

LIBERALISATION OF ENERGY MARKETS



Introduction

In most countries of the European Union, the liberalisation of the energy markets, more specifically of electricity and natural gas, has become an economic reality. In practice, this has often resulted in the splitting up of the existing vertically integrated energy companies – mostly with a monopolistic character – into separate independent entities. Prime examples of such new organisational structures are the transmission service operators (TSOs) and the distribution service operators (DSOs), responsible for the operation of the technical infrastructure that enables the flow of energy between its producers or providers on one side, and its buyers on the other side. In parallel, national regulatory agencies (NRAs) have to ensure that all energy producers or providers can access this transmission infrastructure under the same technical and financial conditions, in order to facilitate and promote fair competition.

One of the prime aspects in this migration process is, of course, the setting of the tariffs for the use of the transmission infrastructure, taking into account a reasonable profit margin (which is, nevertheless, usually lower than the profit margins that were practised in the past) on the existing and the future investments by the transmission service operator.

VAN DIJK MANAGEMENT CONSULTANTS have acquired the necessary experience in assisting both NRAs and TSO/DSOs (in the energy sectors as well as in the telecommunications sector) in these matters. The different services we can offer are described in more detail in the paragraphs below, which will focus on the following items:

- the unbundling of existing integrated companies and their financial accounts
- the determination of the (economic) value of the existing infrastructure, the so-called *regulatory asset base* (RAB)

- the determination of the *weighted average cost of capital* (WACC) to be used to calculate the fair profit margin
- the development of business plans, supported by simulations of the company accounts using different hypotheses.

Finally, our experience enables us to make international benchmarks, not just on the end results (*i.e.* the tariffs), but also regarding the way the different NRAs and TSO/DSOs deal with the numerous questions that are involved in the decision processes.

Unbundling of existing integrated companies and their financial accounts

Given the vertically integrated nature of most energy companies, the first step in the tariff regulation process is the unbundling of the financial accounts.

Typical questions that have to be addressed in this context are the following:

- what are the exact boundaries of the activity or activities to be regulated (*e.g.* which tension or pressure level are involved)?
- how will the technical costs be split between regulated and non-regulated activities?
- how will the general overhead be split between regulated and non-regulated activities?
- can commercial costs, in principle incurred on the distribution level, be part of the tariff structure for the transmission activity?
- will calculations be made in terms of historical cost accounting (*i.e.* based on the actual figures as they appear in the company's financial accounts), or in terms of current cost accounting, whereby lower cost are considered that are made possible thanks to more performing or cheaper equipment and technologies?
- can provisions for future risks be accepted as part of the cost structure?
- what is the nature of the so-called *obligations of public service* that the TSO/DSOs should fulfil?
- what is the nature of the service systems that can be accepted as being part of the cost of the regulated activities?

All these questions need careful consideration, and VAN DIJK MANAGEMENT CONSULTANTS assist in the choice of allocation keys and of the nature of the cost elements to be considered.



Weighted average cost of capital (WACC)

It is generally accepted that tariffs may include a fair profit margin in order to remunerate the capital that has been and will be invested in the transmission infrastructure. This margin is often calculated in terms of $WACC \times RAB$, whereby WACC is the weighted average cost of capital (debts and equity), and RAB represents the economic value of the TSO/DSOs net assets.

The value of the WACC depends on different parameters, which are linked to:

- country specific elements, *e.g.* the general investment climate
- sector specific elements, *e.g.* the investment risk linked to the (sub)sector of the energy transmission
- company specific elements, *e.g.* its gearing ratio
- fiscal considerations, proper to the country or the company involved.

Typical questions to be addressed in this context are:

- is the WACC to be expressed in real terms (inflation excluded) or in nominal terms (inflation included)?
- will the WACC be calculated on the basis of the real gearing ratio, or a mean ratio, or a theoretically optimised ratio?
- will the WACC be calculated on the basis of the real tax rate, or of a mean tax rate?
- in what way will the WACC, or more generally speaking, the profit margin, be increased if the operator outperforms the productivity gains that the regulators imposes?

Given the direct financial importance of the WACC, its choice is of the utmost importance for all parties concerned. VAN DIJK MANAGEMENT CONSULTANTS assist in assessing arguments and in making benchmarks.

Regulatory asset base (RAB)

The value of the regulatory asset base represents the *economic* value of the company's net assets. Since the transmission activity as such is hardly ever quoted at the stock exchange (and even if it were), this economic value has to be agreed upon between the NRA and the TSO/DSO. Most often, the net book value of the assets, especially when calculated using accelerated depreciation rates, only constitutes a lower limit of the RAB-value.

Several methods can be used to determine a value closer to the economic value, amongst which the two most important ones are:

- a re-evaluation of the assets, using the real life expectancy of the equipment, and not its fiscal depreciation periods, and also using current acquisition values instead of historical acquisition values,
- discounted cash flow methods, whereby the future cash flows are discounted to determine the economic value of the operator, and hence, of its net assets.

Depending on the method used, typical questions to be addressed here concern:

- the choice of the real life expectancies,
- the current acquisition values,
- the rate at which the future cash flows will be discounted,
- the composition of the cash flow to be considered (EBIT, EBITDA,...),
- the way the value of the RAB is determined starting from the total discounted cash flow.

Obviously, the value of the net assets changes with each new investment, so that one of the key questions to be addressed, once the starting value of the RAB has been determined, concerns the way in which new investments will influence the future value of the RAB.

This issue is of the utmost importance, because its result will influence the readiness of the operator to invest in new equipment, without of course leading to "overinvesting" practices.

Typical questions to be addressed here are:

- will the new investments be remunerated at the same WACC as the existing net assets, or at a higher rate?
- will the RAB-value of the new investments decrease at the same rate as the fiscal depreciation, or at a lower rate (a similar question is, of course, to be answered for the RAB-value of the existing equipment)?

As for the topics mentioned above, these questions too need careful consideration, and VAN DIJK MANAGEMENT CONSULTANTS assist in assessing arguments and in analysing the impact on the tariffs of a choice for each of these elements.

Development of business plans

Obviously, the discounted cash flow method implies the use of a mathematical model for the simulation of future balance sheets and company accounts, allowing hypotheses for *i.a.* the following main parameters:

- the volumes of the transmission activities and its future evolution,
- the investment (and de-investment) program,
- productivity gains,
- the effects of price caps the regulator might impose,
- the evolution of the gearing ratio.

VAN DIJK MANAGEMENT CONSULTANTS have developed a software that allows to simulate the TSO/DSOs accounts taking into account all of the above, and numerous other parameters. This software proves to be an important decision support tool for both parties.

Development of reporting systems

The complex relations between the TSO/DSO and the NRA have to be supported by a reporting system with all the relevant information that the operators have to communicate to the regulator. VAN DIJK MANAGEMENT CONSULTANTS help in setting up such reporting systems.

International benchmarks

Obviously, international benchmarks of tariffs and tariff structures are part of the information that is relevant in the

decision making process. As already described above, the value of the WACC takes into account elements that are country specific, sector specific and company specific. Consequently, all comparisons of the relations between NRAs and TSO/DSOs should be based on these three types of elements. In other words, international benchmarks should be carried out having regard to all the relevant information, and not just some individual elements relating to only a part of the global problem. By means of example: the NRA might impose a WACC at the lower limit of what is reasonable, but accept a RAB at the higher end, or *vice versa* - or he may accept only a low starting value for the RAB, but agree with a more advantageous settlement for its future evolution.

Comparisons should not only be limited to the financial aspects of the relations between NRAs and TSO/DSOs: other types of information, such as the legal framework, technical aspects, timing aspects,... may prove relevant.

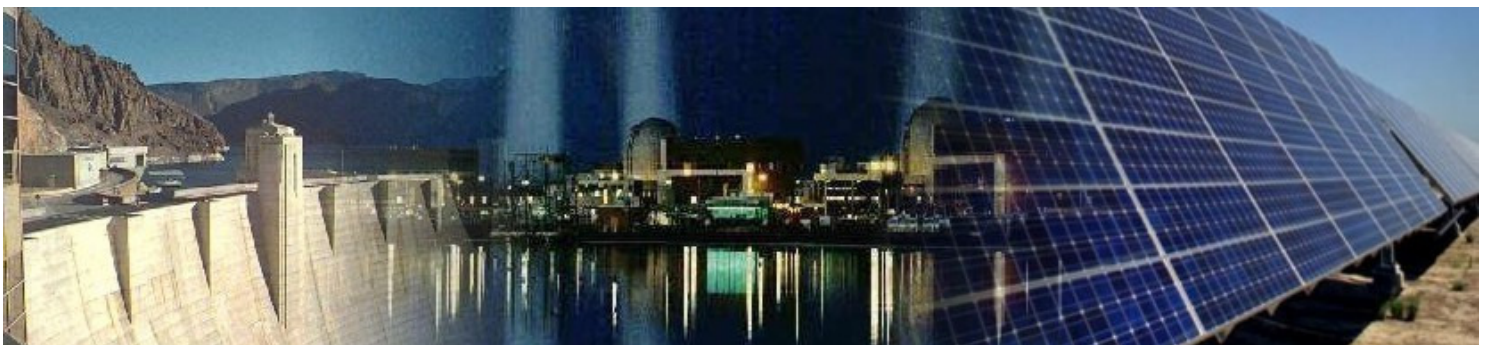
VAN DIJK MANAGEMENT CONSULTANTS assist NRAs or TSO/DSOs to collect and analyse all data useful for their own purpose. The spectrum of the information that VAN DIJK MANAGEMENT CONSULTANTS are able to provide or search is very large, thanks to our experience in the energy domain.

Information may concern all specific activities involved in the electricity and gas sectors, *e.g.* generation, import/export, trading, transmission, distribution, supply and, in addition for gas, storage and LNG terminals. Investigation may cover various topics such as legislation, market description and organisation, liberalisation, regulation, public service obligations, market players, network management, tariffs, taxation, environment, renewable energies.

And for each topic, very detailed aspects can be treated; for instance an extensive information on regulation and regulatory authorities should at least include legal framework, identity, mission and tasks, structure and organisation, funding, degree of independence, decision-making process, investigation powers, juridical process and appeals, market consultation procedures of the NRA as well as coordination with other authorities such as competition authorities.

All Member or Candidate States of the European Union and also countries like Switzerland, Norway, Canada and the United States fall into the scope of our segmentation.

VAN DIJK MANAGEMENT CONSULTANTS will provide well-



structured and practical information presented in such a way as to make easy in-depth analysis of a given country and/or comparisons between countries. We also take charge of the permanent updating of the data gathered including a day-to-day news service.

Since VAN DIJK MANAGEMENT CONSULTANTS is also specialised in information and communication systems and technology, we help NRAs or TSO/DSOs in optimising the data processing and improving the use of the information. We also help finding solutions adapted to needs and budget constraints. VAN DIJK MANAGEMENT CONSULTANTS offer all the technical support to implement tools based on knowledge and content management. To give an idea, a documentary database could be created and supported on Web products (Internet/Intranet) with performing integrated functionalities of archiving (original documents - texts and pictures - with links to sources, analysis and synthesis reports, benchmark results), updating (automatic survey), searching (multi-criteria, full text), consultation (chronologically, by countries, hierarchically by activities/topics/aspects) including also access administration (users, profiles); all those functionalities being accessible online through a Web interface.

Such a database would thus allow to:

- process a lot of information in various formats (Word, Excel, PowerPoint, PDF,...),
- have only one structured support for information,
- keep the link between information and its source,
- warrant easy and shared but controlled access to information,
- consult and compare information on a flexible way using several search criteria.

VAN DIJK MANAGEMENT CONSULTANTS have developed a specific software tool, *iClass* to support the structuring and exploitation of all these types of information.

Contacts

For any further information concerning the services that we offer and/or have realised, please contact Mr. Jan Moens, Director of Studies (jan.moens@bvdm.com) or Ms. Tine Debusschere, Director (tine.debusschere@bvdm.com).

VAN DIJK MANAGEMENT CONSULTANTS
Avenue Louise 250, boîte 14 - B-1050 Brussels - Belgium
Tel. +32 2 641 00 00 - Fax +32 2 641 00 30
<http://www.bvdm.com>

