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Getting the incentives right. Energy performance contracts as a tool for property management by local government

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ABSTRACT

Energy conservation is a challenging and difficult task because disincentives in the building sector inhibit innovation. The municipality of Rotterdam experimented with an energy performance contract that aimed to avoid disincentives and replace them with a stimulus for innovation. *This article investigates whether the design requirements for performance management found in the management literature were fulfilled during the development of the contract and its implementation.* The outcomes of the experiment show substantial energy conservation – around 30 percent. *The existing incentive structure was changed through the use of a performance management contract, and perverse effects that are mentioned in the literature were limited.* The incentives established between the commissioning party and the contractor triggered better performance and innovation, although balancing the responsibilities between the principal and the agent was demanding and time consuming. Energy performance contracts are a useful piece of the sustainability puzzle, but tailor-made refinements are necessary.

1. Introduction

A fundamental transition is taking place within the energy production and consumption system because fossil-fuel energy resources currently being used will soon be exhausted. More and more renewable energy is being produced, and available energy resources are being treated with increasing frugality (BPIE, 2011; BPIE, 2012). This transition is not so much a technical challenge as a governance issue. In certain sectors, the actors involved have strong disincentives to shift to renewables or to a more frugal use of energy (Rizzi et al., 2014). This raises the question of how the transition to renewable energy and better energy conservation can be achieved within such an incentive structure.

The Netherlands is not a leader in energy conservation and sustainable energy, and it lacks effective instruments to promote them (Eurostat, 2014; Energy Research Centre of the Netherlands, 2009; Build Desk, 2011). Societal support for energy conservation and the relatively favourable innovation potential have yet to be translated into a resolute and effective approach (UNU/Merit, 2012; SER, 2013). In this article, we consider an ambitious experiment within the Dutch municipality of Rotterdam that developed and implemented a maintenance and performance contract (MPC) for nine swimming pools. In this experiment, energy usage was reduced by 30 percent. We investigate how Rotterdam was able to achieve this and how well-known obstacles were managed by using performance indicators.

We consider the dearth of energy conservation measures and renewable energy to be the result of disincentives in the building sector. If a strategy or instrument in this sector is to succeed in reducing energy use or encouraging renewable energy, it must avoid the impact of these disincentives. Furthermore, the performance contract should establish new and stimulating incentives for procurers and private contractors (Section 2). In Section 3, we describe the emergence, operation and effects of the performance contract developed jointly by the municipality and private contractors in Rotterdam. Section 4 contains an analysis based on the theoretical notions presented in Section 2, and in Section 5 we present our conclusions.

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2. Theoretical background

2.1. Energy conservation in the building sector: inhibitive incentive structure

A significant amount of energy is used in non-residential buildings (e.g. in swimming pools), which implies that there is considerable potential for energy conservation (Taskforce Energietransitie, 2006). About 38 Mt of CO_2-eq emissions are attributed to this sector, which is 19% of Dutch greenhouse emissions (MNC, 2010). Decisions to invest or not to invest in energy conservation in the built environment are taken by different actors including building owners, property managers, facility managers or tenants, and building and installation firms. The fragmentation of the building sector is an important obstacle to innovation. Furthermore, true drivers of innovation and renewal seem to be lacking. Within this market, neither new construction nor the renovation of buildings is driven by societal trends or the needs of consumers (RB, 2005; EIB, 2005; Al-Saleh and Mahroum, 2014). Innovations come largely from the construction sector, which does not have a good track record in this area (Eindrapport Parlementaire Enquêtecommissie Bouwnijverheid, 2002; RB, 2005; EIB, 2005).

The obstacles to energy conservation in the existing incentive structure include:

- *Weak incentives.* For many organisations, the costs of energy usage in non-residential buildings constitute only a small proportion of their total costs of business operation. For this reason, there is little 'sense of urgency' with regard to energy conservation (Doelen, 1989; Hoppe, 2009).
- *Split incentives.* In many cases, the costs of investing in energy conservation are paid by one actor, such as the owner, the manager or the tenant, while the benefits are realised by another actor — for example, the tenant (Hoppe, 2009; Bueren, 2009; Al-Saleh and Mahroum, 2014).
- *Split incentives in time.* The time needed to recoup investments is often lengthy. It is unclear whether the business case for energy conservation is still valid given this long payback period, particularly given the fluctuations in energy prices and technological developments (Heijden, 2015).
- *Tax exemptions.* The payback periods for large-scale users are relatively long, given the low energy prices resulting from tax exemptions (Vollebergh, 2014; Krozer, 2014).
- *Prospective innovations make it attractive to wait and see.* The technological development of some energy-saving products, such as lighting or solar panels, makes it attractive to delay investments in anticipation of solutions that are even less expensive (Hoppe, 2009).

Although efficiency norms for swimming facilities have been established in national and European legislation, the existing incentive structure in the building sector appears to be standing in the way of energy conservation. Solutions that enhance energy conservation or introduce renewable energy, such as in the Rotterdam experiment, have to address this problematic incentive structure. Thus, the first question that this article deals with is whether the municipality of Rotterdam was able to counteract the incentive structure that inhibits innovation.

2.2. Performance contracts: critical factors

The municipality of Rotterdam chose to use a performance contract in a green public procurement procedure, which offers a new way to enhance energy conservation. Green public procurement is a market-based instrument that can be used to provide new incentives for both procurers and private contractors (Rizzi et al., 2014; Uttam and Le Lann Ross, 2015). It is a new and increasingly popular instrument to improve environmental performance by creating a market for environmental products and services (Rietbergen et al., 2014; Uttam and Le Lann Ross, 2015). Because of the large budgets of governments, the potential impact on private contractors is substantial. The European Commission and the national governments of Member States have great ambitions for this instrument (Bratt et al., 2013).

Documented examples of green government procurement have occurred in different sectors, including water, waste, infrastructure and energy (Rietbergen and Blok, 2013; Faith-Ell et al., 2006). These examples testifies to the interest in this new instrument as well as the quest for best practices and the need for more knowledge. In empirical research, several factors critical to success have become evident, including a good procurement process (e.g. a competitive dialogue), the quality of communication with stakeholders, the institutional context of the procurement, a clear definition of environmental impacts, helpful tools, the involvement of the market at an early stage, and flexibility on the part of both the principal and the private contractors (Uttam and Le Lann Roos, 2015; Rizzi et al., 2014; Bratt et al., 2013; Rietbergen et al., 2014).

Organisational and management sciences have a track record in the use of performance indicators as tools. In addition to the abovementioned literature, they can provide an interesting and comprehensive reference for the study of the use of performance indicators and contracts in public procurement. In the literature on performance contracts, the fundamental conception is as simple as it is powerful: the objectives of public organisations are realised through the formulation of performance indicators (Osborne and Gaebler, 1992; Bouckaert and Peters, 2002; Bruijn, 2007). These indicators emerge through negotiations between the principal (e.g. a governmental body) and the agent (e.g. an agency). In these negotiations, the indicators are defined, along with the performance to be delivered by the agent as measured according to the indicators.

In addition, the contract specifies the corresponding rewards to be provided by the principal for meeting certain targets. The contract may, for example, contain agreements concerning bonuses for achieving the level of performance agreed and penalties for not achieving them. One strength of this approach is that it offers clear, simple targets for addressing the complex problems faced by governments. Performance management reduces complex and multicriteria challenges to a limited, uniform and measurable set of indicators (for the basic philosophy of performance management, see Osborne and Gaebler, 1992).

There are many examples that demonstrate the positive effects of performance management. In most cases, performance management offers an incentive for achieving the desired performance. It also promotes transparency, provides a de-bureaucratisation incentive and can offer an incentive for learning processes. Research has also revealed that performance management can generate many perverse effects. It can provide an incentive for strategic behaviour, lead to myopia or tunnel vision, reduce transparency and obstruct innovation (Smith, 1995; Johnsen, 2005; Bruijn, 2007; Teelken, 2008; Moynihan et al., 2012; Hammerschmid et al., 2013; Kelman and Friedman, 2009 and Hufen, 2013; on the perspective of the users of performance management, see Pollitt, 2013).

Theories concerning performance management and the empirical research based on these theories can be used to derive the design requirements that are crucial for the effective use of performance management (Bruijn, 2007; Haas and Kleingeld, 1999; Teelken, 2008; Vakkuri, 2010). Below, we provide a summary of