

Achieving energy saving in the public sector through “Energy Performance Contracts”

Is it the right tool?

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Outline

- Context
- Motivation of our paper
- Incentives, performance and contract
- Incentives and adaptations
- Concluding remarks

Context: The energy challenge

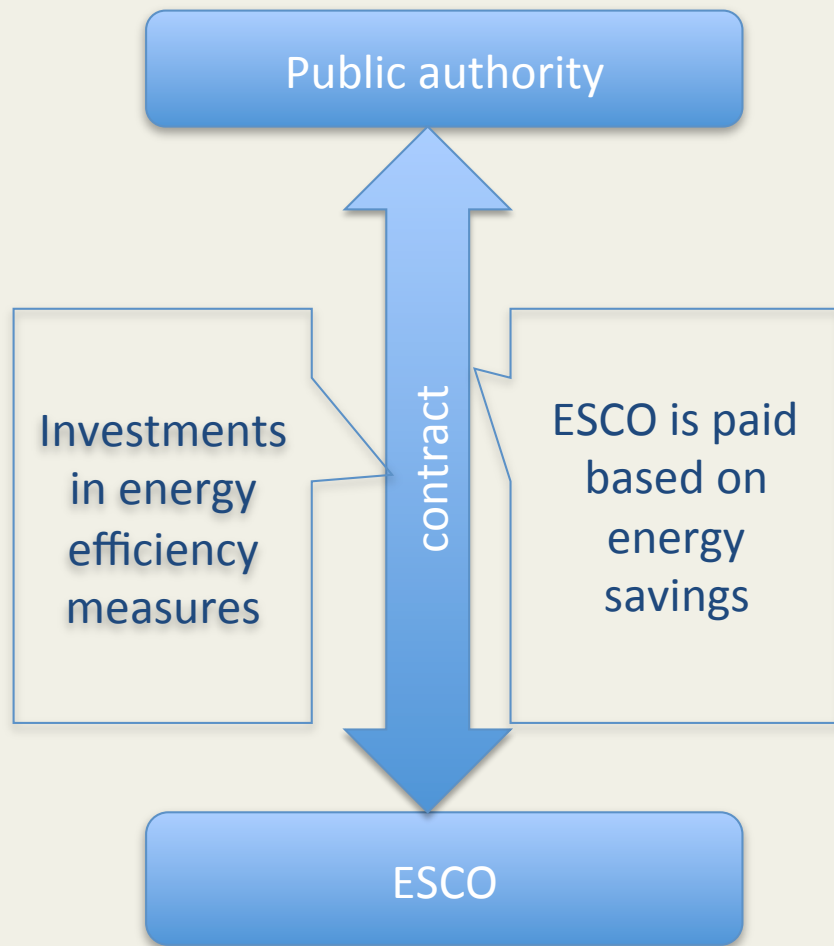
- EU's objective to achieve
 - 20% energy efficiency by 2020
 - 80-95% reduction in GHG by 2050
- Huge potential in the (public) building sector
 - Peter Bach (ecee, 2011): “energy efficiency is the cheapest solution”
- The public sector's role in setting up a good example towards more energy efficient buildings
- Questions raised to meet that challenge
 - What measures can be implemented to get those energy efficiency gains?
 - How can the public sector implement those measures to get the energy efficiency gains?

Context: Energy efficiency and tools to get it

- Policy makers' latest answer to that question: a new contracting tool (since 2006 in Europe) – Energy Performance Contracts (EPCs)
- The European Commission's Energy Efficiency Plan 2011 affirms that Energy Performance Contracts as “... *relevant for triggering renovation in public buildings and for upgrading the energy efficiency level of public infrastructure ...*”
- EPC adds to the arsenal of tools already available to the public actors
 - Traditional procurement contracts
 - Direct in-house implementation

Context: What is an EPC?

An simplified vision



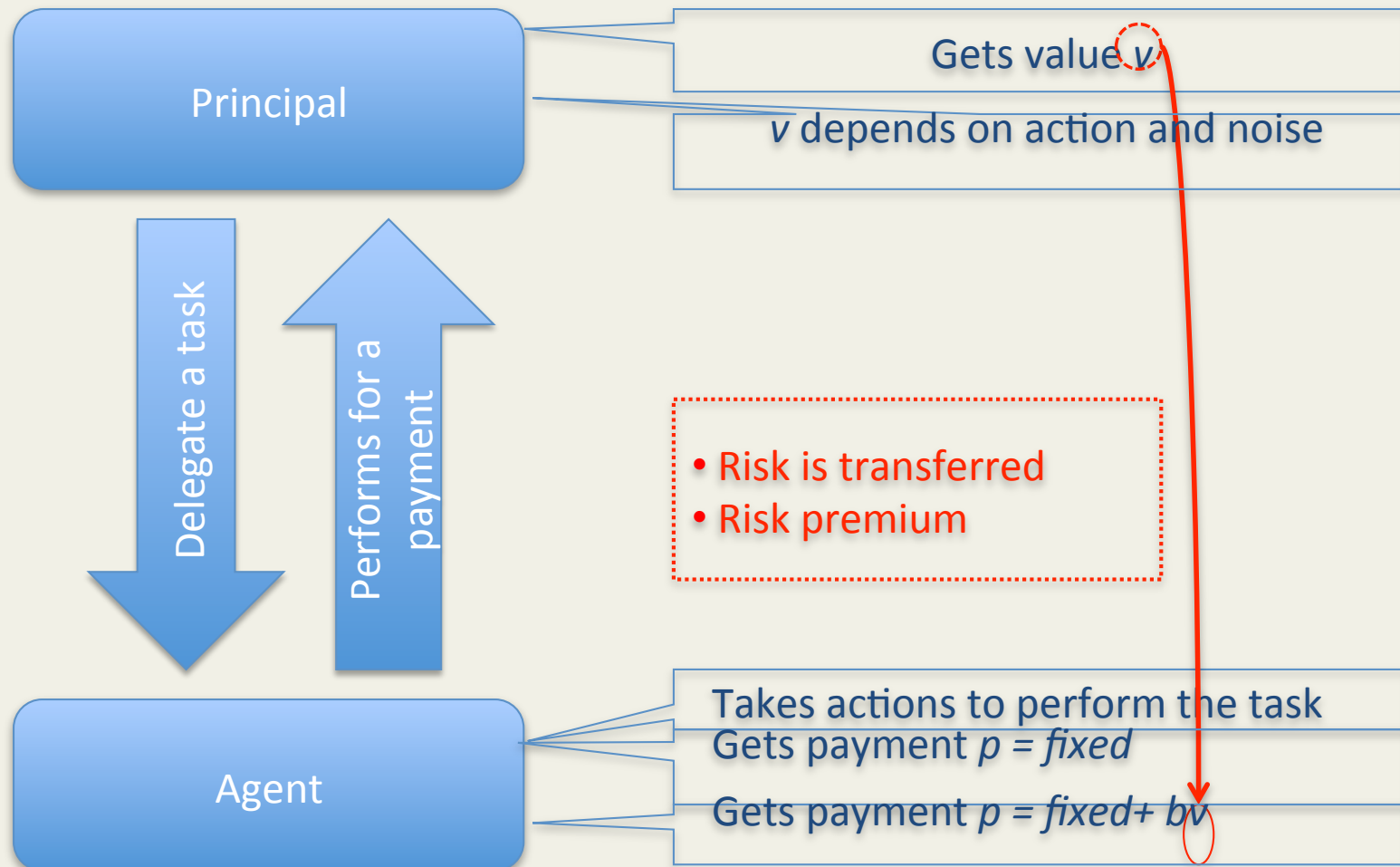
- An EPC is
 - More freedom is given to an ESCO
 - an incentive contract
 - a global contract
 - result oriented
 - a long term contract
- Potentially,
 - maximises use of private sector expertise...
 - ... while guaranteeing results for the public sector

Motivation of our paper

- Are Energy Performance Contracts always *the* best way to achieve energy efficiency in public buildings?
 - Question of the efficiency of contractual arrangements used to govern a transaction to achieve objectives
- To this end,
 - review of the economic literature on contract theory
 - Long tradition, with theoretical and empirical advances
 - A now established framework to understand public-private contracting
 - shed light on the strengths and potential pitfalls of EPCs

The provision of incentives and EPCs

The basics



The provision of incentives and EPCs

First lessons

- A recap:
 - Incentives are provided by making the compensation of an ESCO dependent on performance
 - Incentives come at a cost
- The basic trade-off in normative agency theory
- First lessons for EPCs
 - EPC provide incentives for ESCOs to take actions more aligned with the interest of a public authority
 - Particularly interesting when information is valuable
 - Large scope/palette of choices for innovations
 - Energy efficiency requires recurring management tasks
 - The global approach of EPC is also useful
 - Incentives can be provided to undertake adequate investments to facilitate exploitation

Taking a step back

Measuring performance

- The performance measure used in an incentive contract is
 - Observable and verifiable
 - No loopholes in the contract
 - Reflects all that a Principal cares
- In reality
 - Performance measures that reflect exactly all that the Principal cares is hard to come by
 - Often, proxies/imperfect indicators are used
 - “rewarding for A, while hoping for B”
 - Literature suggests then to reduce the power of incentives

Measuring performance

Lessons for EPCs (I)

- In energy conservation projects, performance measures correspond to the amount of energy saved
 - Definition of a baseline scenario
 - Accounting for various exogenous factors
 - Difference between realized energy use after adjustments and baseline scenario → energy savings
- Importance of considering the baseline and the adjusting factors
 - Too strict adjustment mechanisms → more risk is transferred
 - Too slack adjustment mechanisms → strategic behaviour to game the measure and/or weak incentives
 - In particular, one should think hard about users' behaviour in setting the performance measures
 - Potential conflicts *ex post*

Measuring performance

Lessons for EPCs (II)

- This also suggest that it is important to
 - design the initial contract to avoid haggling issues and benefiting from incentives
 - follow on the contract over time and monitor
 - Avoid quality shading issues
- Translate into extra costs when appealing to EPCs
 - These costs should be higher
 - when more complex projects are involved
 - when quality dimensions are important and difficult to define
 - This also suggests that appealing to EPC may be fruitful when capacity of the public authority is solid

Incentives and adaptations (I)

- EPCs are also often long term contracts
 - Future uncertainty makes it hard to anticipate everything that could arise in the future
 - The initial contract is likely to be incomplete
- The incompleteness of the contract raises several issues
 - Opportunism may be likely (taking advantage of loopholes in the contract)
 - Adaptations are necessary
 - Renegotiating the initial contracts → supplementary costs

Incentives and adaptations (II)

- Can we not benefit from incentives while adapting to the contract *ex post* when necessary?
 - Unfortunately, no
 - Strong incentives hinders *ex post* adaptations to the contract (Bajari and Tadelis, 2001)
 - Contracts with strong incentives are useful where adaptations are not needed
- Lessons for EPCs
 - EPCs should be used more for simple projects
 - EPCS should be used for projects taking place in stable environment

Concluding remarks

- The main objective of our paper
 - Not to lose sight that the principal goal is to achieve energy efficiency
 - There are several ways to do that, and EPC is just one of the many ways
- EPCs are a good tool to use in certain situations, but not all
 - Stable environment
 - Standard, simple projects
 - Important to take into account all kinds of costs, not just the contracted costs
- More generally,
 - using EPCs involve a strong implication from the public sector
 - to use EPCs efficiently, capacity building for public procurers/authorities are important
- Our discussion relies on contract theories
 - Empirical testing of these various theoretical propositions is necessary
 - Design of questionnaire that aims to do that

Thank you for your attention!
Questions/Comments?

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