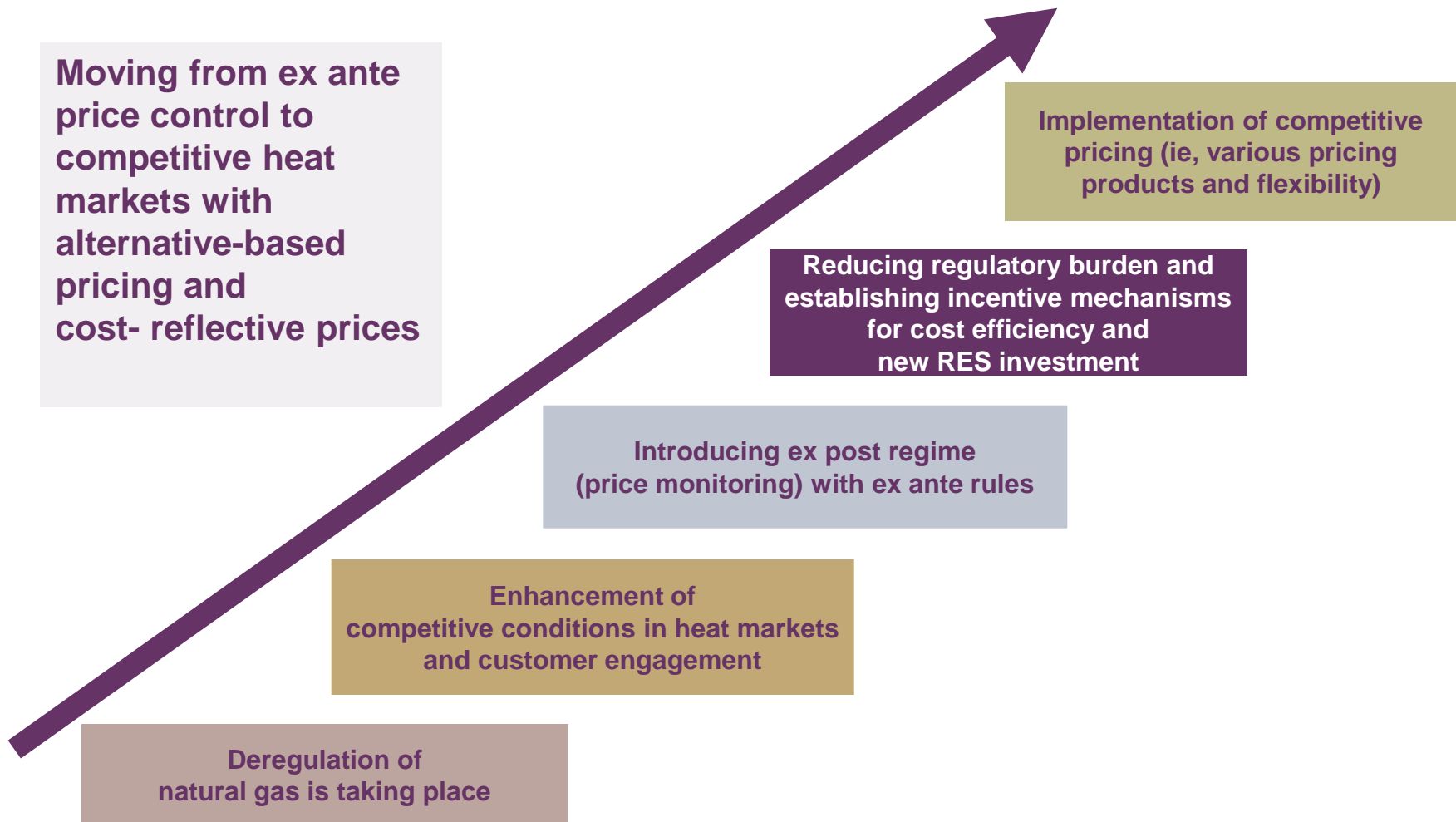
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# Regulatory guiding principles to ensure well-functioning DH markets



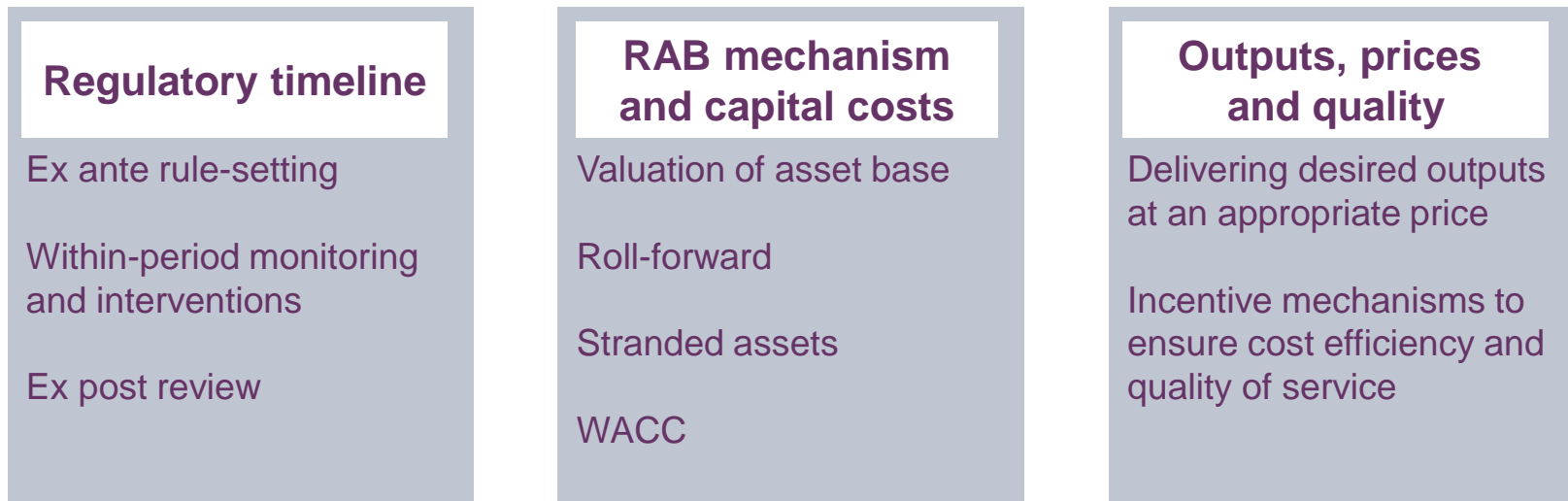
# A path towards well-functioning DH markets



# Towards best-practice price regulation

## Ex post review supported by ex ante rules

The three basic components are as follows:

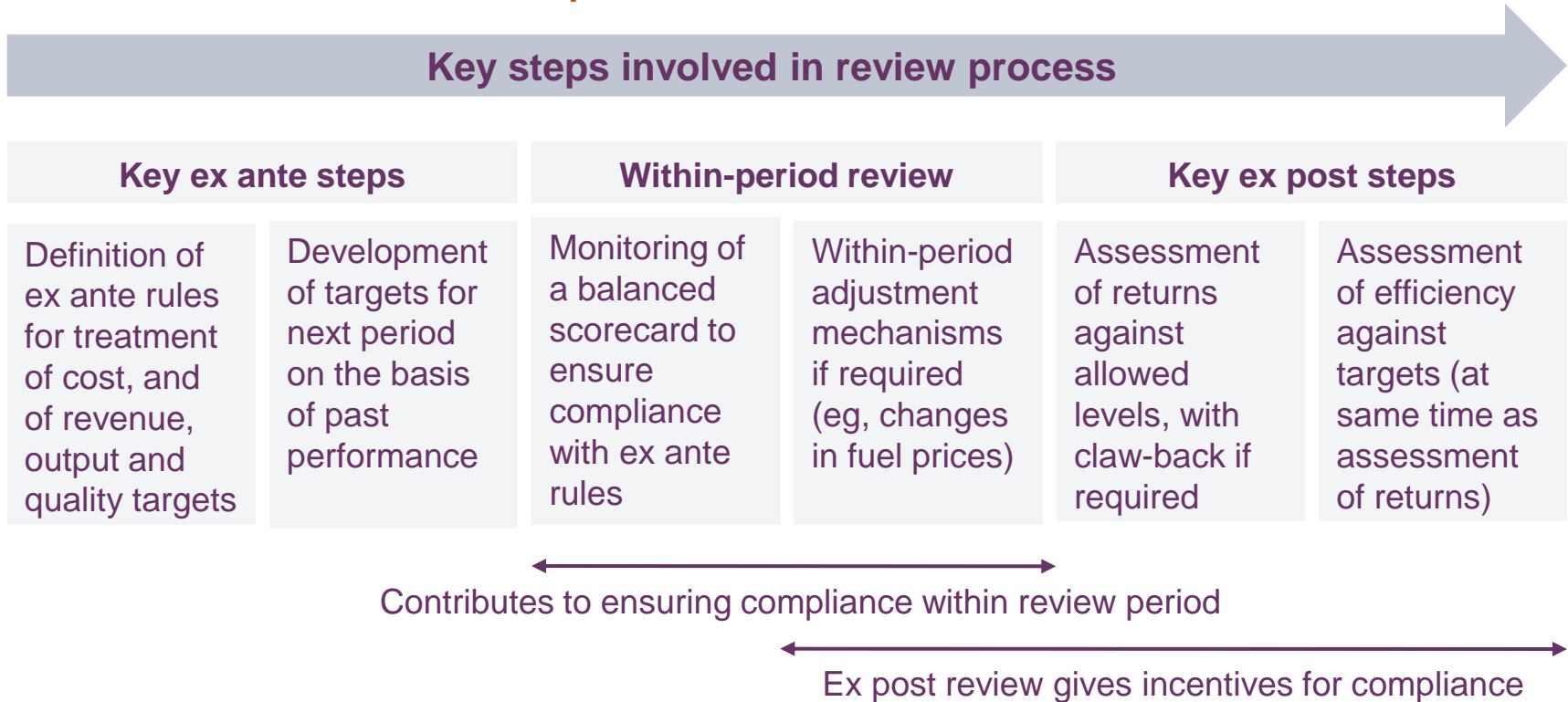


Not all of these changes may be implementable at once, but there may be a need to identify priority areas of change

The approach would be consistent with the regulatory guiding principles, while ensuring that customers are protected by paying a fair price for heat

# Ex post review supported by ex ante rules

## Towards clearer, simpler rules



**An ex post regime supported by ex ante rules**

- the primary job of a regulator is to define rules for allowable cost and for quality, and then to monitor and reward or penalise companies for their compliance with these rules and targets

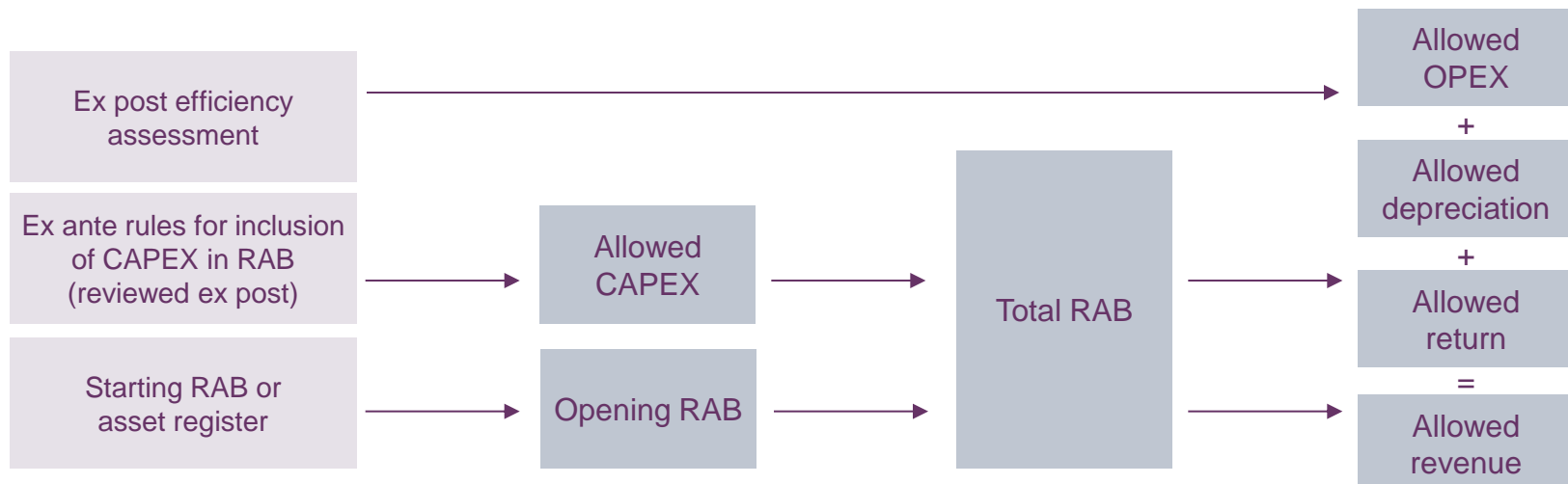
# Expected advantages of the proposed system

Area of impact	Expected impact
Protection for customers	<ul style="list-style-type: none"> <li>- ex ante methodologies embed <b>customer protection</b>, while ex post mechanisms provide powerful incentives for compliance. Incentives and mechanisms for <b>cost efficiency</b> mean that customers benefit over the long term</li> <li>- within-period review ensures that customers are not exposed for up to five years</li> <li>- more transparent approach to regulation allows for improved understanding of implications of investments for <b>fuel poverty</b></li> <li>- provides justification of any price changes that have an impact on <b>affordability</b></li> </ul>
Attraction to investors	<ul style="list-style-type: none"> <li>- offers a <b>stable, transparent regulatory process</b> that gives firms discretion to set prices in line with agreed methodologies</li> <li>- RAB/WACC <b>principles well understood by investors</b></li> </ul>
Flexibility for companies and regulators	<ul style="list-style-type: none"> <li>- <b>companies have discretion</b> to set their own prices subject to defined methodologies</li> <li>- regulators do not have to specify or evaluate ex ante the nature and scope of investment programmes; these are decided by the company and reviewed subsequently</li> </ul>
Limited incremental regulatory burden	<ul style="list-style-type: none"> <li>- <b>no ex ante review</b> and therefore limited incremental impact on regulatory resources</li> <li>- companies responsible for calculating the parameters of the price cap, and demonstrating their consistency with methodologies and related rules and obligations</li> </ul>
Consistency with precedent	<ul style="list-style-type: none"> <li>- RAB/WACC model <b>widely used</b> in infrastructure sector</li> <li>- other ex post regimes show that principles can work</li> </ul>

# Introduction to RAB/WACC principles

## Allowing companies to recover an efficient level of operating and capital costs

- RAB/WACC models are designed to allow regulated firms to recover some measure of their costs
- these costs are typically presented as 'building blocks' consisting of:
  - **operating expenditure (OPEX)**—here, incentives come from an ex post review
  - **depreciation on the RAB** (the return **of** capital)—the rules for valuing the RAB and adding assets to the RAB are set out ex ante. Any additions are reviewed ex post to ensure compliance with these rules
  - **return on the un-depreciated RAB** (the return **on** capital, calculated as the WACC times the outstanding RAB)—the rules for calculating the return (WACC) are set out ex ante
- this RAB mechanism is supportive of an ex post regime underpinned by ex ante rules



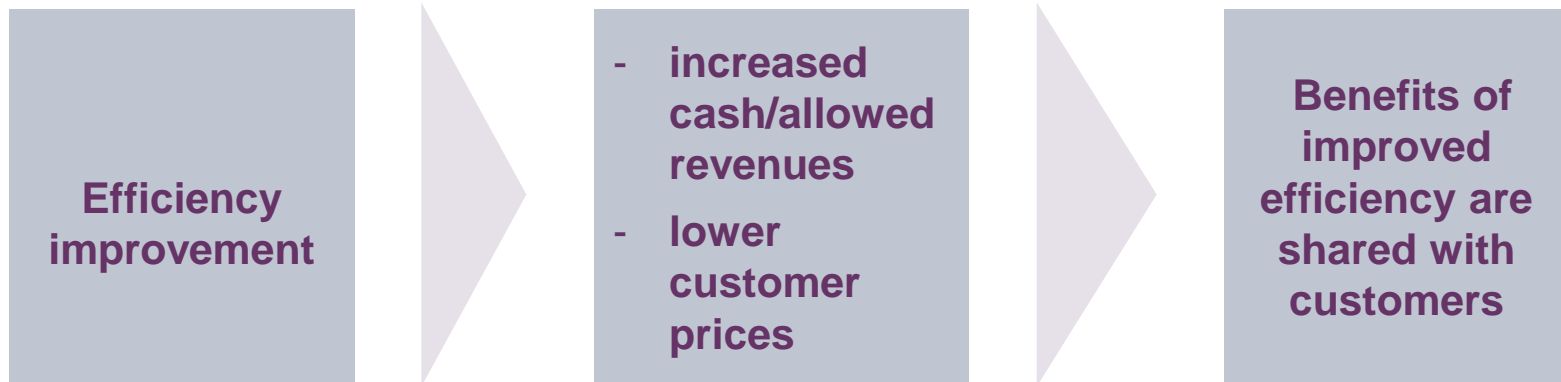
## Moving to longer price control periods

- allows companies time to secure **cost efficiencies** and retain the associated benefits before sharing them with customers
  - this gives companies some discretion to find innovative ways to reduce costs, which may not emerge under more frequent, ex ante reviews
- reduces the **regulatory burden** relative to the existing practice, by increasing the time between price reviews
- a five-year (or longer) regulatory period is in line with the period established in many countries and industries, and seems suitable for regulation of DH in Eastern Europe

The approach allows for **within-period reviews**, to account for any material change in circumstances. As such, regulators do not have to wait until the end of the control period to act in response to specific concerns

# Sharing of efficiency gains between customers and companies

Incentives to encourage efficiency drive value for customers  
→ central to best-practice approaches



- efficiency incentives have been successful in driving out costs to users from regulated industries in a number of sectors and countries
- both customers and private investors are likely to place a high value on appropriately designed regulatory mechanisms to support efficiency
- important role for **benchmarking**
  - encouraging good performance (ie, rewards)
  - penalising poor performance



# Allowing companies to earn a fair rate of return

## What is the cost of capital and why is it used?

- the cost of capital is the cost to a company of raising finance (debt and equity) to support investment programmes
- regulators estimate the cost of capital to determine allowed returns → setting a cost of capital below the true opportunity cost of funds can lead to an underinvestment problem
- allowing companies to earn extra returns if they are more efficient than the industry on average is key to incentivising investment and further efficiency

## High-level best-practice principles in estimating the cost of capital

- methodological proposals and parameter estimates should be subject to a formal consultation, with opportunities for all stakeholders to contribute
- the estimated WACC should reflect the risk of those DH activities that are subject to regulation

# Customer protection

## Clear and transparent regulatory framework

- ensuring customer protection is one of the regulator's statutory duties
- develop ex ante a system of rewards/penalties based on customer satisfaction metrics
  - adjust revenues for the next regulatory period at the ex post review or at the within-period review (subject to clearly defined ex ante conditions)
- define what an unacceptably large price increase would be in each country
  - develop rules for transition to the new regulatory regime and revenue re-profiling tools that the company can use in setting prices

## Customer engagement

- ensure that the regulatory process is transparent, with customers able to comment on the proposed framework through a customer representative group

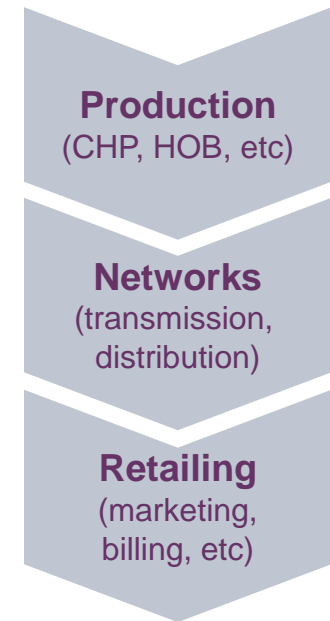
Most effective tool for protecting customers → a clear regulatory framework that limits the scope for discretion by both regulator and companies, and within which compliance with ex ante rules can be monitored effectively

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# The idea behind access regulation

- the assumption unpinning traditional regulatory regimes is that DH is a natural monopoly
- the assumption behind access regulation is that only the network part of the value chain is a natural monopoly
- however, there is a third possibility:
  - DH may compete with other heat sources (eg, heat pumps, gas boilers, etc)



**The idea of access regulation is to introduce competition in the parts of the value chain that are potentially contestable**

## Different models

- **single-buyer** competition is introduced in generation but not retailing (implemented in various forms in DH)
- **network access** competition is introduced in generation *and* retailing (examples in DH not known)

# Enhancing competition in local heat markets

- is competition between heat sources effective?
  - is it attractive financially/possible practically for customers to switch to alternatives?
  - does competitive pricing protect customers effectively when all of them can gain the benefits from emerging new technologies, even those technologies (eg, heat pumps) which would not be economically or technically possible for them to switch to?

## Levelling the playing field: customer perspective

- access to alternatives (eg, gas networks)
- non-discriminatory zoning policies
- voluntary and easy connection and disconnection
- removal of unjustified price support or investment subsidies
- fair taxation treatment
- transparent and objective price information of alternatives: investment costs and energy prices

- access regulation may not be the only way to encourage efficiency and innovation
- if DH operators have incentives to be efficient, they should 'naturally' seek to take advantage of low-cost heat sources

# Key differences between DH and the gas and electricity markets

**Smaller scale:** most DH schemes are local in scope and there is a natural limit on the number of producers per scheme



The models involving direct competition between producers (the network access and the spot market models) will be feasible only in the largest schemes

**Greater coordination issues between network and plant:** the level of the return temperature of the water can affect the efficiency of CHP plants



The access arrangements need to replicate the incentives to coordinate investment and operation decisions

**Greater coordination issues between different plants:** presence of process industries (eg, paper mills, smelters) with little flexibility in their heat production pattern



The access arrangements need to preserve the incentives for peak production and reliability

# Costs and benefits of access regulation

## Expected benefits

**Stronger efficiency incentives:** competitive processes select the most efficient producers and pass efficiency gains through to customers

**Lower regulatory burden:** the regulator needs to regulate only the networks and retail parts of the value chain

**Greater scope for innovation:** allowing third parties to get involved in the business creates more scope for new ideas and innovative approaches

## Potential costs

**Restructuring costs:** most access models require greater separation between production and distribution

**Transaction costs:** the separation of production and distribution creates legal and administrative costs and coordination issues

**Financing costs:** the introduction of competition increases the financial risk for producers, which in turn increases the cost of capital

Access regulation might lead to under-recovery of historical costs ('stranding')

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# Concluding messages (I)

- stable regulatory frameworks based on best-practice regulatory principles are important at both the EU and Member State levels, in order to stimulate investments
- the principles of RAB/WACC-based regulation have the potential to deliver value to consumers, and to provide a supportive environment for investment
  - customers are protected by ensuring cost-reflective prices and incentivising cost reductions without lowering service quality, which is critical given political emphasis on affordability
  - ensures that the company recovers all efficiently incurred costs and earns an appropriate return (ie, commensurate with the level of risk taken) on invested capital
  - employed in a number of countries across a wide range of sectors
- lessons from regulatory precedent can help to address specific issues that may arise in different countries and in developing proposals that deliver value for consumers
- important to address any practical issues during the transition

## Concluding messages (II)

- in order to define the most suitable approach, analysis of the preconditions for the different third-party access models to work is essential
- different approaches to different DH schemes
  - DH is by nature a local product and the characteristics of local markets affect the feasibility of certain models
  - the market designs applied in the gas and electricity markets are not applicable in all circumstances
- the interactions between access regulation and the other areas of energy policy are important
  - the scope for innovation is limited if public authorities prescribe investment choices to attain energy policy goals
  - extensive public service obligations might be needed if there is a large section of vulnerable customers
- think about the alternatives to access regulation to encourage efficiency and innovation
  - competition between heat sources and light-touch regulation
  - a balanced price control regime with appropriate incentives

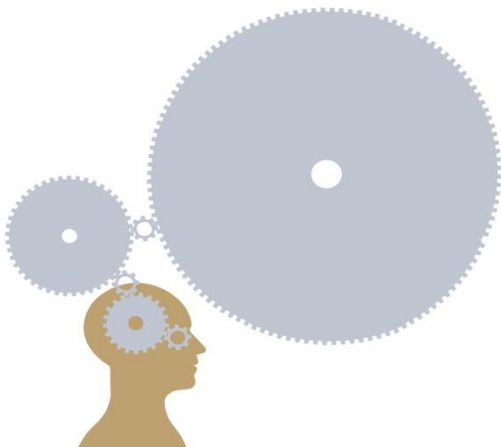
[www.oxera.com](http://www.oxera.com)

Contact:

Leonardo Mautino

+44 (0) 1865 253 000

[leonardo.mautino@oxera.com](mailto:leonardo.mautino@oxera.com)



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