

What reference costs should be used to regulate access price ?

A commentary on the methodology to regulate access to electricity produced by the historic nuclear plants

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The Champsaur report assesses how to regulate access to electricity produced by French electricity incumbent, EDF. This regulated access concerns electricity produced by EDF's historic nuclear plants and destined for other suppliers. Granting access to these plants has been acknowledged and the current issue focuses on which reference costs to use to set access prices. The various cost evaluation methods yield different results. The chosen methodology will depend on if the consumer benefits or not from the historic nuclear plants' competitive advantage. The solution will uphold fair and long term competition for France's electricity markets.

What proposals does the Champsaur report put forth to regulate access prices?

Defining how to organise the French electricity market, the Champsaur report focuses on the best interest of French consumers. This organisation aims to establish long term competition in the production of French electricity, which will remain nuclear produced.

Protecting French consumers

The Champsaur report states that EDF benefits from a competitive advantage since France's historic nuclear plants provide EDF with low cost nuclear-produced electricity versus thermal-based electricity (gas, coal, fuel). As the French have accepted to house one of the European Union's most developed nuclear plants, they should in turn benefit from these nuclear plants' price advantage¹. With the French electricity market opening to competition, electricity suppliers (EDF and competitors) should all access national nuclear-produced electricity at the same price. More, each supplier should access a quantum of EDF nuclear electricity based on the pro-rata of their French client base. The price of electricity should be cost-based, with costs factoring in present and future production, as well as «existing historic nuclear plants in condition». This will benefit consumers. Regulation applies to wholesale prices with the price set below free and non-regulated European markets.

To ensure that all consumers benefit from the nuclear advantage, the report advocates temporarily maintaining regulated retail tariffs².

¹ Champsaur report, page 5 (third public policy objective). In economic terms, this is a monetary compensation stemming from the negative externality of the proximity of a «polluting» good (NIMBY issue).

² An attractive price for basic electricity can be accompanied by containing electric consumption. This means that retail prices factor in peak electricity production. In line with the French government's ecological policy (Grenelle environment policy), the Champsaur report underlines «price signal», as a key issue for the cost and impact of producing peak electricity. The government would like end consumers to be more responsible in their energy consumption.

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Foreseeing the development of sustainable competition to produce French nuclear electricity

In the long term, the Champsaur report foresees fostering competition in production activities with the construction of new nuclear plants. Indeed, electricity available via regulated access only targets electricity produced by historic French nuclear plants—to be closed over time. Regulated access will initially constitute the main source of electricity suppliers' MWh, but will decrease over time.

Electricity suppliers will consequently find new sources of basic electricity production to replace regulated MWh. The report underlines the **pivotal aspect of opening competition to new investments to produce nuclear electricity**.

Building permits for French nuclear production should respect fair competition so that the reduction of available volume via regulated access is accompanied by competitive production of nuclear-generated electricity. If steps are not taken to promote competition, the historic monopoly will last.

Why does the price of cost-based access vary with the calculation method?

While the Champsaur report clearly lists the costs to include in the regulated access price, it does not calculate the result. As the seller, EDF logically advocates a calculation method with a high MWh regulated price. Called «Current Economic Cost method», EDF does not use the methods described in the Champsaur report. The debate therefore focuses on the methodology.

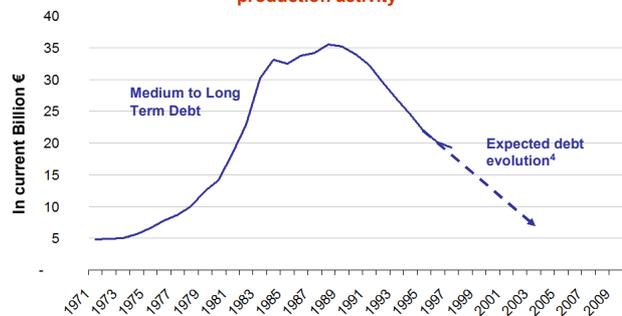
In economic-based price regulation, the key issue is to adopt a price signal which concomitantly accounts for the current and forward-looking structure of the market to be regulated. Since each regulatory-based pricing case upholds a specific method, there are myriads of cost-oriented methods. The pertinence of a cost-oriented method depends on the context and regulatory objectives.

The cost-oriented method described in the Champsaur report

To set the basic electricity access price for historic nuclear plants, the report refers to «Current Economic Costs». The costs mentioned in the report are current and forward-looking operating costs, cost of *maintaining the historic nuclear plants in condition* and the activity's residual debt. The report, however, does not refer to past investments to build *existing historic nuclear plants*.

Based on external sources³ our estimates use the described method, and point to **a regulated access price which is two times less than the EDF price**. This difference stems from the near reimbursement of the debt financing historic nuclear plants. Between the end of the 80's and 1997 (see graph 1), EDF's long term debt contracted by more than 40%. With EDF's international expansion,⁴ tracking the debt has become more difficult and current debt for the historic nuclear plant activity is minimal.

Graph 1 – Evolution of medium to long term debt nuclear electricity production activity



Source: «-Bataille» report (1999), Roulet report (2003), TERA Consultants analysis

From an investor's point of view, this price is calculated on residual debt rather than on the accounting value. This accounting method omits contributions to shareholders' equity⁵. Historic nuclear plants were almost fully financed by debt⁶. Until the 1980's, EDF's average medium-long term debt increased parallel to investments in nuclear plants (see graph 2). In this specific context, it is economically legitimate to retain prices based on residual

³ Sources: «Bataille» report (1999), EDF presentation to UFE (September 2009), TERA Consultants analysis.

⁴ In 1997 EDF debt started rising because of its international expansion. This point was highlighted in the Roulet Commission report on EDF's industrial and financial project – Volume I «EDF's net debt totalled 24 billion euros at June 30, 2004 after having peaked at close to 27 billion euros in 2002, after five years of international expansion».

⁵ In general, investment financing requires shareholders' equity (shareholder/investor role) to leverage debt (role of the banker).

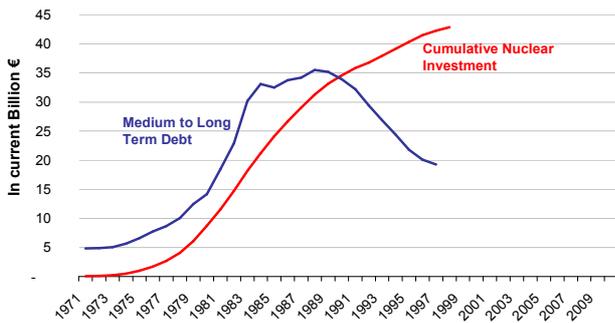
⁶ « investment was primarily financed by outside debt », rapport Galley-Bataille, 1999, Volume II, Chap. 1, Part 1

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debt rather than on the asset's accounting value. Otherwise, the regulated price would not cancel the regulated player's competitive advantage.

retail price which will be maintained at a very low level. In short, the higher the regulated access price, the higher the price increase for retail prices (to prevent electricity suppliers from being subject to a margin squeeze), meaning EDF retains its historic nuclear site advantage. This also means that the advantage which was destined to trickle down to consumers doesn't trickle down.

Graph 2 – Cumulative nuclear investment financing by medium to long term debt



Source: «-Bataille» report (1999), TERA Consultants analysis

Commonly used economic regulatory methods to set cost-based prices

Calculating a 46 €/MWh for historic nuclear electricity⁷, EDF drew on a method used by French regulator, ARCEP, to regulate the access price to France Telecom's network⁸. Via this method EDF factors in the identical renewal of its nuclear plants. The Champsaur report, however, only refers to the value to «maintain historic nuclear plants in condition». The EDF method consequently results in a much higher price. Two other cost-based methods point to regulated MWh prices between 30 and 40 €/MWh:

- First, the **Current Cost Accounting (CCA) method**⁹, used to bill the good or the service produced by a monopoly with no competitors in its business (as in the case of *essential facilities*);
- Second, the **building from scratch method**¹⁰, to find a tariff to incite competition among producers.

The objective in choosing a calculation method lies in fostering competition, by imposing a regulated tariff (cf. Table 1) in a lower range price. This objective can only be fulfilled **if the cost-based price aligns with retail regulated tariffs** (implying that there is no margin squeeze for alternative electricity suppliers). Regulating access when the price is too high is incompatible with a

Table 1 – Different cost valuation methods corresponding to different principles of cost valuation

Cost valuation method	Reference	Method principle
Current Economic Cost Method taking into account past investments	EDF	EDF's application means financing a new building of identical production facilities
Building from scratch method	DGEC	This method compute the cost of newly built sites with the best available technologies.
Current Cost Accounting (CCA)	Accounting	This method especially takes into account the accounting depreciation amount of the regulated company.
Method written in the Champsaur report taking into account present and future costs of the nuclear plants and residual debt of the initial building	Champsaur Commission Report	This method corresponds to the cost to manage and maintain historic existing nuclear plants in condition until its closing.

Source: TERA Consultants analysis

Conclusion

The method retained to set the regulated access price must solve two problems. The first focuses on equal sharing of the nuclear advantage between clients and producers. The second focuses on equal distribution of the historic nuclear plants' competitive advantage to be shared among all suppliers on the French market. If the price is too high, the French citizens who have accepted nuclear plants on their territory receive no compensation. More, via the government, they have guaranteed the economic risks linked with the construction of nuclear plants. If the access price is too low, it may upset the incumbent's economic equilibrium.

Regulating the access produced by historic nuclear plants translates to instilling fair and lasting competition across the French retail and wholesale electricity markets. While a high access price (regulated retail tariffs which remain unchanged) doesn't spur fair competition on the

⁷ Source: EDF presentation to the French Energy Association (UFE) (September 2009)
⁸ To set unbundling tariffs, ARCEP created a method called «Current Economic Costs» (decision 05-0834). This method corresponds to Current Cost Accounting, (CCA) with an economic depreciation instead of an accounting depreciation
⁹ Sources: Report « Galley-Bataille » (1999), EDF presentation to the French Energy Association (UFE) (September 2009), TERA Consultants analysis
¹⁰ Source:«synthesis of the reference costs to produce electricity», DGEC 2008, TERA Consultants analysis

competitors from investing in basic electricity production, and impede competition on the wholesale market.

Given the complexity of the debate and the issues at stake, there are technical and economic prerequisites to carry out before taking political and regulatory decisions. The Champsaur report recommends setting up an independent Authority to oversee the market between suppliers and producers (namely regulated access tariffs) and the retail market for end-clients (namely regulated tariffs). This authority will, above all, organise debates around fundamental questions for the electricity sector, and more generally for the energy sector. This article contributes to the collective reflection.

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