

# **Towards cost-based regulation with efficiency checks for energy networks in The Netherlands: A review from an academic perspective.**

**Review for Autoriteit Consument en Markt (ACM), The Hague**

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# Towards cost-based regulation with efficiency checks for energy networks in The Netherlands: A review from an academic perspective.

## The ACM proposes a new regulatory system for energy networks

Facing huge challenges for the energy network operators, the ACM decided to change the regulatory method. The system changes from a price-based regulation towards a cost-based regulation with efficiency checks. As argued elsewhere (eg. Brunekreeft, 2023; Borrmann & Brunekreeft, 2020), price-based regulation is good for cost-efficiency, but not so good for investment and reverse, cost-based regulation is good for investment, but not so good for cost-efficiency. Acknowledging the latter weakness of cost-based regulation, the ACM adds a set of efficiency checks (in Dutch: *waarborgen*) to get a grip on possibly poor incentives for cost-efficiency. With the new regulation, the ACM addresses the challenges caused by the energy transition. Electricity networks face massive investment requirements; gas networks face significant costs and uncertainty in the planned phase-out. The new regulation concerns all energy network operators, both electricity and gas, and both regional and national network operators.

## The proposal: cost-based regulation with efficiency checks

The proposal for the new regulatory model has been described by the ACM in the document “Hoofdlijnen van de nieuwe methode”. Explanation, background and justification for the choices are discussed in the publication by ACM “Onderbouwing REG2027”. This review relies primarily on these documents.<sup>2</sup>

Facing significant uncertainty and massive investment requirements, the ACM changes the regulatory system from a price-based regulation towards a cost-based regulation with efficiency checks. This concerns all energy network operators, both electricity and gas, and both regional and national network operators.

The building blocks are quite straightforward.

- The core regulation is cost-based: a full annual cost-pass-through of all costs (CAPEX *and* OPEX). There will be no ex-post benchmarking and no efficiency incentives like sharing factors and the like.
- The regulated firms make an ex-ante estimate of next year’s cost-base, which is the base for calculating next year’s network tariffs. Comparing with the actual cost data (available two years later), there will be a full ex-post correction for over- under underruns of actual costs as compared to estimated costs.
- Allowed revenues include a fair and reasonable rate-of-return, reflecting market conditions.

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<sup>2</sup> At the time of writing, these documents were in a non-final stage (version 25.08.2025). Minor adjustments in the final version may be missing here.

- Lastly, the regulation includes four efficiency checks:
  - Monitoring of costs and performance. This will provide insights for ACM about cost and performance developments of the network operators.
  - Process-controlling. The ACM aims to assess processes of the network operators. As a first step, the ACM might look for example at risk-management, procurement and planning & control.
  - Increase transparency. The network operators will be required to publish annual reports on tariffs and cost-efficiency. These will be discussed with the ACM and other eligible stakeholders, in particular network users.
  - Investigation and intervention. Where the ACM concludes that processes are inefficient and can be improved, the network operator is asked to provide an improvement plan. If this improvement plan is not adequately implemented by the network operator, the ACM reserves the right to disapprove of costs. This step is a measure of last resort: *ultimum remedium*. Put differently, the ACM relies on voluntary cooperation of the network operators, but if this fails, the ACM has a strong compliance instrument. The ACM writes in the concept of the proposal (translation by the author): “If improvement fails to materialize due to the lack of an improvement plan or its implementation, the ACM will, as a last resort, set a grid operator's revenues lower than its costs.” In more general terms, we may call this the “used-and-useful rule”, where the regulator disapproves cost items if these are deemed not used-and-useful.

In a wider context, the ACM intends to use information from network development plans to strengthen the efficiency checks. In my view, this is a good idea, which needs to be further developed. A good institutional setting, with a system of checks and balances, would strengthen the truth-telling-incentive for the information in the network development plans and can thus be very useful for the regulation.

It may be mentioned that the ACM does not intend to use additional output-oriented incentives. The ACM argues that under cost-based regulation there is less need for output-oriented incentives and that the new regulation will first have to be settled and as yet there is not sufficient experience with output-oriented incentives. Possible use of such elements is postponed for later.

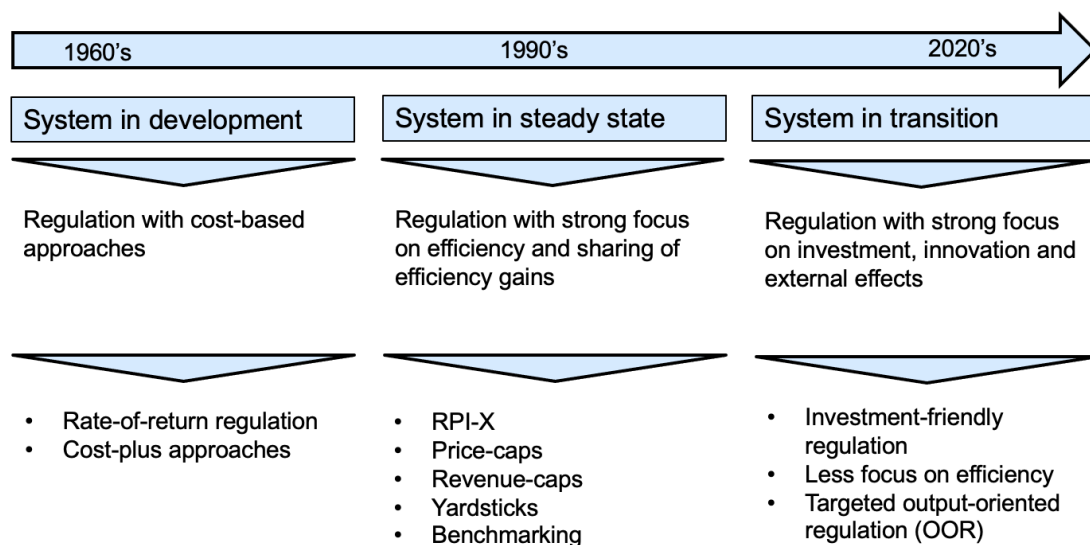
### Justification of the reform: promoting investment under uncertainty

The change of regulatory system is well-timed and, although not uncontroversial, is in line with international practical and academic developments. In the document “Onderbouwing REG2027”, the ACM explains and justifies the reform. The change of the regulatory approach of the energy networks is inspired by the energy transition. The energy transition increases the need for investment and innovation, it increases uncertainty and it increases heterogeneity. This calls for an adjustment of the regulatory approach.

Especially the electricity networks face massive investment requirements to facilitate the energy transition. But also gas networks face significant changes. Gas needs to be phased out, which requires decommissioning of networks, and gas networks may be repurposed for

transport of hydrogen or possibly CO<sub>2</sub>. As discussed in Brunekreeft (2023), cost-based regulation is better suited to facilitate investment than price-based regulation. Market and political uncertainty for the network operator for both gas and electricity increases rapidly, which is particularly important in the face of large investments. Cost-based regulation is better equipped to deal with uncertainty than price-based regulation because it shifts risk away from the network operators to the network users and reverse for price-based regulation. At the very least, the regulatory system should strike a good balance in risk allocation. Heterogeneity among network operators increases, again both for gas and electricity. Different network operators develop differently, which makes comparison difficult. Heterogeneity impedes the quality of benchmarking, on which price-based models tend to rely. If benchmarking becomes less reliable, the regulatory system needs to be adjusted.

A change of the regulatory system, one might say, towards a transition-oriented regulation is a logical step. In my view, regulation evolves and adjusts to a changing world and it seems that regulation is currently moving to a new phase. Starting with cost-plus models in the post-WWII phase in which the networks needed to be developed, regulation shifted to efficiency-focused price-based regulation in the steady-state phase, roughly starting in the late 1980's. And now, triggered by the energy transition, regulation seems to evolve to a transition-oriented approach, with a stronger focus on investment and less on cost-efficiency.



*Figure: Evolution of the regulation.*

We can observe this evolution of the regulation in various countries, although details may differ strongly (cf. Brunekreeft & Meyer, 2016). For instance, the regulator in Germany, the BNetzA, recently published a position paper (BNetzA, 2025) with a proposal for regulatory reform for the electricity TSOs in Germany. It is exactly the same development: the BNetzA proposes to change to an annual cost-pass-through of all costs, CAPEX *and* OPEX. The BNetzA suggest three efficiency checks, which may well be complementary:

- Partial benchmarking,
- Process benchmarking,

- Output-oriented incentives to improve efficiency.

The European Commission recently published a notice on anticipatory investment. The EU-commission (2025, p.3) defines “anticipatory investments as investments into grid infrastructure assets that proactively address network development needs (...) Anticipatory investments are forward-looking network investments based on identified medium- and long-term network needs, justified in network development plans ...”. The notice stresses the need for investments and makes a plea to have more focus on investments and less focus on cost-efficiency.

The ACM discusses two alternative models presented in Brunekreeft (2023). First, the CAPEX-true-up. This model consists of an annual cost-pass-through for CAPEX and a revenue cap for OPEX. The ACM chooses a different approach for the Netherlands, because the model relies to some extent on benchmarking, which is increasingly becoming a problem. Due to the energy transition, the network operators (esp. gas) start to develop quite differently, making comparability and therefore benchmarking more difficult. Moreover, the pass-through of CAPEX and the revenue cap for OPEX induce a CAPEX-bias, which is difficult to control. Second, a budget-approach, much as implemented with RIIO in the UK. Firms and regulator agree on budgets to reach agreed output targets; cost over- and -underruns are managed with sharing factors. This system also uses output-oriented incentives, in the UK called output delivery incentives (ODI). The ACM opted for another approach, because setting and controlling the budgets and output targets would be too time- and resource-consuming. The arguments the ACM uses can be justified, pointing out relative weaknesses of these systems. Yet, these or similar approaches are actually used in practice in other countries.

## Discussion

In my view, the proposal and the justification of the reform towards cost-based regulation with efficiency checks are sound. Yet, there are critical points to be considered, which I will discuss below.

A critical point is the relatively poor incentive for cost-efficiency. The ACM counters these with a set of efficiency checks. In contrast to the standardized mechanical benchmarking methods, this system of efficiency checks is discretionary: it relies on bilateral relations between ACM and the company, almost in an individual context. The efficiency checks (especially process-controlling) create a risk of micro-management, with the “regulator sitting on the chair of the management of the firm”. Moreover, control and reporting can be time- and resource-consuming for regulator *and* companies. We must expect that data-gathering, -processing and sharing will be a time-consuming challenge for the firms. With the efficiency check “investigation and intervention”, the ACM has reserved to right to apply an ex-post used-and useful rule: in last resort the ACM can disapprove of certain cost items, which will then not be remunerated. This is intuitive and quite possibly necessary, but carries the danger of increasing regulatory risk. Lastly, we may expect challenges for court, if the ACM and the company cannot agree.

In my view, the argument of poor incentives for cost-efficiency should not be overrated. Currently, “too much” investment is simply not very likely; currently, all investment is needed. The inefficiency would be in the construction of investment and in network operation, but not over-investment. Considering a trade-off between investment and cost-efficiency in the regulatory models, the weight of investment may be stronger here. The costs for society of low investment and high network congestion are likely far higher than the cost of inefficient investment (cf. Expertteam Energiesystem 2050, 2023, p. 10).

As mentioned above, the ACM decided to refrain from the use of output-oriented incentives for now. The ACM argues that that under cost-based regulation there is less need for output-oriented incentives and that there is not sufficient experience with OOR-incentives. I acknowledge, that the ACM needs to be careful and first wants to see how the new system will perform, before it implements new instruments with uncertain outcomes. Yet, especially in the UK and the USA, but also in Europe in eg. Belgium, there already is quite a bit of experience to rely on or to be inspired by.

The relatively new development of output-oriented regulation (OOR) was also discussed in Brunekreeft (2023). OOR supplements the base regulation with revenue elements that reflect the achievement of specifically determined regulatory output targets or performances. Output-oriented regulation can incentivize activities that require cost increases and upfront expenditures and can capture external effects (value creation). (cf. Brunekreeft et al, 2020). OOR can be used for price-based and cost-based approaches, although applications and specifications would differ. Thus, in addition to the base regulation, selected output-oriented incentives can incentivize additional, predetermined goals, such as reducing congestion, or connecting RES, or possibly, improve efficiency.

The proposal for the new regulation actually offers interesting possibilities to apply output-oriented incentives. The options below are merely ideas.

Output-oriented regulation could be used as an efficiency incentive. It was mentioned above that the regulator in Germany explores this idea for the regulation for the electricity TSOs; this is all in a very early design stage. One way to proceed might be with, what we have coined elsewhere, an SRC-approach, SRC meaning Standardized Reference Costs. Output of the network can be defined in terms of cost drivers (eg. km line length, or capacity of lines). For these metrics, standardized reference costs can be determined, which are subsequently used as a revenue base. Since the SRC is fixed, the firm has an incentive to reach the predetermined output efficiently, because expenditure below the SRC result in higher profits. To keep the costs of implementation manageable, the method for calculating reference costs should be standardized. The idea is to use such incentives for selected areas only, not for the entire network, nor for the entire firm. Moreover, it can be differentiated for the different network areas.

ACM’s efficiency check “increased transparency” offers two possibilities for output-oriented incentives. First, the ACM expects the companies to publish an annual report discussing among other things the extent to which they reached their own targets. I suppose it is easy to use this information for a financial output-oriented incentive. Second, the reports should be

discussed with the ACM, but also with representative of the network users. More generally, stakeholder-involvement and -satisfaction can be used for an output-oriented incentive.

ACM's efficiency check "monitoring of costs and performance" involves cost-development per target (in Dutch: *prestatie*) for individual network operators. In other words, costs are subdivided for different output targets or processes. Once the data are available, why not use it for (financial) output-oriented incentives?

A further idea might be to implement a "good business plan incentive". The companies have to make estimates of next year's cost base. The ex-ante cost base is important for the network tariffs. Later, a full ex-post correction is made to account for differences in planned and actual costs, resulting in adjustment of network tariffs. A more accurate estimate means less correction of network tariffs and thus more certainty for network users.

## Overall

This short review discusses the proposal for a cost-based regulation with efficiency checks for the energy networks in The Netherlands as proposed by the ACM in 2025. My main conclusion is that, facing large investment requirements under uncertainty, the reform towards a cost-based regulation is well-timed and, although not uncontroversial, is in line with international practical and academic developments. However, relatively poor incentives for cost-efficiency are the weak spot of cost-based regulation. The ACM has decided wisely to build in several efficiency checks; we will have to wait and see whether these prove effective and manageable. Lastly, my personal view is that there is scope for better use of output-oriented incentives.

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