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**Mind
the Gap**

**Quantifying
Principal-Agent
Problems in
Energy Efficiency**

Mind the Gap: Quantifying Principal-Agent Problems in Energy Efficiency

Nigel Jollands, PhD

**Energy Efficiency & Environment Division
IEA**



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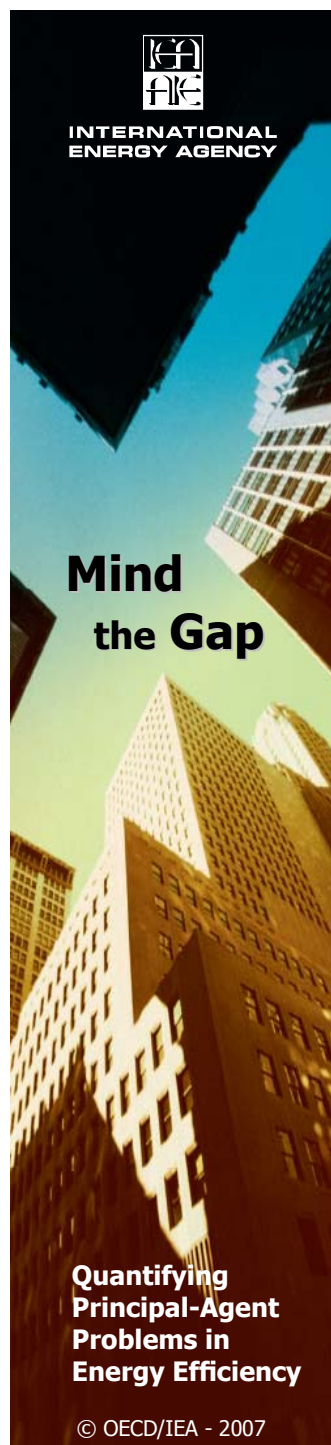
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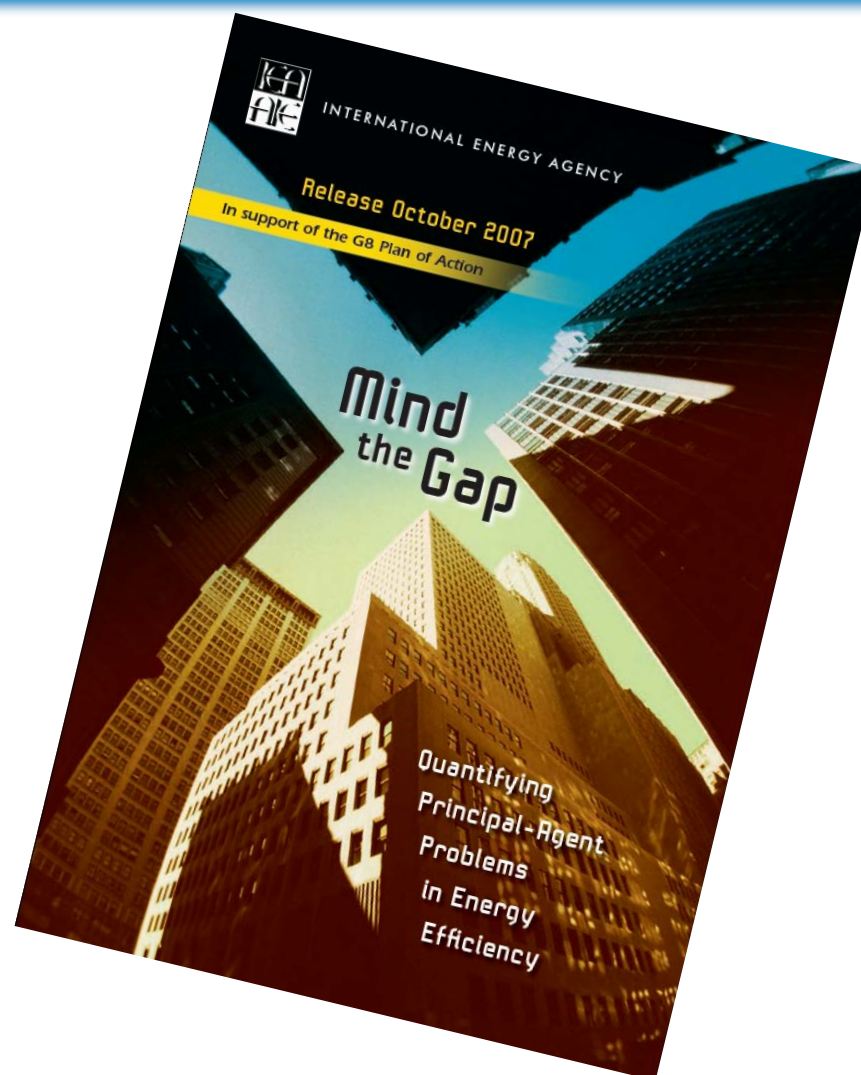
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Key messages

- 1. First attempt to quantify extent of a barrier**
- 2. Innovative method**
- 3. Results**
 - **Principal-Agent problems are big**
- 4. Policy findings**
 - **Need a mix of contracts, regulation and information**
 - **National context matters**
 - **Further work needed**



The book – purpose & contribution



In support of the G8 Plan of Action



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Barriers & PA problems

Barriers

Low priority of energy issues
Access to Capital
Incomplete markets for energy efficiency

Market failures

Split incentives

Lack of information

Distortionary policies

Externalities

Public goods





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What are Principal-Agent problems?

- Agency Theory
- PA problems:
 - “The potential difficulties that arise when two parties engaged in a contract have different goals and information”.
- Definition of roles
 - Principal 
 - Agent 
- Adverse selection
- Moral hazard



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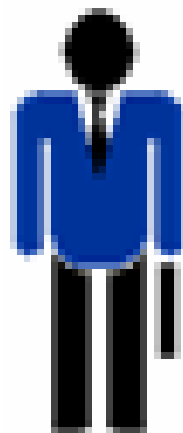
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An example rental accommodation

Landlord

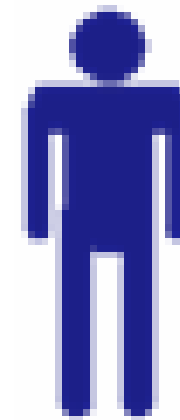


Infrastructure & Appliances

Living space

Rent

Tenant



Energy
bill



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Method

1. Identify situations where Principal-Agent problems may exist
2. Estimate the population of end users affected by the Principal-Agent problem
3. Estimate the energy consumption affected by the Principal-Agent problem
4. Estimate energy savings after removal of Principal-Agent problems



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Results

	Energy use affected by PA problem (PJ)	Total sectoral energy use in 2005 in the relevant country (PJ)	Energy use affected by PA problem as a % of total sectoral energy use
Residential sector			
Refrigerators, space heating, water heating and lighting, US	3 546.0	11 296.5	31.4%
House heating Netherlands	105.0	433.0	24.3%
Set top boxes US	68.4	11 296.5	0.6%
Commercial sector-office space			
Japan	60.5	2 575.1	2.3%
Netherlands	24.5	316.6	7.7%
Norway	5.4	103.2	5.2%
End-use appliances: Vending machines			
Japan	6.1	2 575.1	0.2%
Australia	1.5	243.5	0.6%
Total	3 817.9	28 839.6	14.3%

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Policy findings

- No silver bullet:
 - **redesign contracts - make price more potent**
 - **best-practice regulatory instruments**
 - **adequate information**
- National context matters
- Need for further analysis



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Thank you

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