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Does *dirigisme* or/nor competition dominate the non-technical dynamics of electricity supply in France?

Abbreviations

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| ARENH | <i>Accès Régulé à l'Electricité Nucléaire Historique</i> |
| EC | European Commission |
| EDF | <i>Electricite De France</i> |
| EPR | European Pressurized Reactor |
| EU | European Union |
| IED | Industrial Emissions Directive |
| MEDEF | <i>Mouvement des Entreprises de France</i> |
| MWh | megawatt-hour |
| NOME | <i>Nouvelle Organisation du Marche de l'Electricite</i> |
| JORF | <i>Journal officiel de la République française</i> |
| TaRTAM | <i>Tarif Reglemente et Transitoire d'Ajustement du Marche</i> |
| TWh | terawatt-hour |
| UMP | <i>Union pour un Mouvement Populaire</i> |
| WPR | Water Pressurized Reactor |

Introduction

The dynamics of electricity supply in France are highly complex and extremely politicised. Competition has been notable largely by its relative absence. However, and catalysed by the EU more than domestic politics, limited competition is now in place and steadily growing in extent, albeit from a low base. However, traditional statist *dirigisme* (leadership) may now be under threat from competition to a far greater degree than planned for by the French state's limited concessions to the EU. The twin forces of politics, to a great degree revolving around the NOME law (JORF, 2010), and economics are key drivers for such a change, should it materialise.

It is important to underscore the rupture from the past that a genuinely competitive French energy market would represent: despite France's downstream energy markets being opened completely to competition in July 2007, as of 2012 it was reported (Patel, 2012) that new entrants "have made few inroads in the electricity market because EDF" (the state-majority owned vertically integrated power company) "is able to produce relatively cheap power from its nuclear reactors".. and in 2011, it "had 94 percent of the household market and 78% of business demand. The utility controls 80 percent of the country's power generating capacity including all atomic reactors, two-thirds of thermal capacity, 81 percent of hydroelectric capacity and about a third of renewable output."

Furthermore, according to new entrant Direct Energie's deputy head Fabien Chone, 50% of people are unaware of retail competition, "two out of three think GDF (GDF Suez) and EDF are the same company and 80% think regulated tariffs are the cheapest", despite this no longer being the case (Boselli, 2013).

Therefore, to even argue that "Does *dirigisme* or/nor competition dominate the non-technical dynamics of electricity supply in France?" is an open question is to take on presumption that, of course, *dirigisme* dominates in this way.

NOME

Aims

Jean-Claude Lenoir, *rapporteur* of the NOME bill to the National Assembly, summarised NOME's aims as follows (Lenoir, 2010 p.46): "the law will enable us to allow consumers to benefit from the competitiveness of our nuclear fleet while respecting their freedom to choose; to offer satisfactory responses to the EC; and to generate long-term financing for nuclear facilities. Those are the main aims of this bill".

NOME's "main motivation is .. eliminating retail tariffs for industry because they are incompatible with EU law while ensuring French industry will continue to benefit from the cost advantage of nuclear power generation" and is built upon a powerful and "large political consensus" of "French electricity to French consumers!" (Lévêque, 2011a pp.11-12), as articulated *inter alia*: "it is legitimate French consumers benefit from competitive advantages of French power generation capacities" (Champsaur, 2009 p.5); and, quoting a National Assembly speech of Patrick Ollier MP, "the Act appears to be well designed to enable our country to protect its nuclear fleet and to continue to enable the French to benefit from it" (Lenoir, 2010 p.43). This collectivist, *dirigiste* and *pro-limited* competition argument can be summarised as follows: because the French took the risk in common to invest heavily in French nuclear energy post the first (1973) oil shock, they and only they should benefit from low energy prices resulting from this legacy.

Features

NOME's main features as follows: retail competition-engendering, regulated (price and volume) access by alternative suppliers to energy generated by EDF's historic nuclear fleet; an implicit electricity destination (i.e. France, see above nationalist justification) clause of dubious legality; volume determined by a supplier's proven track record of expansion/ extant customer base; limit set on overall volume, initially 100 TWh p.a., rising to 120 TWh in 2013; and the provision of a legislative framework for a capacity market. NOME is cleverly worded such that there is no explicit destination clause, however "it simply removes the incentive to do so by adding a surcharge. If (suppliers) exceed the volume they were allocated on the basis of their portfolio of domestic customers, they will have to pay the difference between the regulated tariff and the market price." (Lévêque, 2010 p.31)

Paradox?

The contortions and compromises of NOME detailed above leads to what has been called (Percebois, 2012) "The French Paradox". The basis for such a "paradox" is that to introduce effective competition, demanded by the EC (see below) but not the French public or political class, either: the incumbent's (EDF's) prices need to increase to market rates, despite their lower costs due to the mostly amortized cost of investment in France's common (shared technology also leading to lower costs resulting from scale economies) WPR 58 power station-strong nuclear fleet; or new entrants' prices need to fall to those of EDF, whereas a key (supposed) benefit of competition is that it leads to lower prices. Such a policy outcome based on "completely deregulated prices" *in toto* is considered "NOT POSSIBLE" (2012, p.4). Instead, the NOME law is a way of making operational the only politically palatable option, namely making profitable the charging of lower and competitive prices by the alternative suppliers.

Dirigiste?

Prior to 2010 and NOME, much of the apparatus required for *dirigisme* in other sectors had been dismantled through liberalisation and privatization, in particular post the 1983 French economic and fiscal crisis. However, a sector comparison between two key French utility sectors, telecommunications and electricity, indicates some key differences between these two sectors in terms of government policy (Bartle, 2002): whilst, for both, "in France from the 1960s to mid 1980s the policy response was highly *dirigiste*" leading to both a "state led telematics programme" and the massive investment in the nuclear fleet, respectively, by the late 1990s for telecommunications "there was a (liberalising) shift in the dominant norms of government and industry" this was in contrast to "electricity in France where the traditional norms were dominant and acceptance of liberalisation was reluctant and slow" and where *dirigisme* was not undercut as viable policy option. Hence, when the French government returned to *dirigiste* rhetoric generally in response to the 2008 financial crisis, the following damning verdict could not be applied to the electricity sector: since the basis for this analysis was invalid for that specific sector (Levy, 2011 p.1): "the government has committed few additional resources (and) displayed little inclination to steer business strategies", as a result of "the break with the *dirigiste* model in 1983" both depriving the state of the necessary "institutions and instruments" or

dirigisme and the massive expansion of welfarism that accompanied this change, during a period of high social dislocation and unemployment.

NOME's choice of name implies a shaping of the electricity sector by the state, that is: *dirigisme*. In this case, the rhetoric of leadership could match the reality; whether that leadership would be effective, or result in intended consequences would be another matter.

Defensive Origin of NOME

NOME is in many ways a defensive measure, an orientation that is consistent with *dirigisme* without resonating with its proactive spirit, mixing pro-competitive aims with the need to satisfy a named, pro-competition, external stakeholder: the EC. As reported (Lévêque, 2011a p12), the EC threat is not hypothetical: in April 2006 an Official Notice was made alleging failure to implement pro-competition Directive 2003/54, the culprit being the French maintenance of regulated tariffs for non residential consumers; and in June 2007 the EC opened proceedings (investigations) against France relating to potentially illegal State Aid of certain medium and large French companies. Hence, as stated by Senator Philippe Marini (Marini, 2010): “the first decisive factor in the success (of NOME) is its conformity with EU law.”

European directives have had a definite, albeit limited thus far, impact on the French electricity sector, a sector that “was first opened to competition in 1996 with the adoption of the first European directive on energy” (Lévêque, 2011b p.5), this directive being part of a greater whole, *viz.* “in France, the energy market has undergone a progressive liberalisation as a result of the European plan to establish a unique energy market that would end national monopolies” (Fages & Saarinen, 2012 p.86). An implicit aim of NOME was to contain this EU liberalisation through limited concessions to the EC, whilst retaining enough *dirigiste* levers to ensure the ongoing viability of such sector leadership.

The first concession of NOME was the elimination (as of July 2011) of the artificially low TaRTAM industrial-users regulated electricity tariff, a *dirigiste* instrument in that it offered French industry international competitive advantage through subsidised prices. TaRTAM was hugely loss-making for EDF due to the tariff itself and is also required to pay into a TaRTAM subsidy fund, hence (Newton, 2009) “the pre-tax cost of the Tartam regime (is estimated at) €2 billion between 2006 and 2010.”

Prime Minister Françoise Fillon wrote to EC Commissioner Neelie Kroes, making the case for NOME and was rewarded when “in her reply, cosigned by the commissioner for energy, Neelie Kroes indicate(d) that the general principles of regulated access seem to comply with EU law and that, in theory, the terms on which retail tariffs for large consumers will be maintained transitionally until 2015 are compatible with the treaty's provisions on state aid” (Lévêque, 2010 p.32).

As a result, “from the EC.. the risk appears limited” (Lévêque, 2011b p.6). Even so, French compliance with EU law is uncertain, and plaintiffs could bring legal action, in particular a “claim an infringement of Article 35 .. of the Treaty on the Functioning of the European Union (which) prohibits quantitative restrictions on exports and all measures having equivalent effect” (2011 p7), in order to secure cheap French nuclear energy beyond France's boundaries.

NOME and French Domestic Politics

NOME was enacted in 2010 at a time when the former leader of the centre-right conservative UMP, Nicolas Sarkozy, was the French President and when the UMP was the dominant force in the bicameral French parliament. The *Union* of the UMP is in the Gaullist tradition of the *Rassemblement* (“rallies”) led by De Gaulle and his successors, e.g. the *Rassemblement pour la République* (1976 – 2002), whilst also including more liberal centre-right parties and elements such as those in the tradition of President (1974 – 1981) Valéry Giscard d'Estaing. For de Gaulle, if France were to remain France, she had to take on *grands travaux*, vast projects worthy of her past greatness, “dedicated to an exalted and exceptional destiny” (Zaretsky, 2010). This political point is worth emphasizing since it provides the ideological basis for centre-right/ Gaullist French governments taking forward strongly interventionist, *dirigiste*, policies, including with respect to the supply of electricity, and not just those on the political left, either Socialist or Socialist-Communist, the ideology/ies of which are internationally consistent with state intervention and leadership. *Dirigisme* in France had, in fact, come under attack most strongly during a period of Socialist-led government and under a Socialist Presidency,

Francoise Mitterand, in the period from 1983 and as a result of economic crisis – this was a policy *volte face* for the Socialists resulting from economic necessity, but one that left *dirigisme* in electricity supply largely untouched.

Sarkozy's actions have led at least one commentator (Levy, 2011, p1) to see Sarkozy as a committed *dirigiste*: “the country has a long tradition of *dirigiste* or state-led economic development, and its President, Nicolas Sarkozy, as been an outspoken critic of *laissez faire* capitalism and of more robust regulation”, however this is a contested conclusion. In his *Témoignage*, a book he wrote in 2005 whilst Minister of the Interior, Sarkozy went as far as to state that “France can not be led today as it was in de Gaulle's day” (Zaretsky, 2010) as modern France was now far more complex than in de Gaulle's periods of leadership. Even so, as President (2007 – 2012) the financial crisis of 2008 certainly led him to a more interventionist policy making approach (much as the economic crisis of the early 1980s had led Mitterand in the opposite direction), as it did leaders globally; in response (Askolovitch, 2010) to the question “*mais Sarkozy n'est pas gaulliste... ?*”, prominent French pundit Claude Askolovitch responded “*C'est plus compliqué que ça. Il est de culture interventionniste... de toute manière, c'est une nécessité*”.

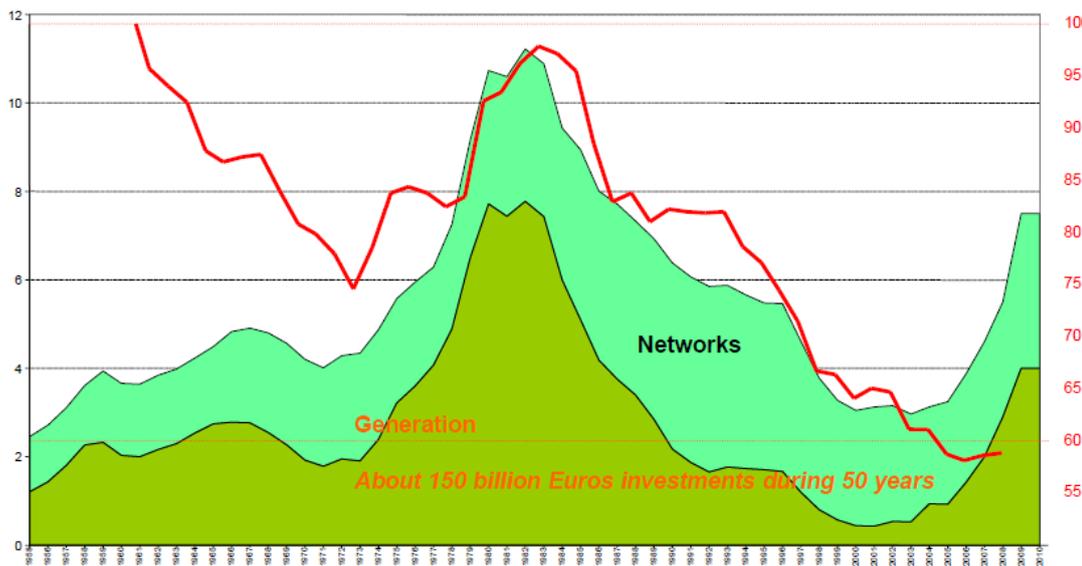
Regarding downstream energy an analysis (Bartle, 2002) shows that, unlike for telecommunications, *dirigisme* remained a viable policy choice for Sarkozy since the necessary state tools remained extant, and not one of mere rhetoric that he is accused (Levy, 2011) of more generally. Hence when, in May 2004 and as French Interior Minister, he reasserted the primacy of nuclear energy by rephrasing a familiar pro-Nuclear Gaullist slogan to: “we do not have oil, we do not have gas, we do not have coal, but we had ideas”, he had the benefit of the necessary policy instruments, policy instruments no longer available to French governments in other sectors.

In 2012 Sarkozy lost the French Presidential election to the Socialist, Francois Hollande. A key Hollande election pledge (domain-b.com, 2009) was the reduction in the French energy mix of nuclear energy to just 50% by 2025 (from nearly 80%), a pledge that goes against the spirit of NOME if not its letter. After his election prominent Hollande supporters called for NOME's suspension, e.g. by his energy adviser Francois Brottes MP, who claimed it led to energy “speculation”. The (Socialist) government response was swift: Industry Minister Eric Besson stated that suspension would “expose France to a conflict with Europe that could explode our power system ... (and that) under the NOME law, Europe accepted that France retains its regulated rates that guarantee a competitive nuclear price”; hence, NOME would be retained (Patel, 2012).

These nationalist arguments are not fanciful. The below graph shows, the very strong post 1973 first oil shock correlation between French industrial regulated electricity tariffs and the level of investment made in French electricity capacity (overwhelmingly this is in the French nuclear fleet – this totality is shown by the lower of the three lines on the below graph), and also the total electricity (generation) output by value, a value that is of course greatly impacted in the 1970s by the oil price spikes. As can be seen (Percebois, 2012 p.7), French (in this case, industrial) consumers paid for the strategic investment in nuclear fleet that continues, thus far, to provide France with comparatively cheap electricity. These payments underpin the low regulated access rate (ARENH) to nuclear energy by EDF's competitors, see below.

Evolution of Electricity Investments in France (1955-2011)

Power generation and network investments in constant 2007 Euros; billion Euros on the left-axis
 Tariffs in red (industrial tariffs in real terms, Euros/MWh on the right-axis) are linked to investment effort since the first oil shock in 1974 (start of nuclear program) source: EDF



NOME Consequences

A self-confident NOME government impact study concluded in April 2010 that it “will permit alternative suppliers to make competitive offers... medium-sized and major consumers to benefit from competition.. will provide a guarantee of better visibility for.. should contribute to significantly improving the functioning of the market” (Lévêque, 2011a p.17).

An view, and one of this paper, is that NOME is a catalyst for (substantially unintended) change not a part of the legal geological bedrock or a piece of long-lasting, effective *dirigisme*. Leveque (Lévêque, 2011b p.2) notes NOME’s supposed 2025 regulation time horizon, but is notably unconvinced of such longevity: “it is likely that NOME will be very transitory, that is, a life duration lower than 5 years. It may be seen as a new TaRTAM: a new way to prolong regulatory tariffs for a few years” (2011 p.21).

Pricing and Economics

One factor inimical to the extant nuclear fleet price and volume generation stability that is a fundamental precept of NOME is the inconvenient truth of rising costs and prices.

Rising Regulated Tariff Prices

Firstly, it should be noted that, the option above referred (Percebois, 2012, p.4) to as “NOT POSSIBLE” is occurring to a limited degree: EDF is putting up its prices, making the prices of its competitors more competitive and introducing more competition into the market as a whole. Reuters (Boselli, 2013), noted that:

- A 5% increase in regulated EDF tariffs in August 2013 has is “finally giving retail power suppliers the possibility to grab some of EDF's 92 percent market share”;
- 2014 and 2015 price increases will occur to both “cover EDF's rising costs and to stave off lawsuits” alleging uncompetitive pricing; and
- Competitors to GDF are fast gaining market share, e.g. a near doubling by Direct Energie whilst GDF Suez “now expects to reach 5 million clients in the next five years instead of 2 million previously”.

Even ahead of this 5% regulated GDF tariff increase, during quarter two of 2013 (*Commission de régulation de l'énergie*, 2013 p.19), some new entrants were already charging cheaper prices: with respect to 6kVA Base type customers, Proxelia Domelia were 4% cheaper, Direct Energie 1% or 3% cheaper (depending on the tariff chosen), and Planete Oui 1% cheaper; for 9kVA Peak/Off Peak type customers the position was almost identical, with the exception of the Planete Oui tariff being 5% more expensive in this case.

As noted above, nor will this regulated tariff increase be the last: it is but the first in a tranche of above inflation increases that will be required by the NOME legislation. By 2015, all of the GDF tariffs, for residential, professional (two variants of blue tariffs, newly convergent in price) and industrial users (yellow and green tariffs) should be aligned to the regulated nuclear access ARENH tariff. Writing in 2011, Leveque (Lévêque, 2011a p.16) states that this alone implies a 10% increase in tariff charges for large customers, and a 5% increase for smaller customers, and furthermore additional increases in tariffs reflecting the following factors are also highly likely: ARENH increase to take into account “investments in life plant extension...; the cost of capacity obligation; transmission and distribution” (investments); and increased costs to fund the expansion of both solar and wind renewables (2011 p.16).

Rising Cost of Nuclear

The *Cour des Comptes* (Court of Auditors), identified (Casey, 2012) in 2012 that the “cost of producing nuclear energy is set to surge in France as old plants need updating and new safety standards put in place. Nuclear will require significant investment in the short and medium term at a rate of at least double the current level of investment.” In terms of new nuclear energy, the *Cour des Comptes* that the position is yet more inflationary: “the cost of electricity made in (third generation, EPR) plants like Flamanville will be €70-90 /MWh – (potentially) more expensive than onshore wind energy”, which has a feed-in-tariff of €80 /MWh (2012). The construction cost of Flamanville is now estimated at €3.7 million per MW, more than thrice that of the 58 extant 2nd generation WPR plants that, through sharing tried and tested, common, technologies, have provided France with cheap nuclear electricity. Commenting (Plumb, 2013) on this deteriorating situation, EDF head of production and engineering Herve Machenaud bemoaned that his firm had lost its dominant international position in nuclear energy facilities design and construction, which is also a negative appraisal of the French state’s more recent *dirigisme* of EDF and the French downstream energy sector by extension.

New Cost: Capacity Certificates

Then there is the issue of reliable levels of sufficient capacity across the network. As has been noted (Boselli & Douet, 2012) “while France generally has steady power supplies thanks to its 58 EDF-run nuclear reactors, it lacks flexible capacity - usually generated by gas, coal or oil-fired plants - to meet peak evening-time demand during cold snaps”, and as required back-up during lower periods of renewable generation, e.g. in “France every year, wind energy production is higher during the coldest months”, and lower during the summer, with the average 2012 figure of 3% masking the fact that in late December 2012 wind energy was peaking at 10% of French energy generation, indicating massive levels of variation (Casey, 2013). Moreover, there is less coal and oil fired plant flexible capacity to meet these relative troughs in supply, not least as a result of European directives: for example, E.ON announced in 2012 (Platts, McGraw Hill Financial, 2012) that it planned to close four of its seven coal-fired plants by the end of 2015, ahead of the IED coming into force 1st January 2016. The IED consolidates seven previous EC directives, including the Large Combustion Plant Directive, and commits European Union member states to control and reduce yet further their domestic emissions of industrial pollutants (NO_x, SO_x and other particulates). The French policy response, as legislated by NOME, is to introduce an obligation on generators to purchase peakload production capacity certificates on a three year forward basis, with the volume aligned to their market share.

This is a controversial decision, and not one easily categorised as *dirigiste* or pro-competitive (Patel, 2012): the French anti-trust authority, *Autorite de la Concurrence*, puts its cost at €200-500 p.a. and noted both the additional regulatory burden implied and that such schemes were unproven in their efficacy. However, energy regulator *Commission de Regulation de l’énergie* issued the following considered response: ‘capacity trading is “justified in the long term” because French peak demand is forecast to increase’ even though ‘the system may raise consumer prices, would be complicated to put in place and could affect how the power market operates’.

Costs of Reducing Reliance on Nuclear – and the viable dirigisme alternative (i.e. not doing so)

According to the lobby group representing EDF and GDF Suez (Boxall, 2011), an energy mix reduction to 50% nuclear would cost *circa* €60bn to deliver over a two decade period. In sum, even without the 50% target, the same group estimated that a €322bn investment over 20 year in the electricity supply system, increasing to €382bn given implementation of the 50% plan.

During the inconclusive 2013 series of state-sponsored debate or *grenelle*, attracting a (reported, staggering) total of 170,000 participants, in France during 2013, the government’s French Atomic Energy Association

restated its support for “the increased use of electricity to substitute for oil and gas but was bound to Hollande's line that nuclear power's share of generation should be 50%”, a torturous combination in the French context (World Nuclear News , 2013)

A clearer recommendation came from the Energies 2050 Commission eponymous *Rapport Energies 2050* (Percebois & Mandil, 2012), albeit not one that was consistent with the 50% Presidential target. The Commission analysed four different policy options (Percebois, 2012 p.17) leading up to the years 2030 and 2050, namely: (1) rapid switch to EPR, with existing WPR plants retired at 40 years age limit; (2) extension of life expectancy to WPRs to 60 years, requiring a €55bn investment; (3) achievement of the 50% target but by 2050 with no life expectancy extension; (4) as above, but total phase out of nuclear by 2050. The Commission recommended the “no regret strategy” second option as the least expensive, noting that it would also allow for new more efficient technologies to be developed than the EPR (2012 p19); whether the French government will take this advice, advice that would help protect a key *dirigiste* policy instrument *viz.* the French nuclear fleet, is unknown as yet.

ARENH & Political Indecision

The ARENH tariff was introduced by NOME. In 2012 it was set at €42 /MWh, representing (2012, p.14) the nuclear generation “cost for the incumbent EDF taking into account amortized capital and extension of life expectancy investments” in the existing 2nd generation PWR nuclear fleet. However, this reflects the policies of the previous, UMP, political regime and not that of the Socialists, now in power, see above. In terms of current costs only, the *Cour des Comptes* (2012, p14), estimate the cost of nuclear energy to be nearly 30% higher at €54 /MWh inclusive of these same life expectancy extension costs (or €49.50 /MWh exclusive of them) – this is because ARENH is calculated on a heavily amortized basis, factoring in past income received to pay off most of the WPRs investment costs, whereas the *Cour des Comptes* figure is calculate on an average historical cost basis.

ARENH (2012, p12) has three main components: (1) capital return on past, non-amortized nuclear investments (dismantling included); (2) aforementioned life expectancy extensions from 40 to 60 years of existing nuclear park; and (3) operating costs for this park. Originally the ARENH tariff was calculated at €39 /MWh cost, of which €8 was accounted for by (2), above (2012 p12). As can be seen from the comparison of ARENH rates with that of the *Cour des Comptes* in terms of current costs, and the cost increases detailed above, it is clear that ARENH (like TaRTAM before it) is not calculated to a generous level by the French state, despite the fact that the state remains its majority power generation owner, and that this situation is only likely to get worse, substantially and quickly, in the near to medium future.

Should this now be replaced by a new factor to take into account both the changing economics of nuclear generation, requiring differing levels of investment than previously forecast, and also the changed policy environment that may or may not have rendered defunct the 60 year life expectancy extension investment cost? Of course, these two questions are inherently linked: the final policy decision will determine in large part what France's nuclear investment costs will be, e.g. just maintenance and health & safety upgrading or substantial reinvestment, as per options (1) and (2) of Energies 2050 Commission above. In the meantime, it appears that those outside of government have a far clear vision of the future than President Hollande and his Socialists MPs: referring to the energy *grenelle* the first to consider nuclear energy in France, the employers grouping MEDEF, noted that the *grenelle* had been inconclusive: “issues of objectives, paths and funding remain fully open after eight months of debate. It is up to the legislator to clarify, set the course and the rules whose stability is fundamental for economic actors that will implement the energy transition” (World Nuclear News , 2013).

Dirigiste clear thinking on energy policy would now appear to be taking far more in the private sector, e.g. MEDEF, than the in French government, the latter constrained, for now at least, by a catchy but ill-thought out and arbitrary target of 50% nuclear energy generation, a pledge that “many pro-nuclear critics have cast.. as (a) short sighted, knee-jerk reactions to the post-Fukushima backlash”, and which is to the business detriment of the state generator-supplier, EDF. In this situation, competitive pressure is likely to substantially increase as EDF is undermined from above.

Conclusions

The above, immediate term, prognosis is that, *ceteris paribus*, competition will steadily replace *dirigisme* as the dominant factor in the non-technical supply of electricity in France. However, this is not the certain, long term conclusion: President Hollande has not taken practical steps to implement his 50% target, and whilst he fails to do so there is still scope for a revival of *dirigiste* energy policy in France, not least should the Gaullists, the centre-right movement paradoxically with a far stronger track record of *dirigisme* than the Socialist Party, return to power subsequently. Should Hollande instead deliver on this election pledge then, as in 1983 in a previous period of leftwing (Socialist-Communist) government, yet one more effective policy instrument for French *dirigisme* will be taken away, perhaps permanently, leaving competition to dominate the non-technical dynamics of electricity supply in France.

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