

LOCALLY-UNWANTED INVESTMENTS AND VOICE EFFECTS IN POWER GENERATION. AN EMPIRICAL ANALYSIS OF POLITICAL-ADMINISTRATIVE SITING PROCESS

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OVERVIEW

This research empirically analyses the siting policies for locally-unwanted investments; that is those investments in facilities and infrastructures which provide an essential input to society but are generally opposed by the host communities, because of their local environmental impact (so-called “NIMBY” – Not In My Back Yard – effect). More in detail, this study describes the siting policies for new power generation plants in Italy. Since the liberalization reform of 1999 the investment decisions for generation facilities basically rely upon market incentives. In general terms, competition, albeit imperfect, is assumed to provide for-profit firms with signals that are sufficient to assure productive and allocative efficiency in the wholesale market, reliability of the electric system, and supply security as well. Yet, policy makers are aware that the restructured industry may fail in a specific domain, the environmental costs of new facilities (e.g. local pollution, aesthetic disamenities, potential reduction of biodiversity). As a consequence, all these investments, also in the sectors open to competition (as power generation), need a siting permit: in Italy, these permits are issued by the Ministero dello Sviluppo Economico (MSE) only if, among other things, a positive Environmental Impact Assessment (EIA) is attained. In addition, the national siting process also recognises a role for Regions, given that they have got a veto power for the siting permit. Coherently with the “political” siting models, investors are thus constrained in their location and technological choices by both the need to obtain the national permit and the regional climate towards generation facilities. A third public player, aside from the State and the Region, is the local community. Despite the fact that host communities do not directly intervene in the siting process (i.e. they do not have veto power, and may be only loosely represented by Regions), their legal actions often are able to delay, hinder or even stop the realization of such investments. From the theoretical point of view represented by the Coase paradigm (Coase 1960), only the full internalization of the environmental damage the firm caused might produce a Pareto-efficient outcome. In this sense, the opposition by the local communities may be considered not only justifiable, but also potentially efficient, to the extent that it signals to the investors and to State and Region decision makers the existence and the size of external costs, which the firm would not, spontaneously, take into account.

In summary, the investment decision in the Italian generation sector can be described as market-based (i.e. driven by perspective profits in the wholesale electricity markets), and constrained by public policies as in a political-administrative process. More specifically, investors choose the location in order to maximize their expected profits, net of site-specific compensation (market-based model of siting); yet, profit maximization is subject to the outcome of siting regulation: the State’s siting permit, which in turn is conditioned by the Region attitude. In this context, in order to ensure the siting efficiency, it is crucial that each community is able to express an opposition (and so a compensations request) which matches the level of external costs produced by the plant located in their neighbourhood. By contrast, the firms’ location choices become inefficient to the extent that local communities are heterogeneous in terms of asymmetric information (which prevents a correct assessment of

external costs and affects the value local residents place on the environment) and coordination costs (which make difficult and less effective the bargaining with the firm and the lobbying to State and Region). In this case, the investor, in order to maximise its expected profits, net of compensation costs, is likely to select the most unprepared and inexperienced community (namely the less able to oppose). This may not be the location with the lowest externalities and the siting procedure ceases to be efficient, coherently to what is pointed out by Hamilton (1993), and verified in a previous our work for the same sector (Garrone and Groppi 2009).

A political-administrative approach to the siting problem might in principle restore the siting efficiency, by correcting the investors' choices during the siting process. As a matter of facts, if State and Regions, as a political entity, assigned a significant weight to the social welfare, they would perform a comprehensive assessment of the external costs and could ask investors to modify and improve the project or can even deny the final approval (Feinerman et al. 2004; Cherry e Kunce 2001). It should be noted that the siting procedure would then result in a longer duration for the more environmentally complex projects. However, insofar as the local communities suffer to different degrees from asymmetric information and coordination costs, and State and Regions attach a higher value to political reward than to social welfare, the political-administrative solution fails to lead to an efficient location. In spite of the fact that political authorities take into account the local oppositions and the political pressures by the local communities, the most unprepared communities on the one hand are targeted by investors to locate polluting plants and, on the other hand, are unable to effectively lobby the political governments in order to properly correct the firms' decisions. In this case, the outcome would not be efficient at all as found for instance in Hoyman e Weinberg (2006).

Accordingly, this research tries to verify the efficiency of the political-administrative component of the "hybrid" siting process in force in Italy, given that the analysis carried out in the companion paper (Garrone and Groppi 2009) has given evidence of the inefficiency of location choices made by investors.

METHODS

The efficiency analysis of the political-administrative component of the Italian siting process has been broken down into two research questions:

H1. Ceteris paribus, the lower the external costs the shorter the duration of authorization process

H2. Ceteris paribus, the external costs effect (Coasian effect) greater than the "pure" opposition effect (Hamiltonian effect)

The empirical analysis takes advantage from a panel dataset, which monitors the 92 applications for green-field generation investments filed in the period 1999 – 2007 in Italy. The unit of analysis is the application submitted for the Province i ($i = 1, \dots, 91$) at the time t ($t = \text{first semester 1999}, \dots, \text{second semester 2006}$). For each application it has been measured how long it takes between the submission and the final approval times. Hence, the dependent variable is the duration Dit of each application, which is a function of a set of observed location-specific characteristics. In turn, these location-specific characteristics are proxy of: Region regulation in energy matter, electricity prices, infrastructure availability (electrical grid and gas pipelines), "true" external costs, and environmental awareness and voice strength. Finally, a discrete survival right-censored model allows to estimate the duration of the administrative siting process, testing for the relative relevance of each class of variables.

RESULTS

The proxies of community voice are estimated to have a larger explaining strength than the proxies of external costs. This empirical finding is obtained across different specifications, after having controlled for other location-specific variables (e.g. the local electricity market or

the local infrastructures availability). In summary, we conclude that State and Regions decisions seem to be more affected by the communities' political weight and propensity to opposition, rather than a genuine evaluation of external costs (like investors which are more likely to target the communities that are less likely to engage in effective oppositions, whether their external costs are small or not, as verified in the companion paper.

CONCLUSIONS

In conclusion, for the Italian power generation sector, a market-based framework, constrained by the political-administrative decisions, applies, but it does not bring to an efficient outcome, provided that, first, investors, in the attempt to minimize compensations, pay special attention to the voice of the affected local communities, rather than to environmental costs suffered from those communities and, second, State and Regions as well do not succeed in either ex-ante addressing or ex-post correcting these choices. This fact casts some doubts on the efficiency and environmental equity of hybrid siting regulations, and leads us to formulate some policy recommendations to improve the outcome of siting process. In particular, this result suggests that raising awareness and providing information to the candidate host communities may be an important means for improving environmental performance, in order to make efficient the signal represented by the local opposition, on which both investors and State/Regions mainly rely.

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