

## Energy-related policy tensions, prescribed sustainability and the 'everyday politics' of transition in the Paris city-region

---

Olivier Coutard and Jonathan Rutherford

LATTS-ENPC

Address: 6-8 avenue Blaise Pascal, F-77455 MARNE-LA-VALLEE, France

fon: +33 1 64 15 35 94

fax: +33 1 64 15 36 00

e-mail: [coutard@enpc.fr](mailto:coutard@enpc.fr), [jonathan.rutherford@enpc.fr](mailto:jonathan.rutherford@enpc.fr)

\*EARLY DRAFT VERSION\*

### Abstract

*The Paris Ile-de-France region represents 19% of the French population and 29% of national GDP, and yet, due partly to its relative compactness and high density, only 15% of national energy consumption and 9% of national greenhouse gas emissions (excluding air transport). Transformation of the energy system in the region is, nevertheless, seen both as a means and an overall objective of ongoing national, regional and local policy orientations. It is viewed as a critical way of addressing and mitigating the urgency of climate change in the region, plus more generally as a key initiative for meeting broad 'sustainable development' goals. It is an outright objective in the sense that there is renewed concern for decreasing the dependency of the French capital region on external energy resources, which currently account for all but 7% of its energy consumption.*

*In spite of these key stakes, however, regional energy policy remains at the current time modestly stuck at the level of aspirations and declarations of intent. The Regional Energy Plan for 2006-2010 and other explicit energy documents offer few concrete measures aimed at directly addressing energy dependency and climate change issues. We focus instead in this paper on the new general strategic plan for the region, the Schéma Directeur de la Région Ile-de-France (SDRIF). As well as being the key policy instrument for making Ile-de-France "the first ecoregion in Europe", this plan has a consistent and broad environment-energy focus. Analysing the political negotiations around its preconfiguration, we discuss three areas of tension and conflict in actor discourses: how compact the 'compact city' should be, the place of car traffic in relation to 'soft transport modes', and economic development versus environmental policy. We argue that these areas of political conflict reveal competing views of sustainability, illustrating the complex 'everyday politics' of managing transition to ensure urban-regional reproduction. We offer some tentative conclusions on regional policy repercussions in the medium term.*

## Introduction

The interrelated issues of energy constraint, climate change and sustainable urban development have moved to the top of the policy agenda in the French capital city-region. Local and regional actors have been increasingly engaging with these issues in a context of changing policy orientation. For example: the Ile-de-France Urban and Regional Planning Institute (IAURIF) is currently running a programme of seminars on the theme of 'energy constraint and urban adaptations in Ile-de-France'; the Regional Council has just approved a brand new strategic regional plan (SDRIF) in which climate change and peak oil are particularly present as 'challenges for a sustainable Ile-de-France', and which was preceded by a 118 page 'environmental evaluation' of the region from which the major ecological and sustainability issues for the strategic plan were drawn; a new Regional Energy Plan for 2006-2010 is in operation; on a more local scale, the Paris city hall has just produced a 223 page white paper as a precursor to a Climate Plan, something which other municipalities in the region already have (e.g. Nanterre); finally, there are numerous public agencies working on these issues on a regional level, e.g. the regional delegation of the Agency for the Environment and Energy Efficiency Measures (ADEME), the Regional Agency for the Environment and New Energies (ARENE), the Ile-de-France sustainable energies association... In short, everybody is having their say on all things *climatique, énergétique, durable*, etc. With regard to energy questions, the key concept currently doing the rounds is 'robustness' (attributed in the Regional Energy Plan to Dominique Dron, former president of the Interministerial Delegation on the Greenhouse Effect – MIES). Regions need to be 'robust' in order to decrease their energy dependence and their emissions levels, but this will also in turn reinforce the robustness of the region: "Reinforcing robustness to climate hazards means reinforcing the general robustness of the 'regional system'" (Région Ile-de-France, 2007, p.38).

This poses numerous questions around the level of coordination and consensus between different groups and different strategies/policies. How can all these agencies and institutions with varying strategies/policies, their own interests and their own level of resources possibly lead to the fairly common objectives expressed by all: less energy dependence and vulnerability, mitigation of climate change and the effects of climate change, a better environment for all – in short, develop a more sustainable region? What kinds of challenges and tensions face politicians and planners as they mix and match environmental, economic, social and political goals at multiple levels to engage in urban sustainability? This paper examines regional policies in the Ile-de-France region that focus on energy-environmental issues. By doing so, it seeks to provide insights on the changing relations between ecology, economy, governance, society and technology. It focuses on the regional level but discusses the articulation with other levels of governance (especially the national State level and the municipal Paris level) insofar as they significantly intersect with, and affect, regional-level policies.

The paper is structured in 4 sections. We first introduce the Ile-de-France region both from a general and more specifically from an energy perspective. This will highlight some of the stakes identified by actors and in strategic policy documents working towards improving the regional energy context (section 1). We then focus critically on debates and discourses around the SDRIF and the tensions they reveal between environmental and other sectoral (land use, transport, economic development) policies, between levels of government and between political parties (section 2). In section 3, building on the call by Shove and Walker (2007) for more exploration of the 'everyday politics' of sustainable transition management to get beyond the normative dimension of much 'transitions' research, we offer some preliminary reflections on

how energy-related policy tensions in Ile-de-France reflect some of the power, negotiation and contestation embedded in regional discourses promoting a systemic shift towards more 'sustainable' regional development. Finally, a brief conclusion sums up the arguments and discusses other research and policy implications of changing energy-related policies in Ile-de-France.

## Energy in Ile-de-France: the stakes for transition to an 'ecoregion'

### The state of play

The Paris Ile-de-France region represents 19% of the French population and 29% of national GDP, but only 15% of national energy consumption and 9% of national greenhouse gas emissions (excluding air transport and indirect emissions<sup>1</sup>). This may be related to the general wealth of the region compared to the rest of the country and to the fact that the most heavily energy-consuming industries (chemical, steel, etc.) are located in other French regions, but for regional actors it also shows something of the 'virtues' of compactness and high density in the Ile-de-France (Région Ile-de-France, 2007, p.35). Transformation of the energy system in the region is, nevertheless, both a means and an overall objective of ongoing national, regional and local policy orientations. It is viewed as a critical way of addressing and reducing the urgency of climate change in the region, plus more generally as a key initiative for meeting broad 'sustainable development' goals. It is an outright objective in the sense that there is renewed concern for decreasing the dependency of the French capital region on external energy resources, which currently account for all but 7% of its energy consumption. As table 1 makes clear, although in declining use, petrol still drives almost half of all regional energy consumption<sup>2</sup>, while endogeneous production and storage capacity has strongly decreased<sup>3</sup>. Gas has increased as distribution networks of natural gas have been increasingly deployed in urban zones, but Ile-de-France imports 100% of its gas. Such is the reliance on nuclear power for electricity production in France that the Ile-de-France region's eight (coal, fuel or gas) power stations provide only 3-10% of regional electricity needs. Renewable energy sources have had a hard time taking off. In any case, transport<sup>4</sup> and housing<sup>5</sup> constitute the main sectors of consumption (see figure 1), hence the persistent importance of petrol.

---

<sup>1</sup> i.e. emissions from activities located outside the region but which benefit the region, but including transit traffic.

<sup>2</sup> Energy consumption increased by 5% between 1990 and 2002 reaching 22.3 Mtoe, which represents an average of just over 2 toe per year per inhabitant.

<sup>3</sup> Regional petrol production has fallen by 50% in ten years (to around 500,000 tonnes) and storage capacity by 20% over the same period. Refining covers only around a third of regional needs.

<sup>4</sup> There are more than 6 million vehicles, 2 major airports and a dense railway network. But road transport is heavily accountable for energy consumption in this sector (70%), as transport of goods is done mainly by road.

<sup>5</sup> There are 5.2 million homes, although 71.9% are these are in collective buildings. ARENE notes that 75% of energy consumption in this sector comes from heating (IAURIF presentation).

Table 1: Energy consumption in Ile-de-France by resource

	1990	2002
Renewable energies	2.8%	4.5%
Combustible mineral solids	6.1%	3.1%
Electricity	17.8%	22.0%
Gas	17.4%	25.6%
Petrol products	55.9%	44.8%

Source: ARENE and ADEME, 2006

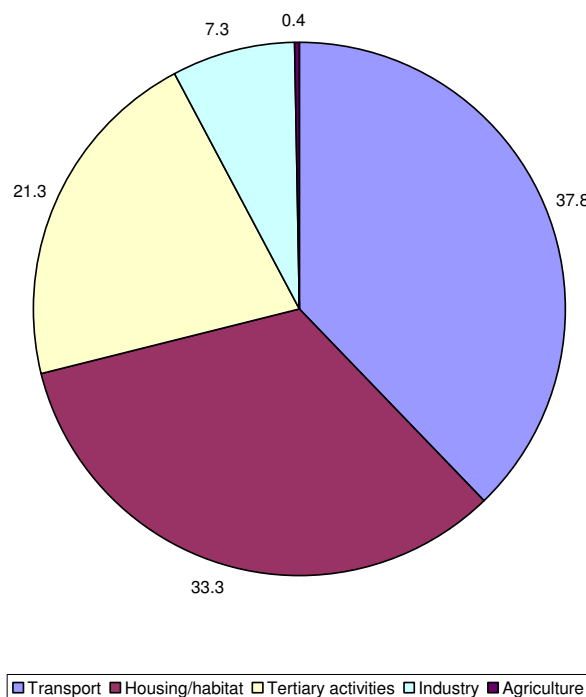


Figure 1: Energy consumption in Ile-de-France by economic sector, 2002 (Source: ARENE and ADEME, 2006)

### The energy stakes identified by key actors

The discourse of the Ile-de-France regional executive is built around the desire of its president M. Huchon to make the Ile-de-France the premier 'ecoregion' in Europe. Behind this prefix, however, is a fairly traditional sustainable development discourse in which of course social, economic and environmental objectives will all take precedence in an intertwined and coherent manner. One of the first actions under this regional labelling was to launch in March 2003 a process leading towards an eventual regional Agenda 21, and yet, almost four and a half years later, there seems to have been little movement and limited measures introduced with the exception of the setting up of a working group linked to the IAURIF for defining sustainable development indicators.

The current state of play in the Ile-de-France region as regards energy and climate change questions reveals nonetheless a broad consensus among most actors that there are two major stakes or objectives (see table 2):

First, to reduce the energy dependence of the Ile-de-France region (including through the promotion of local and renewable energy production). There are notably a number of endogenous resources which many actors and policy documents highlight as a potential way of better securing the region's energy future. For example, there are 112 sites in the region offering cogeneration of heat and electricity. There are also 120 heating networks which already derive 35% of their production from local, renewable sources (11% geothermal, 24% waste incineration) in order to serve 460,000 homes and some tertiary buildings<sup>6</sup>. Furthermore, there is held to be vast possibilities for increasing use of renewable energies such as geothermal, wood and solar power<sup>7</sup>. The potential of geothermal power within regional objectives for more local and renewable energy provision is particularly 'trendy', as there are quite large resources to draw upon (with the presence of many geothermal aquifers across the subsoil of the Paris basin). Geothermal energy in the region is mostly used for heating rather than electricity: the equivalent of almost 150,000 homes are currently heated by geothermal energy drawn by 34 plants from the Dogger reservoir.

Second, to reduce regional greenhouse gas emissions (within a logic of Factor 4 or better<sup>8</sup>). The region was responsible in 2005 for emissions of around 50 million tonnes of CO<sub>2</sub> (just less than 10% of national emissions) (AIRPARIF, 2005). Table 3 shows that this represents only a small decrease since 1990. Factor 4 by 2050 appears in this context quite optimistic. The transport sector is responsible for almost half these emissions (ARENE and ADEME, 2006), although measuring emissions attributable to aviation is subject to different methods and therefore results<sup>9</sup>. On an intra-regional level, it is notable though that the intensity of emissions increases the closer one gets to central Paris (75,000 tonnes/km<sup>2</sup> there compared to just 3,500 tonnes/km<sup>2</sup> in the periphery of the region). If we measure by inhabitant, however, the result is quite different, with the Seine-et-Marne department (the department with the lowest population density) performing worst which the SDRIF links directly to 'urban sprawl'. Either way, reducing emissions is an explicit regional objective.

---

<sup>6</sup> Although on this point we should note that according to an IAURIF study on the ecological footprint of Franciliens, quoted in *Le Nouvel Observateur* (25 Aug. 2005): "it seems that collective housing with non-individualised central heating systems is almost as costly [in terms of energy for heating] as individual houses". There is therefore a need to better understand how individual behaviours affect the performance of technologies!

<sup>7</sup> Solar power only became a political priority again in 2000, so results remain basic in spite of financial assistance and a professionalisation of the sector. 470,000 homes are heated by wood, although there is debate as to how ecological this method actually is. Wind power is, by contrast, virtually non-existent in the region.

<sup>8</sup> The Factor 4 objective has been taken up in four French policy documents: the national strategy for sustainable development (June 2003), the climate plan (July 2004) and the loi POPE, the programme fixing the orientations of French energy policy (July 2005), before an expert working group report on the Factor 4 objective was published in August 2006. In the French context, the building sector is viewed as key for working towards Factor 4, with recognition of the need to improve the energy performance of all buildings.

<sup>9</sup> AIRPARIF's cadastral approach observes only 2% of emissions from air transport (within the first 1000 metres of the atmosphere), while the ADEME, using a carbon count method, suggest the figure is more like 50%.

Table 2: Major stakes identified by the major regional actors in the major strategic documents

Strategic document	Major contextual stakes	Objectives identified	Measures or means proposed
SDRIF	Anticipate and respond to major crises or transformations, linked notably to climate change and rising prices of fossil fuels (the latter seen as a short and medium term stake) (the 2 <sup>nd</sup> of 3 major challenges which structure the document)	(a) Contribute to the international Factor 4 effort (b) Contribute to reducing vulnerability to climate change (c) Reduce vulnerability to rising prices of fossil fuels	To be decided...
Contrat de projet Etat-Region 2007-2013	Fight against climate change (one of the eight major projects described)	Reviving energy efficiency measures and developing local and renewable energies in housing and the tertiary sector	97 million euros (72 million from the Region, 25 million from the State)
Regional energy plan 2006-2010	Energy efficiency measures, the development of local and renewable energies and the reduction of the greenhouse effect in the housing and tertiary sectors	(a) to reduce the energy dependence of the region by increasing endogenous production from local and renewable sources (b) to reduce greenhouse gas emissions	Up to 150 million euros over 4 years: focus on individual domestic projects rather than collective infrastructure; creation of local energy agencies
Regional plan for air quality	Improving air quality in the medium term in the Paris region	Control energy demand and polluting emissions attributable to housing/habitat, urban activities, industry and airport activity	
City of Paris white paper for climate plan	Fight against climate disturbances	Reduce greenhouse gas emissions (Factor 4)	A 'Marshall Plan' for thermal rehabilitation of buildings (district heating)
ADEME and ARENE regional energy log 2006	Target actions in terms of energy efficiency and demand, development of local and renewable energies and the fight against global warming	Reduce energy dependency Reduce greenhouse gas emissions	(c.f. Regional energy plan)

Source: extracted from strategic documents

*Table 3: Regional CO2 emissions, 1990-2005*

	CO2 emissions (tonnes)
1990	54,477,000
1999	52,845,000
2000	52,124,000
2001	51,809,000
2002	52,074,000
2005	49,669,000

*Source: ARENE and ADEME, 2006; AIRPARIF, 2005*

Consensus over these two main objectives is largely unsurprising given the relative lack of controversy over the importance of these issues. It is more interesting though to consider more widely what is less visible or downplayed in these identified stakes. First, some actors stress a need for both local and renewable energy almost as if the two were inherent to each other, whereas we can posit that energy dependence may have two meanings related to dependence on extra local (national, European, international) sources of energy or dependence on fossil fuels. These are quite different forms of dependence which may not be overcome in the same way or with the same implications, although in the present Ile-de-France context, these seem to go hand in hand: increasing local energy production seems to go hand in hand with reducing fossil fuel dependence. Second, neither of these stakes includes direct consideration of a possible reduction of energy consumption or potential for increased local CO2 absorption. Third, some experts have it that in the Factor 4 equation, a 'factor 2' (reduction of CO2 emissions by 50%) can be obtained by improved technologies (both in energy production and consumption), and the rest implies deep behavioral changes. Finally, the complementary or conflicting nature of the two goals is not discussed. It is rather taken for granted (implicitly or more explicitly) that addressing the first goal (reducing energy dependency) will automatically lead to successful addressing of the second goal (reducing emissions). This amounts to a technologically determinist sustainability fix involving adaptation leading to mitigation. Suggestions for how the region might adapt to unmitigated, already existing climate change are not so forthcoming.

In this regard, the question of 'peak oil' is not so much seen as an issue of limited short-term quantities, but more in terms of the rising prices of petrol-based fuels (at least in the SDRIF). Implicitly then, the vulnerability of the Ile-de-France region linked to its continued dependence on fossil fuels is not viewed as an issue because supplies may be on the decline, but more for economic reasons (although within the SDRIF time scale, the two things may be strongly related): what will be the financial cost to the region if this dependency situation is not improved in a context of (long term?) trends of oil price increases?

The main possible inconsistency between regional and Paris actors appears in considering purely energy questions. There is unsurprising consensus regarding the need to reduce greenhouse gas emissions, but whereas regional actors link this to the question of energy dependency and development of alternative energies, Paris documents have little to say on these issues: the 'energies and climate disturbances' rubric on the City Hall's environment website concentrates more on the upcoming climate plan and on the actions individuals can take towards energy economies ('ecogestures'), which reflects a little of the 'energy

sobriety' discourse of the city politician in charge of the environment (sobriety for the environment rather than to reduce the energy vulnerability of the city-region). This raises the issue of the scale of analysis and evaluation of environmental policies.

## So where is regional energy policy?

Energy-concerned policies in Ile-de-France are a combination of more micro- to more macro-policies. The regional executive is concerned, firstly, with internal energy efficiency for its buildings and car fleet and increased use of renewable energies. On a less anecdotal level, the region is also committed to improving the energy efficiency of the region's secondary schools for which it has responsibility (around 500 sites) and to promoting the use of renewable energies in heating those buildings. In the same vein, the region will 'self-tax' its CO<sub>2</sub> emissions and use the revenue for energy efficiency investments (AFP, 28 June 2007). On a region-wide scale, a regional energy plan has also been adopted, which aims at promoting local renewable energy sources, but which is modest in budget and scope. Adopted in May 2006 as part of the 'regional priority' of making Ile-de-France an 'ecoregion', the Plan Energie has limited resources: the regional budget for 2007 allocates only 16 million euros to the Plan (approximately 1.5 euros per inhabitant). The Plan has three main objectives: to support and subsidize the domestic diffusion of solar energy and heat pumps; to support the development of biomass and refuse-based energy production; and to encourage energy efficiency through information provision (in particular, through financial support to the creation of local energy agencies<sup>10</sup>). It is therefore focused on household-level initiatives<sup>11</sup>. It does not include, for example:

- financial help for the thermal insulation of buildings<sup>12</sup>;
- training specifically dedicated to small firms in the building industry to diffuse good practices in the thermal renovation of buildings;
- support to research and innovation in the field of energy.
- any transport-related initiatives?

This raises the question of how a modestly budgeted regional plan focusing predominantly on the household level can possibly contribute to large-scale 'ecoregion' policy objectives. The scale of the issues and the scale of the policy response do not, for the time being, seem to match in any way.

The overall impression we get from a perusal through Ile-de-France strategic policy documents is a lot of good intentions, with relatively few real (and realistic) concrete measures. Furthermore, although it is early days (policy-wise), little seems to have been actually achieved so far in working towards improving the

---

<sup>10</sup> We can note, however, that only 3 such agencies have so far been created, and the contribution of the region to the creation of the one at Vitry amounts to a paltry 30,000 euros (Ile-de-France region website).

<sup>11</sup> Regional policy previously focused finance on collective housing and public infrastructure such as schools and sports equipment. There has therefore been a downscaling from the urban to the household level.

<sup>12</sup> Although the budget for the year 2007 does stipulate that "the Region will encourage the efficient thermal renovation in older social housing estates"; and although it should be noted that renovations of school and other public buildings by the Region aim inter alia at improving their thermal efficiency.

regional situation with regard to energy dependence and climate change. For all the talk of Ile-de-France as an emerging 'ecoregion', the policy measures put in place to achieve such a goal remain hidden behind a discursive gloss of sustainable development clichés.

## Analysis of the tensions in energy-related urban policies in Ile-de-France

Given the modest nature of explicitly energy-focused policy, the most ambitious energy-related regional policies are therefore transport policy with the adoption of an urban travel plan (plan de déplacements urbains, PDU) in 2000 and the pre-adoption of a new regional plan (schéma directeur de la Région Ile-de-France, SDRIF) at the beginning of 2007. The SDRIF, in particular, is presented by the regional executive as the key step and instrument to make Ile-de-France "the first eco-region in Europe". Furthermore, for the first time it will take precedence in the overall planning domain, having the potential to supersede local plans, a fact which has not gone unnoticed by local politicians. In our discussion of the tensions within or resulting from the Ile-de-France regional energy policy and concerns, we therefore focus on the SDRIF.

The objectives of the Ile-de-France regional energy policy (improving local air quality, diminishing the Region's contribution to greenhouse gas emissions, reducing reliance on fossil fuels and increasing the use of renewable energies) are relatively uncontroversial. Unsurprisingly, though, they are connected to a number of more controversial policy issues. A first analysis of actor discourses on these interrelated issues<sup>13</sup> reveals at least three major areas of tension or conflict between policy objectives.

### How compact should the 'compact city' be?

The move toward a more compact city is viewed as beneficial from all points of view: economically because it would reduce commuting costs and social costs of urban functions (water supply, sewage, refuse collection and treatment...); socially because it is assumed to reduce social and functional segregation; and environmentally. In particular, "the Institut français de l'environnement (French Institute for the Environment, IFEN) estimates that a suburban dweller produces three times more CO<sub>2</sub> than a city centre dweller in her/his daily mobility" (*Alternatives économiques*, "Le piège automobile", 1 Dec. 2006)<sup>14</sup>.

---

<sup>13</sup> This analysis is based on an extensive press review of regional debates over the past 2 years (July 2005-July 2007) on energy policy (esp. 2006 the Plan régional pour l'énergie), air protection policy (esp. the 2006 State-established regional *Plan de protection de l'atmosphère*, or PPA), and regional spatial strategy (esp. the *Schéma directeur de la région d'Ile-de-France*, or SDRIF, pre-approved in Feb. 2007). Although the press review was not focused on transport policy per se (esp. the regional *Plan de déplacements urbains*, or the municipal *Plan de déplacements de Paris*), transport policy at both the regional and Paris municipal levels is frequently included and discussed in energy-related debates.

<sup>14</sup> This is a tricky issue. Other studies show that if long distance, weekend and holiday trips are included in the picture, then the city-centre dweller produces more CO<sub>2</sub> than her/his suburban counterpart. Revenue and social category are key explanations of this difference: on average, wealthier urban dwellers travel more (both for leisure and work) than suburban ones. Yet the question remains open whether, all other things being equal, a 'desire to escape' high density city centres significantly contributes to the propensity to long distance weekend travel.

Mireille Ferri, the vice-president of the regional council in charge of the SDRIF is very clear about the consequences in terms of housing: “we reject three things: tents<sup>15</sup>, high-rise dwelling buildings<sup>16</sup>, and 100,000 euros individual houses<sup>17</sup>. Individual houses and urban sprawl were responsible for a 88% increase of home-work commuting distances in 10 years in the Ile-de-France. Why keep supporting the idea that happiness is owning one’s individual house, when at the same time this model generates unacceptable transport needs. What is needed is to arouse a new desire for the city” (AFP, interview with Mireille Ferri, 10 Feb. 2007).

But notions of the ideal, or achievable, degree of compactness vary between local elected officials. The SDRIF provides for an explicit yardstick, when stating that all new residential building projects should provide for at least 35 dwellings per hectare (AFP, “Ile-de-France 2030: le pavillon individuel au pilori”, 10 Feb. 2007). And land open for urbanisation is strictly limited in the plan. Building too close to forest areas (less than 50 meters) or rivers will be prohibited. The urbanised area of villages and small towns in the Region will not be able to grow by more than 15% by 2030. Finally, urbanisation will be prohibited beyond given limits in the region’s green belt.

This is an area of strong contention with other, sub-regional local authorities. Many local representatives objected to the plan, either in rude terms (for members of the regional opposition) or in more diplomatic ones. The socialist president of the predominantly rural Seine-et-Marne *département* thus highlighted that “we are not opposed to growth, even though we wish to fight urban sprawl which destroys farming land” (Le Parisien, 18 Dec. 2006). Furthermore, several mayors of the *département* reacted strongly to the maps included in the SDRIF draft prohibiting urbanization in areas where it was already planned... or even already achieved!

Right-wing *départements* all prepare to reject the SDRIF, judging that it limits too strongly their urban and economic development possibilities (Les Echos, 5 juillet 2007). The préfet d’Ile-de-France (the State representative in the region) has echoed this opposition, emphasizing that “the document reveals a significant reduction in space open to urbanization (...). [I have the] obligation to ensure that the plan does not violate the constitutional principle preventing the control of a local authority by another local authority” (Speech of the préfet d’Ile-de-France in front of the SDRIF convention, 29 Nov. 2006).

Therefore, and even though the SDRIF once fully approved will theoretically supersede local urban development plans (*plans locaux d’urbanisme*, PLU)<sup>18</sup>, regional authorities are very cautious.

---

<sup>15</sup> Mme. Ferri refers to the issue of homeless people camping in Paris and other large French cities (a highly controversial issue in the last year of the previous government).

<sup>16</sup> This was a matter of controversy within the Paris council, between the Socialists and Communists (pro-towers) and the Greens (against them).

<sup>17</sup> She refers to a major policy developed by Jean-Louis Borloo, then minister for Social and Urban Affairs, in favour of low cost individual (owner-occupied) housing. For many experts, this policy supports low density urban sprawl and has detrimental effects both socially (it increases socio-spatial segregation) and environmentally (it makes for longer commuting distances). Borloo is currently French minister for “Sustainable ecology, development and planning”...

<sup>18</sup> The fact that the SDRIF may supersede local plans does not amount to ‘control’ by one local authority over another, insofar as the planning regulations included in SDRIF leave enough room for local governments to develop local plans. Drawing a frontier between general regulations and control is obviously a matter of judgment, or of legal dispute (litigation).

“[The SDRIF] does not aim to congeal the future look of the region. All spaces open to urbanisation do not appear in the plan and the discs [locating urban development areas on the maps included in SDRIF] represent only half of the building projects. Zones of urban extension and their localisation will be left to local governments” (interview with Ariane Azema<sup>19</sup>, *Le Parisien*, 18 Dec. 2006).

The possibility of sanctions against rebellious local governments is carefully eluded. “The Region will subsidize urban projects, public equipments and infrastructures that contribute to the objectives of the SDRIF. Yet [the president of the Region] does not intend to make regional subsidies to the communes dependent upon the communes’ compliance to the plan” *Le Monde*, 18 Feb. 2007). Although Mireille Ferri argues that “today, the Region subsidizes anyone to do anything. (...) subsidisation criteria will have to be changed”, she subtly adds that “we assume that the new SDRIF will be observed by local representatives because it was largely discussed with them”.

Hence the extent to which the SDRIF will orientate or constrain action by sub-regional governments is largely an open question due to its new legal character (previous regional plans did not supersede local plans) and to the fact that it is highly controversial. In addition, the ministry for Sustainable Ecology, Development and Planning fear that the “lack of choices” in the SDRIF may increase the risks of urban sprawl, including outside the Ile-de-France (*AFP*, 6 Jul. 2007). Local representatives seem to share this concern: “For many local councillors, including left-wing ones, the ambition of the region to concentrate [new housing projects] in the central suburbs is illusory. Due to the lack of available land (there will be a need to first demolish in order to be able to build) and due to high land prices, the plan will require building at least 30,000 new dwellings per year [half of the 60,000 yearly new dwellings planned] in outer suburbs, hence supporting urban sprawl.” (*Les Echos*, 29 Nov. 2006)

## For or against cars?

A second area of tension concerns transport policy, a key instrument in energy-environment policy. There is a wide consensus among local actors in favour of public transport and ‘soft transport modes’ (*modes doux*) such as walking, cycling, or roller-skating. But there is a divide between those of the opinion of accommodating car travel and those of the opinion of penalising it, as revealed by debates about the SDRIF, but also about the PPA, the Paris Travel Plan (*Plan des déplacements de Paris*, PDP), and the State-Region contract.

Partisan membership is a key criterion here. Both at the regional and the Paris municipal levels, members of the Green party constitute a decisive component of local majorities. In Paris the official in charge of transport policy is a member of the Green party (Denis Baupin), while at the regional level, it’s a socialist (Serge Méry). Yet, in both cases, this political configuration has led to a transport policy which explicitly aims at curbing (the growth of) car traffic. In Paris, this has resulted in a policy explicitly aimed at reducing road space available for car traffic and parking, while augmenting road space reserved to buses and ‘soft’ modes (separate bus and cycle lanes, enlarged pavements). In a less radical fashion, the Regional Council has strongly prioritized public transport in the region’s expenses. It is particularly visible in the SDRIF: “with such a plan, the regional council in fact opposes the large-scale road and expressway projects advocated by the State” (*Le Figaro*, 29 Nov. 2006). Furthermore, the Ile-de-France (like the other French

---

<sup>19</sup> Advisor to the president of the Region.

regions run by left-wing majorities) have raised taxes on petrol up to the legal maximum and plan to increase significantly other car-related taxes.

In addition, both the Paris municipal government and the regional government have criticized pro-car (or insufficiently anti-car) state policy, in particular the State-established Plan de protection de l'atmosphère (PPA) for the Ile-de-France of July 2006. The PPA was criticized by the Paris municipality as "inefficient, incoherent, provocative", because of "the absence of a target in terms of car traffic reduction on a regional level, the exclusion of measures against greenhouse gas emissions and [insufficient measures against local air pollution]" (Le Monde, 2 Aug. 2006; AFP, 11 Sept. 2006; Le Monde, 15 Sept. 2006).

This anti-car orientation has raised strong and recurring objections from the municipal and regional right-wing minority. "We are in favour of public transport, but we refuse the war on cars", Roger Karoutchi claims. "Several million Ile-de-France residents have no other choice [than to use their cars] because they do not have accessible public transport at an affordable price." "The regional transport policy is held hostage by the Greens", Patrick Devedjian adds (*Le Figaro*, 29 Nov. 2006). Dorothee Pineau, another opposition leader, charged the regional executive with "refusing the reality of car transport" (AFP, 14 Feb 2007) Similar arguments have been made, in a more consensual tone, by left wing local representatives, such as the president of the Seine-et-Marne *département*: "We need a certain amount of financing for road projects, because in Seine-et-Marne, population settlements [are not adapted] to public transport" (Le Parisien, 18 Dec. 2006). Again the préfet d'Ile-de-France has supported the argument: "regarding roads I cannot approve the fact that the most recent decisions of the minister for Transport [two major urban expressway extensions] are not taken into account".

In Paris, recent projects for new separate bus lanes have met with fierce opposition by right-wing borough (*arrondissement*) mayors. 5,000 residents of the (posh) *seventh* arrondissement have petitioned against the project of a separate lane for bus 92, arguing that it is "useless, costly and potentially dangerous" (*Libération*, 1 Feb. 2006). The political consensus within the Paris council is starting to shake. The just-finalised Paris travel plan (PDP) provides for substantial additional measures aimed at reducing car traffic in the city by 2025. All political groups in the municipal council, except the Greens, insist that this new 'anti-car' plan has to be preceded or accompanied by a substantial improvement of public transport (*Le Parisien*, 11 Feb. 2007).

Hence the question whether car traffic should be accommodated or penalised, and to what extent, is a matter of continuous and increasing local controversy between the left and the right since the election of left-green majorities both at the regional level (1998) and at the Paris municipal level (2001). Rising energy-environmental concerns have given additional arguments for anti-car policies, but the controversy remains fierce.

## The economy or the environment?

A third area of dispute (related to the two others) has to do with the balance (or imbalance, depending on the actor quoted) between environmental/ecological objectives and economic/local development objectives.

Organized economic interests have all loudly disapproved of the SDRIF. The regional associations of large enterprises (MEDEF) and small- and medium-sized enterprises (CGPME) have joined the Paris and the Ile-de-France Chambers of Commerce in addressing fierce criticism of the regional executive. They

consider that the plan “does not meet the requirements for a sustainable, job-creating growth of the region over the next 20 years, that would allow it to win the competition between the large world metropolises” (AFP, 28 June 2007). More specifically they point to five main weaknesses of the plan: undue limitations placed on the development of the region’s growth poles; insufficient surface and air transport infrastructure; insufficient land availability; lack of explicit reference to economic activities in land use allocations; and inconsistencies between elements of the plan that generate legal insecurity (*Les Echos*, 27 June 2007). All right-wing *départements* share these criticisms on the lack of ambition of the SDRIF in terms of economic development and regional competitiveness (*Les Echos*, 5 juillet 2007).

Economic-environmental tensions are of course always apparent with regard to airports. The development of the Roissy-Charles de Gaulle airport to the north of Paris has always been a keystone of regional economic development policy, and is likely to remain so, even if this enters into clear conflict (as elsewhere) with explicitly environmental regional policy goals. It was notable, for example, that at the end of June 2007, just as the Ile-de-France Region was announcing its intention to ‘self-tax’ all its CO2 emissions and use the revenue obtained for regional energy efficiency measures, Nicolas Sarkozy was opening the brand new satellite 2E at Roissy (cost 645 million euros, capacity 8.5 million passengers per year) and stating that “If Ile-de-France wants to remain a major financial centre, if it wants to remain a scientific centre, if it wants to remain shoulder to shoulder with London for the establishment of company headquarters, it must develop Roissy” (quoted by Reuters, 26 June 2007).<sup>20</sup>

It should be noted that this debate on economy vs. ecology in regional planning policy also has a socio-spatial cohesion dimension. The major disagreement concerns the further development of the business district located in La Défense, in the west *département* of Hauts-de-Seine, the richest French *département*, obviously run by a right-wing majority, and formerly headed by a young talented politician called Nicolas Sarkozy. There has been an agreement between the Hauts-de-Seine and the national government on the La Défense development project, and a law has been passed which in effect allows it to bypass the Region. The regional executive opposes this project and other *opérations d'intérêt national*<sup>21</sup> in the South of the region in the name of a spatially more balanced regional development with more projects in the North and East parts of the region than in the rich and already well developed South and West parts<sup>22</sup>. Hence the region promotes the notion of “regional interest projects”, implying that these sites are defined jointly by the State and the Region, and advocating the preferential location of such projects in the less developed or less wealthy parts of the Region.

---

<sup>20</sup> He also announced plans for a new round of ‘grands projets’ of “infrastructure and sustainable planning”.

<sup>21</sup> Projects of national interest decided by the national State and for which the State takes direct responsibility in terms of planning regulations, financing, etc. Three such projects created a conflict between the State and the Region: Seine-Amont, Seine-Aval, and plateau de Saclay. According to Mireille Ferri, what the regional executive has primarily opposed concerning these three projects is the approach taken by the state: a centralized approach, no discussion with local authorities who were not even properly informed before decisions were taken. In the end a “fruitful discussion” has taken place and the final orientations for these “priority territories” fully satisfy the Region, except maybe for the plateau de Saclay (*La Tribune*, 12 Mar. 2007)

<sup>22</sup> Note that this socio-economic division of the regional space coincides only partially with the partisan division between right-wing and left-wing *départements*. For instance, one of the projects of national interest, Seine-Amont, is located in the left-wing, communist led *département* of Val-de-Marne.

Anecdotally, but interestingly enough with regard to the more general issues in the background of this paper, the regional opposition leader has also reproached the executive for wasting the Region's revenue by subsidising research "on the Florida tortoise". He was referring to a (modest) research project within the more substantial regional research programme on sustainable development.

## Competing views of sustainability: the 'everyday politics' of transition?

These competing views on the implications of regional energy-related planning and transport policies reflect more general competing views of sustainability, i.e. of the extent to which environmental concerns (greenhouse gas emissions and local air quality) and resource constraint issues (oil vs. renewable sources of energy) may or should 'bend' previous and still ongoing trends of economic development, increasing car use and the urbanization of land. We suggest therefore that energy-related policy tensions in Ile-de-France reflect some of the power, negotiation and contestation embedded in regional discourses promoting a systemic shift towards more 'sustainable' regional development. Following Shove and Walker (2007), we argue that these competing views of sustainability illustrate the complex 'everyday politics' of managing transition<sup>23</sup> to ensure urban-regional reproduction. Going beyond normative agendas, Shove and Walker convincingly argue in favour of more focus in 'transitions' research on the (nature of) existing or potential contestation of prescribed sustainability targets, 'critical scrutiny' of transition goals, and what amounts to a political ecology of transitions (who wins and who loses out from the direction which policy takes). Focusing on the political and power issues inherent to the SDRIF regional development negotiations obliges us to take an opposing approach to portrayals of mostly consensual transitions common in the literature. We discuss here three interrelated points tied to these issues.

First, in some ways, given the complexity and intensity of these issues in the Ile-de-France context, and the fact that the 'sustainability' goals of the SDRIF are unlikely to be fully enacted or achieved in a situation of conflict and power struggle, we can question here the very idea of transition *management*. Even if there is a steering vision and a set of institutional actors in charge of the plan, such is the influence and visibility of opposing voices and actors that it is tempting to see transition here more as a process of political negotiation and compromise than as something sufficiently stable and univalent as to be able to be managed. The SDRIF is clearly set out as a regional transition plan – its main aims are to steer and coordinate land use, transport, economic development and environmental policies towards a more sustainable overarching system (systemic change) in the light of identified regional 'vulnerabilities'<sup>24</sup> – and Mme. Ferri and her regional colleagues in charge of the SDRIF can be seen as transition managers, but 'management' here is full of power-driven content and political ramifications. From this perspective, the regional executive will probably need to engage in the dynamic, responsive and continuous adjustment of

---

<sup>23</sup> We understand a 'transition' to be "a gradual, continuous process of structural change within a society or culture" (Rotmans et al., 2001, p.2; quoted in Hodson and Marvin, 2006, p.1).

<sup>24</sup> These include a need for the region to 'anticipate' its energy dependency and to work on improving its social and technical 'flexibility' in terms of energy supply (although the SDRIF does not offer specific policy directions for how this might be achieved), but also included are anticipated unsustainabilities linked to sprawl, ever increasing car use and a zero-sum game between economic and environmental objectives.

'reflexive governance' in order to achieve its SDRIF aims (c.f. Voss and Kemp, 2005; Voss et al., 2006). But this is not an easy task in a capital city-region where the state and a whole range of powerful economic actors, in addition to local and regional politicians and associations, are ready to contest any policies and actions which threaten their own interests<sup>25</sup>.

Second, there is a politics to the position adopted by the Region in its definitions of what is acceptable sustainability-wise in terms of urban compactness, car-dependent mobilities and the economic-environmental trade-off. It is clear that although 'sustainability' and notions of the 'compact city' are relatively unproblematic and consensual in themselves, the sociotechnical systems enrolled into policy and strategy building to 'act' on these ideas are actually highly discordant or even antagonistic: "Advocates of sustainable transition management do not always appreciate the deep ambivalence of sustainability as a category and its power as legitimising discourse" (Shove and Walker, 2007, p.766). It is interesting here that regional energy policy is currently conceived and reconfigured within the framework of wider land use and transport policies more than in any sectoral energy policy *per se*. In this context, any regional sustainability transition will draw on the specific agenda setting exercise of the SDRIF (its prescribed sustainability) in which common notions such as 'the compact city', 'sprawl', 'soft transport modes', even just plain 'cars' and 'economic development', are being turned into highly political (and therefore contested) questions. We just need to recall the debate sparked by the SDRIF's explicit prescription of a yardstick of 35 dwellings per hectare for all new residential building in the region. Common interest sustainability in Ile-de-France (if it exists) is currently being overshadowed and menaced by an acrimonious and tactical process of political bargaining over many, if not all, land use, transport, economic development and environmental issues. Any political stalemate to developing a consensual configuration of the SDRIF would add weight though to arguments in the 'transitions' literature about change being more evolutionary than revolutionary (Geels, 2002). Again, negotiation, concession and compromise are likely to be key instruments in Ile-de-France for moving the energy-related transition process gradually along, although we cannot fully foresee what this might lead to even in the short term.

Third, there is also a political angle to the ways in which the SDRIF and its proposed goals have been deliberated, presented and legitimised to the whole range of local and regional stakeholders. For example, in contrast with London and Stockholm, it is interesting to note that in the Ile-de-France debate, energy policy is viewed solely as a cost, not as an economic opportunity in relation with innovations in green technologies, the reconfiguration of socio-technical systems, and development of environmental business more generally. All (political) actors view the issue as a constraint, a problem to be addressed, rather than as "a major contribution to [regional] economic development through the expansion of new and developing technologies" (foreword, *Highlights of the Mayor's Energy Strategy*, Feb. 2004) or as a "contribut[ion] in many cases to positive economic and environmental development. It will also have a positive impact on social development. The Action Programme will therefore not only lead to reduced greenhouse gas emissions, but also to improvements in the city in many other areas" (Stockholm Action Programme Against Greenhouse Gases, 2002, p.11). Also the social-environmental nexus is addressed in

---

<sup>25</sup> In turn though, the intensity of this contestation in some quarters reinforces the importance of the SDRIF negotiations and plans as a transition process involving (potentially) substantial change to regional development. Less contestation would have suggested that the SDRIF might amount to less than wholesale systemic change (although it remains to be seen the extent to which these intense political tensions can be overcome to achieve actual transition).

the Ile-de-France energy plan solely through a massive plan for the development of social housing on a regional scale, in response to the social issues raised by the compact city vision in a context of scarce land and skyrocketing land prices. There is no general approach of the social implications of environmental taxations (how they are collected, how they are spent) largely because this is beyond regional competence, but partly also, so we argue, because the economics of environment-concerned policies are deliberately ignored by the regional executive (if we except subsidies for households installing PVs).

At the end of the day, the SDRIF is a document coordinated within a regional and municipal political context dominated by a left-green majority. Although there are nuanced positions on all sides, the responses of particular actors arguing against the SDRIF are usually set within very specific political positions. We can see this in terms of the importance of political parties (left-wing, right-wing and Green party perspectives all offer differing views of the same propositions), but also in terms of the political hierarchy, as the State prefect expresses opposition on certain points which would go against national government policy. At other times, of course, this top-down hierarchy is recomposed, as for example the Hauts-de-Seine department bypasses the Region to embark on a collusive 'partnership' with the national government over development at La Défense, or the municipality of Paris openly rejects the national Plan for the Protection of the Atmosphere (PPA) due to its lack of consideration for traffic reduction. It is interesting to note that, for the regional Greens and in the SDRIF, the 'factor 4' objective (dividing by four greenhouse gas emissions) should be attained on a regional scale, using only the instruments controlled by the regional executive, by 2030 (cf. SDRIF, p. 37) well ahead of the 2050 goal of national policy documents. This uses Ile-de-France as a 'national exemplar' of sustainable policy-making (Hodson and Marvin, 2007), but is also perhaps aimed at enrolling multiple, discordant stakeholders into a common orienting regional vision set up by a particular group of actors with a specific measurable objective. This all reminds us that the rescaling of environmental-energy governance is a constant element in urban-regional reproduction within overlapping contexts of liberalised markets, borderless climate change, fiscal crises, etc. (see Bulkeley, 2005; Monstadt, 2007).

In short, as Shove and Walker (2007, p.766) conclude: "it is necessary to recognise that provisional templates for transition are political statements that can only be partially inclusive (when there are ever more actors on the social stage), contingent (when conditions are dynamic), and potentially unstable as material forms and practices evolve over time. In other words, there is a politics to transition management, a playing out of power of when and how to decide and when and how to intervene, which cannot be hidden beneath the temporary illusion of 'postpolitical' common interest claims of sustainability". The evolution of the SDRIF 'template for transition' will be wholly dependent on some form of resolution or stabilisation (however temporary) of conflictual power struggles as the discourses and practices of 'sustainable development' of the Ile-de-France region are persistently marked by uncooperative and exclusive interest claims, which will make wider goals increasingly unattainable. A transition without politics in this regard appears highly illusory.

## Conclusion

We have focused in this paper on regional energy-related policies in Ile-de-France, and specifically some of the tensions revealed in policies such as the SDRIF between environmental and other sectoral (land use, transport, economic development) policies, between levels of government and between political

parties. Fundamentally, it is quite apparent that there are some major discrepancies and gaps between the current regional situation with regard to climate change and energy constraint issues, the plans and strategies outlined by regional actors to tackle these issues (currently or in the future), and the political-technical means and mechanisms for policy implementation and transition. Most notably, there is a serious lack of regional political consensus, not so much with regard to the nature or level of the issues in hand, but more concerning how best (or at all) to address them. This leads to doubts as to how energy-related policies might possibly be coherently constructed and implemented in the region to begin to reduce the energy dependence and carbon emissions which are otherwise stated by most actors to be two of the primary current concerns for regional policy (because they reflect regional vulnerability). For us, this means that we are unable to shed much light at the current time on how exactly the Ile-de-France region will implement its desired transition towards sustainably securing its material and socio-economic reproduction, and with what means (political, technical, financial...) at its disposition. We conclude nevertheless by discussing some implications of the Ile-de-France region's approach so far to an energy-related regional transition process. In this regard, we highlight in particular three main points which merit further consideration.

First, policies aimed at addressing the perceived energy-environmental issues rest primarily upon urbanisation and mobility policies – which are in turn set within responses to socio-economic change (population increase, changing household make-ups, housing needs...).<sup>26</sup> For example, on the one hand, new constructions may well be subject to ever stricter heating regulations, limiting energy losses and therefore CO<sub>2</sub> emissions, but on the other hand, the increasing number of homes and increasing requirements for comfort (most notably the number of square metres per inhabitant) cancel any of these gains and contribute to further greenhouse emissions in the building sector (*L'Express*, 27 Oct. 2005). Yet recent regional history (especially the relative failure in the implementation of the previous master plan) and the conflicts (lack of consensus) about the principles and key measures of the new master plan cast some doubt on the capacity of the regional executive to implement it. In the Ile-de-France context, it appears that these conflicts and obstacles created and reinforced by one set of interests against those of another set constitute arguably even greater issues and problems than ensuring (technical) access to energy resources.

Second, this discussion should incorporate the implications of French specificities in urban development and of debates over policy orientations regarding in particular the capital region and the place of the French capital city-region within the *territoire national*, etc. For example, energy-related policies are oriented and negotiated within the context of quite particular French land use control and sprawl patterns. According to experts such as Vincent Renard, what is specific in French sprawl is that it is not regulated at all: anyone can build their individual house on their individual plot of land and ask to be connected to urban services after paying a very modest 'taxe d'équipement'. Of course people need permissions to build (delivered by municipal authorities), which is a form of public control, but it is apparently not effective (largely because mayors of small towns are obsessed with decline and systematically deliver permissions). There are exceptions to this rule of 'spontaneous growth': ZAC, etc. However in terms of land use for

---

<sup>26</sup> The vice-president of the regional council in charge of the SDRIF argues in this regard that "we are no longer in an era of successive crises, but in a period of changes (...) notably the break-up of the traditional nuclear family (a couple and two children), which is one of the causes of the housing crisis..." (Mireille Ferri quoted by AFP, 6 Sept. 2005).

urbanization this seems to be negligible. There should then be more focus on the place-based and contingent nature of transitions (see Hodson and Marvin, 2006). As Timothy Luke argues: "The ecologies between, beneath or behind the Global Cities' organizational architectures are increasingly public but subpolitical, largely artificial environments but rooted in many layered unbuilt ecologies, globally flow-based but locally frozen in particular territorialized material sites and spaces" (Luke, 2003, p.14-15).

Third, in examining this political process, there is also a need for a broader vision of the social-environmental nexus in urban energy sustainability strategies, which notably develops a better understanding both of the social implications of environmentally-oriented policies and projects (who benefits and who pays in their design, introduction and implications...), and in the light of pushes for demand-side (lifestyle) sustainability fixes, of how individual behaviours and consumptions affect the performance of technologies and how this interacts with the ambition of the regional executive to contribute to create "a new desire for the city". Regional councillors and energy experts do not cease to call for changes in lifestyles, but as Shove and Walker argue, "for all the talk of sociotechnical coevolution, there is almost no reference to the ways of living or to the patterns of demand implied in what remain largely technological templates for the future" (Shove and Walker, 2007, p.768; see also Guy, 2006). Of course, the focus of politicians on outlining the ecological 'duty' of citizens everywhere is frequently criticised for shifting political obligation (and blame) onto the shoulders of everybody else. If the population of the Ile-de-France region is to develop a new desire for the (compact) city, "the city of spatio-temporal proximity" as the SDRIF puts it, then it is also up to the (local, regional and national) politicians to create and sustain the conditions and context which promotes an attractive, adapted and durable city in which people will want to live.

## Acknowledgements

The authors acknowledge financial assistance from the Région Ile-de-France and from the Agence Nationale de la Recherche (ANR).

## References

- AIRPARIF (2005), Analyse de l'inventaire et du cadastre des émissions des principaux gaz à effet de serre en Ile-de-France.
- ARENE and ADEME (2006), Tableau de bord de l'énergie en Ile-de-France.
- Bulkeley, H. (2005), "Reconfiguring environmental governance: towards a politics of scales and networks." *Political Geography* 24: 875-902.
- Geels, F. (2002), "Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and case study." *Research Policy* 31: 1257-1274.
- Guy, S. (2006), "Designing urban knowledge: competing perspectives on energy and buildings." *Environment and Planning C: Government and Policy* 24: 645-659.
- Hodson, M. and S. Marvin (2006), "Can cities and regions shape technological transitions?" Mimeo.

- Hodson, M. and S. Marvin (2007), "Understanding the role of the national exemplar in constructing 'strategic glurbanization'." *International Journal of Urban and Regional Research* 31: 303-325.
- Luke, T.W. (2003), "Global cities vs. 'global cities': rethinking contemporary urbanism as public ecology." *Studies in Political Economy* 70: 11-33.
- Mairie de Paris (2007), Plan parisien de lutte contre le dérèglement climatique : livre blanc des contributions des Parisiennes et des Parisiens pour lutter contre les dérèglements climatiques. February 2007.
- Mayor of London (2004), Green light to clean power: the Mayor's energy strategy. Greater London Authority, February 2004.
- Monstadt, J. (2007), "Urban governance and the transition of energy systems: institutional change and shifting energy and climate policies in Berlin." *International Journal of Urban and Regional Research* 31: 326-343.
- Région Ile-de-France (2006), Plan régional pour la maîtrise de l'énergie, le développement des énergies locales et renouvelables et la réduction de l'effet de serre dans l'habitat et le tertiaire sur la période 2006-2010. Rapport pour le Conseil Régional d'Ile-de-France, May 2006.
- Région Ile-de-France (2007), Schéma Directeur de la Région Ile-de-France. Rapport de projet, February 2007.
- Rotmans, J., R. Kemp and M. van Asselt (2001), "More evolution than revolution: transition management in public policy." *Foresight* 3 (1): 15-31.
- Shove, E. and G. Walker (2007), "CAUTION! Transitions ahead: politics, practice, and sustainable transition management." *Environment and Planning A* 39: 763-770.
- Stockholms Stad (2003) Stockholm's action programme against greenhouse gas emissions.
- Voss, J-P. and R. Kemp (2005), "Reflexive governance for sustainable development – incorporating feedback in social problem solving", Paper presented at the ESEE conference, Lisbon, June 14-17.
- Voss, J-P., D. Bauknecht and R. Kemp (Eds.) (2006), *Reflexive Governance for Sustainable Development*, Cheltenham: Edward Elgar.