

A comment on the proposals to legally unbundle ownership of the electricity distribution networks in the Netherlands

FINAL VERSION

Dieter Helm
New College, Oxford¹

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1. Introduction

The government of the Netherlands has proposed to introduce a radical restructuring of the electricity industry, and in particular to go beyond the requirements of the EU Electricity Directive and the ownership unbundling of main transmission systems, and mandate legal ownership unbundling of the local *distribution* networks.

The objective of this policy is to promote competition, and it is claimed that legal ownership unbundling of distribution networks will facilitate the overall objectives of energy policy because greater competition in supply and electricity generation will result, *and* that any cost increases because of the process of separation *and* the subsequent operation of the system will be less than the gains from competition. It is also claimed that such separation will facilitate merger activity so that the supply and generation businesses can be absorbed into the wider European energy companies, or merged directly.

These claims derive from a simplistic interpretation of what has become the conventional liberalisation/competition paradigm, which developed first in the UK and motivates the European directives on electricity and gas. But it is at the more extreme end, mandating ownership structures right down to the local level, rather than allowing them to emerge from the market process. This paper provides a brief comment on the strengths and weaknesses of the case for these proposals, and examines some of the implications. It begins with the overarching objectives of energy policy, and places competition and ownership structure into its proper context (section 2). The liberalisation/competition paradigm is next explored, and in particular the necessary conditions for the conventional model to be effective for investment, pricing and service quality (section 3). The practical constraints are then examined, including the conditions of the electricity markets in neighbouring countries, and a critique of the ownership unbundling is set out (section 4). Some possible consequences for the development of the Dutch companies after ownership unbundling are discussed (section 5), with some tentative conclusions then presented (section 6).

¹ Further elaboration of the arguments in respect of competition and market structure can be found in *Energy, the State and the Market*, revised edition 2004, Oxford: Oxford University Press. See also the monthly *Commentaries* on www.dieterhelm.co.uk. Comments are welcome to dieter.helm@new.oxford.ac.uk.

2. Legal unbundling and the objectives of energy policy

The primary objective of energy policy in respect of the electricity industry is to ensure security of supply—the lights must stay on. Policy instruments, such as liberalisation and competition, are desirable if they provide an effective means to the security of supply end. There are other instruments too: physical interconnection within and between networks provides diversity of supplies, and the more interconnected a system, the greater the insurance provided by the large portfolio, and hence the lower the required plant margin to meet variations in demand.

A second—and increasingly important—objective of energy policy is to mitigate climate change, and in particular to decarbonise the economy. The obvious economic instrument here is carbon taxes, but in practice a host of interventions in energy markets are used to achieve this objective, and permit trading has been preferred to taxation.

A third objective is competitiveness, and the efficient generation, distribution and supply of electricity. Competitiveness is a *relative* concept: in particular, the issue of competitive advantage of the Netherlands relative to its European neighbours.

The proposal to legally unbundle the ownership of the distribution networks needs to be evaluated against these three objectives. In particular, the core question is whether ownership unbundling can be reasonably expected to positively contribute to the investment in generation and networks; to facilitate more energy efficiency and assist low-carbon technologies; and whether the results will be lower-cost electricity consistent with the security of supply and climate change policy.

3. The liberalisation/competition paradigm

The origin of the ownership unbundling proposal is a powerful set of intellectual ideas, which have motivated the very substantial reform programmes across Europe from the 1980s onwards. These ideas are sufficiently dominant to have become conventional wisdom—what might now be called the ‘old paradigm’ (Helm, 2005). And like many such sets of ideas, they are deceptively simple. To see how the ownership unbundling fits into the conventional paradigm, it is important to get a clear grasp of the competitive market model that motivates the proposal, and to disaggregate its components.

At its core of the theory of the competitive electricity market is the idea that electricity can be regarded as just another commodity, with the forces of supply and demand, acting through competitive markets, allocating resources and providing the incentives for investment. Left to market forces, electricity companies will ensure the efficient outcome, with supply equal to demand through time, with appropriate investment to maintain this balance.

Such an approach is consumer- rather than producer-driven, and is superior to government intervention because the government (either directly or through

regulators) is informationally weak. The government cannot know all the cost functions and consumer preferences. It is therefore unlikely to be able to predict which technologies are appropriate, when investment might be needed, or how customers trade off alternative service offerings. And, crucially for the legal unbundling argument, *the government cannot know what the optimal business structure should be at any point in time, or over time*. Markets are informationally more efficient because all the parties need to know are the prices.

This informational superiority—and the stress on uncertainty, risk-taking, and technological change—was the key to the British thinking on liberalisation, competition and privatisation in the 1980s, and derives from the Austrian School of economics. It was the model that Stephen Littlechild had in mind, as its chief advocate in the UK energy sector, and was shared by other key decision-makers. These architects of the policy were focused primarily on entry conditions to markets, rather than prescribing structures and structural issues. Except in respect of the high-voltage grid, it was anathema to them that government should dictate the market form, or unduly limit takeovers and restrict ownership forms. Nor did these advocates believe that there was necessarily any *permanent* natural monopoly in the energy sector.

A very different—and more mainstream—approach to competition in the energy sector has focused on market failure, and placed more emphasis on structure. Alternative structures are compared and contrasted on a cost–benefit basis, in the sort of analysis undertaken by Mulder et al (2005). Underlying such approaches is the attempt to build up models of different types of electricity markets and to evaluate their efficiency characteristics.

These models all start, at least implicitly, with an idealised model—a competitive electricity market that would be efficient. It is this model into which the ownership unbundling proposal should be contextualised, since it is competition *in supply and generation of electricity* which ownership unbundling is supposed to promote, *not in networks themselves*.

A competitive electricity market would have the following properties.

(i) *There would be many sellers of electricity*

This is a rather precise requirement: there would be a sufficient number such that all sellers are *price-takers*. No generator would have the ability to set price. There is no market power.

(ii) *There would be many buyers*

This does not mean just lots of consumers, but rather lots of agents for consumers (ie, suppliers). These in turn would have no market power.

(iii) *There would be a liquid, transparent and standardised wholesale market*

Such a market would have a core function in coordinating the market. In particular, the risk in electricity markets associated with investment (in sunk

upstream generation and network assets) would be capable of being transferred to financial markets through futures trading. This would undo the necessity which for a century has been for vertical integration to create physical hedges and cost recovery.

(iv) *Access to networks would be on common, non-discriminatory terms*

This requires that tariffs be set for all parties on the same terms.

(v) *Network investment would take place in a timely and efficient fashion*

This requires a cost of capital which is efficient (and thus a minimisation of regulatory and political risk), and coordination of investment decision-making to match expansions and changes in the patterns of supply and demand.

A number of implications follow from the requirements of the competitive ideal model that are relevant to ownership unbundling, as detailed below.

(vi) The requirements are related, not entirely separable, in that if, for example, there is upstream or downstream market power, it is not immediately obvious that moving one of the requirements in the direction of the ideal model is necessarily efficiency-enhancing. For example, given the oligopoly that has been reinforced in recent years in the UK, France and Germany, it is unlikely that ownership unbundling of distribution would in itself increase efficiency (though transmission unbundling might). It would therefore be a structural imposition on the market, with associated costs, *without necessarily increasing competition per se*.

(vii) The corollary of (vi) is that in order to create a competitive market, energy policy needs to pursue the various measures (i)–(v) as a *package*. Yet this is precisely what the Netherlands is *not* proposing to do: extraordinarily, it is relaxed about the takeover of its generation and supply businesses by other European oligopolists (see below).

(viii) The futures market is key to the investment requirements. If it is not met—and it is not met in any European market—then investment risk will have to be absorbed elsewhere. For almost all European electricity markets, the answer has been through physical hedging—owning upstream and downstream assets, using the wholesale market to trade out predominantly short-term positions. The risk is being absorbed by equity capital and, as a result, scale has become important. The emergence of E.ON, RWE and EDF as very large European electricity (and in the first two examples, gas) companies is arguably the appropriate business response. It is the oil industry model. Ownership unbundling of distribution contributes little directly to the incentives to invest, except where there is market foreclosure (and, as we shall see below, regulated separation can—and does—prevent this in other countries).

(ix) It is assumed that ‘generation’, ‘supply’ and ‘distribution’ are distinct activities, the costs of which are separable, *and will remain so*. Historically this has not been the case, and looking forward, especially in managing the

demand side of the market and distributed generation, this is far from obvious. Intelligent networks drive into the supply side of the consumption, and investment in local networks and intermittent power sources at the local level have joint cost characteristics. Ownership unbundling of distribution assumes that these costs are not joint, *and will not become joint*.

In a number of European countries, there has been an attempt to implement the full package of requirements under (i)–(v). In particular:

- (x) privatisation, to introduce incentives for productive efficiency;
- (xi) the creation of wholesale markets;
- (xii) the break-up of generation;
- (xiii) regulation of the transmission and distribution systems.

In the market conditions of the 1980s and 1990s, these policies had considerable success, precisely because the market conditions were favourable. In particular:

- (xiv) as there was general excess supply, the problem was how to sweat the existing assets, rather than investment;
- (xv) fossil-fuel prices were low;
- (xvi) most countries had well integrated national transmission and distribution systems.

On the policy components (x)–(xiii), the most effective in bringing down costs was probably privatisation and regulation. Indeed, the most impressive utility efficiency gains in the 1990s were among the monopoly British water companies, where the profit-maximising incentives of private ownership, combined with RPI – X regulation, resulted in a dramatic reduction in the workforce (and in this case a very large investment programme was delivered as well). Regulated distribution companies also recorded big efficiency gains while remaining in common ownership with supply and eventually generation too.

From this discussion, we can conclude the following.

- The classic case for preferring markets over government planning relies on the notion that governments are informationally weak, *and in particular they cannot know what the best technologies or ideal industry structures should be*. Dynamic competition allows the market, not governments, to decide both the choice of technology and the structure of the industry. Structural intervention *may* be justified (for example, in respect of the high-voltage grid), but only where the benefits are very considerably believed to exceed the costs.
- The competitive paradigm is based on an interlocking set of requirements, which have to be met as a package. The reality is very different—market

power and vertical integration are endemic to the industry. *It is not necessarily desirable to pursue each component of the competitive paradigm separately, if the others will not be met. Ownership unbundling of distribution may make sense in the context of many buyers and many sellers, and an open, transparent, liquid and standardised wholesale spot and futures market and no joint costs. Without these other conditions being met, its rationale is less obvious.*

- The competition/liberalisation model nevertheless worked quite well in the UK in the 1980s and 1990s, because *there was general excess supply*. There was no security of supply problem, and the climate change constraint did not bind. The focus was on asset-sweating, not investment.
 - Much of the gains in efficiency in the 1990s *came from private ownership incentives and effective regulation in monopolies*.
- 4. Practical constraints, practical problems and the costs and benefits of ownership unbundling of distribution**

It will be immediately apparent that the requirements of the competition/liberalisation model and the realities of the Dutch energy market are currently very different. It is worth listing the main practical differences:

- the market itself is quite small by international standards, and relies on supporting infrastructure and supplies from neighbouring countries;
- a small number of generators are dominant—it is an oligopoly;
- the border price is set largely in the German wholesale market, itself dominated by and dependent upon the two main players, E.ON and RWE;
- the investment requirements for security of supply are such that new mechanisms are contemplated to bridge the gap ‘between public interest and private responsibility’ (Ministry of Economic Affairs, 2003);
- the climate change Kyoto targets for the Netherlands are binding on the system, and may not be met.

In practice, the Dutch electricity system is a more complex and messy structure than indicated by the competition/liberalisation paradigm. It is an oligopoly in generation and supply, with a fringe of smaller generators and suppliers, and with a separate main transmission system.

In the absence of ownership unbundling of distribution, this system is in any event subject to the implementation of the EU electricity directive, which introduces regulated third-party access, and this in turn is overseen by an independent regulator.

What *extra* will ownership as opposed to regulatory unbundling of distribution deliver? The Minister made the following—and various—claims (Minister’s letter, October 11th 1004, unofficial English translation):

- (i) independent ownership is necessary to promote fair competition in the wider markets for electricity and gas;
- (ii) costs will be lower in ownership-unbundled distribution companies;
- (iii) bankers and lawyers broadly support the legal separation;
- (iv) some companies will separate out distribution in any event;
- (v) ownership unbundling of distribution improves regulation and supervision;
- (vi) it is in shareholders’ interests;
- (vii) it will lead to lower prices;
- (viii) ‘the Dutch market will benefit from [the] process of internationalisation and concentration within Europe if the grid fulfils a fully independent role as opposed to delivery, trade in and production of energy.’

What is remarkable about the Minister’s letter is not just its confidence in *knowing* what the optimal structure of the industry is *and will be for years to come*, but the lack of any serious attempt to separate out the issues in relation to the high-voltage main transmission system, and local distribution networks. Thus, the propositions above can be recast and responded to as follows.

- (i) (a) Independent ownership of the main transmission grid is necessary (but not sufficient) to facilitate (not promote) competition in the wider markets for electricity and gas. It does not follow that it is necessary for distribution.
- (ii) (a) Costs will not necessarily be lower in ownership-unbundled companies. The cost effects are expected to be at best ambiguous, as Mulder et al (2005) indicate. Furthermore, the managerial focus on the local distribution networks and the associated skills might be achieved without legal ownership separation, though internal unbundling. *There is no evidence that ownership-unbundled British distribution companies are any more efficient than those within vertically integrated structures. Indeed, NORWEB and the Northern and Yorkshire areas do not figure at the top of the efficiency table, but Scottish & Southern Energy does (Ofgem 2004).*
- (iii) (a) Bankers and lawyers have a direct financial interest in ownership unbundling, and hence the Minister should not cite their views as *evidence to support a public interest case for formal ownership unbundling*. Indeed, it should be recognised that regulatory unbundling generates a lot less in fees.
- (iv) (a) Ownership unbundling is an option in corporate strategy and, where companies believe this to add value to shareholders, it is an appropriate way forward, as taken by some (but the minority) of British distribution

companies, for example. Interestingly, the Minister neglects to observe that there are lots of intermediate solutions which companies elsewhere have adopted—notably, financial ring-fencing and the use of debt securitisation in respect of regulatory asset bases.

- (v) (a) In principle, ownership unbundling improves regulatory transparency, but note that it does not require that *all distribution companies are separately owned*. In the UK, there is a plurality of ownership structures and a number of comparators are available. As noted above, there is no obvious correlation between ownership unbundling and performance. Under regulatory unbundling following the EU directive, it should be possible to create a Europe-wide benchmark for comparisons of performance. Thus, *there are plenty of ways of ensuring regulatory oversight and supervision, provided regulators exploit the information from internal unbundling. It is probably better to have lots of different structures to compare from an informational perspective than an imposed uniformity.*
- (vi) (a) Whether it is in shareholders' interests is a matter for the capital markets, and the proposed way forward (as noted above) does not give that choice to shareholders. An alternative approach to privatisation would. *Whilst there is evidence that some might opt for ownership unbundling, internationally there is no evidence to suggest that this is necessarily the chosen option.* Indeed, if it is in shareholders' interests, *they will do it anyway, and hence the Minister has no need to impose it.*
- (vii) (a) Whether prices will be lower as a result is very hard to know in advance. There will be additional transaction costs, but there may be cost savings from financial structures and management behaviour in the distribution companies themselves. But the Minister also claims that there will be lower prices from generators and suppliers *as a result of the ownership change, over and above regulatory separation and regulation itself.* This is an assertion without empirical support. It is easier to argue for the main transmission grid, although, even here, comparisons between European countries are ambiguous. The reason for this ambiguity is that there are multiple and simultaneous reasons why prices and costs may diverge. These include: oligopoly competition and collusion between existing generators; problems with competition over time through investment; and stickiness in supply switching. None of these is relevant to the issue of the difference between *local distribution regulatory and ownership unbundling. The area where local distribution structures might matter is in the entry of new small-scale embedded generation directly into the distribution networks.* Even here the evidence is unclear. In the UK, where there is a variety of ownership forms, there is no evidence whatsoever that new entrants for wind power and other renewables have complained about integrated ownership of the distribution networks. Indeed, given that the suppliers have an obligation to buy renewable energy, and that the availability is constrained, it might even be argued that integrated companies have even more incentive to ensure that their distribution networks are helpful to small-scale producers than those that have no supply interest in renewables at all.

(viii) (a) It is extraordinary to argue that a benefit of ownership unbundling of the distribution companies arises *because it would make it easier for the rest of the companies' generation and supply businesses to be taken over*. Given that a competitive market model requires that there are many buyers and many sellers, and that the Minister puts so much emphasis in distribution on *separate, distinct, independent ownership of what are, by European standards, small companies*, it is hard to understand why the reverse logic apparently applies to generators and suppliers that are apparently too small in scale to compete effectively. It cannot be that taking over Dutch companies will *increase* the number of players in the Dutch market. Competition will either be the same or *less*. And if the Minister believes that larger international companies are more effective competitors, he must also believe that there are economies of scale or scope. But if that is true, it is oligopolistic competition in the European market than matters—as with the oil market. In this wider European context, *the gains from ownership unbundling of distribution in the Dutch market are likely to be largely irrelevant to the promotion of fair competition, which is the Minister's stated aim*.

It can therefore be concluded that, whatever the benefits from separate ownership of the main transmission grid (and these may well be considerable), there is very little evidence to suggest that ownership unbundling of distribution will achieve the stated objectives. Indeed the lack of any proper consideration of the international evidence from markets which have a plurality of ownership structures is to be regretted.

5. Development of the Dutch market with ownership unbundling of distribution

Notwithstanding the above considerations, it is worth noting what consequences might follow from ownership unbundling of distribution networks, in terms of finance, investment, costs and regulation.

- On *finance*, purely regulated assets in small companies with regulatory asset bases are financed largely through debt. Larger companies, such as National Grid Transco and the large-scale water businesses, have a geared equity structure. For the companies as small as Dutch local distributors, the appropriate comparator is probably British water-only companies. Being highly geared, they are the creatures of regulators and bankers, and the latter tend to push for low-risk, more rate-of-return regulation. Efficiency incentives driven by equity—the sort of incentives that drove the cost reductions in Britain in the 1990s—are replaced by those of banks interested in cash flow and the game of regulatory capture played out between companies and regulators.
- On *investment*, the resultant small distributors are unlikely to have access to large-scale equity funds, and are likely to finance future investment largely from debt. As balance sheets are exhausted, the regulators end up providing revenues to protect interest cover, with the result that investment tends to

move back towards pay-as-you-go. In turn, this can lead to a bias in the choice of investments towards the short term, as regulators seek to try to hold down prices. A particular consequence might be that distribution companies are not encouraged to push forward investments for new embedded entrants, especially where there are system-wide consequences. Hence, local competitive entry may not be any better off.

- On *costs*, transaction costs will go up, whilst operating cost effects are ambiguous. There is no evidence that electricity in the Netherlands can be assumed to be cheaper as a result.
- On *regulation*, there will be a ‘one model’ approach, and no plurality of ownership comparators to draw upon. It is not obvious that the burden of regulation will be much different for the independent regulatory body—and, in Britain, the costs of regulation between ownership unbundled and those in vertical companies appear very similar.

Finally, consideration needs to be given to a scenario in which the Dutch market has this unique ownership unbundling in distribution. Its immediate neighbours show little inclination to unbundle the ownership even of high-voltage transmission, and are dominated by a small number of oil-company-like electricity and gas businesses. These countries are pursuing economy-wide energy policies to address their primary objectives of security of supply and climate change. Thus E.ON’s integrated structure gives it direct access to GazProm and Russian gas supplies; RWE is trying to mimic this strategy; whilst EDF is pursuing the next generation of nuclear power stations.

Looked at from the broader energy policy perspective, integrated structures have some advantages. E.ON can consider all aspects of the supply chain, and look at how generation and networks are pieced together—how, for example, wind penetration at the local level can be balanced by large-scale baseload generation. In terms of R&D, E.ON is big enough to invest in new technologies, which may break down the current distinction between generation, on the one hand, and transmission and distribution, on the other.

Whether the future lies in new technologies and new configurations of the energy industries cannot be known to policy-makers in advance. However the implication of this ignorance and uncertainty is that caution should be exercised in prescribing ownership structures. In Europe, there is a good case for separating out transmission, but, even here, in the new paradigm of security of supply and climate change, there are arguments on both sides. A fragmented Dutch electricity system, with small distribution companies, and the takeover of its generators by other players, *may* provide the leading example of a structure that all other European countries will follow, and, whilst the others are catching up, give the Netherlands a competitive advantage. But there is no compelling evidence to support this claim. And it *may* be wrong.

6. Conclusions

This short comment has concentrated on only one aspect of energy policy in the Netherlands: the radical proposal to force ownership unbundling of distribution companies. It has in particular not been concerned with transmission ownership unbundling, for which a much stronger (but still controversial) case can be made.

The main conclusions are as follows.

- The objectives of energy policy are security of supply, climate change and efficient prices. Competition is a *means*, not an *objective*. Ownership unbundling does not obviously advance the first two objectives, and it is ambiguous with regard to the third.
- The pure competition paradigm is likely to be most effective in conditions of excess supply and where climate change constraints do not bind, as in the 1990s. These conditions are unlikely to pertain in the future.
- The benefits of ownership unbundling depend in large measure for their effects on what the consequences are for generation and supply. Paradoxically, the creation of the necessary conditions of many price-taking players are not addressed by the proposals and, by facilitating further merger activities, may actually be diminished.
- The optimal ownership structure of the electricity industry depends upon changes in technology, financial market developments and the effectiveness of regulation. In a period of rapid change, the government is unlikely to have superior knowledge and should be wary of imposing its view of the optimal structure on the market. Indeed, the advocates of liberalisation and competition drew support for their policies from the fact that markets are likely to be better than politicians and regulators in picking structures and technologies.
- There is no evidence that separately owned distribution companies are more efficient than integrated ones. In particular, the plural ownership structures amongst the British distributors do not show any obvious trend.
- Whereas there may be important regulatory benefits from ownership separation in transmission systems, there is little evidence to suggest that this is the case in distribution, where there are a number of comparators.
- The radical proposals in the Netherlands go against the integrationist trends in the European market. Faced with the big challenges of large-scale investment to replace the current (largely carbon-based) ageing power stations and networks, and to meet the requirements which stem from growing external dependency on imported gas, the current preferred model is one of large integrated scale.

- The burden of proof for imposing an ownership structure from outside onto a market rests with the proposers. In a context of rapid technical change, the informational asymmetries between government and regulators on the one hand, and markets on the other, are large. Ownership unbundling of distributors may be an efficient way forward, but there is an enormous difference between this structure emerging in a market, and imposing it from outside.
- Regulation of internally unbundled companies has been very successful elsewhere, notably in Britain, and there is no evidence to suggest that formal ownership unbundling of distribution would make much difference.
- Transmission companies have a pivotal role in system control, security of supply and coordination of networks as a whole. This inevitable brings in an energy policy role. Whereas ownership separation of transmission bears on all these wider roles, it is far from obvious that these are roles for distribution companies.

It is therefore concluded that the case for ownership unbundling of distribution networks is far from convincing, and that there may be a number of disadvantages, and no doubt unintended consequences. It is hard to conclude that it will do much to promote competition in supply or generation, and the associated merger policy approach may actually reduce competitive pressures.

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