

# WHY SOME ELECTRICITY UTILITIES ACTIVELY PROMOTE ENERGY EFFICIENCY AND OTHERS DO NOT

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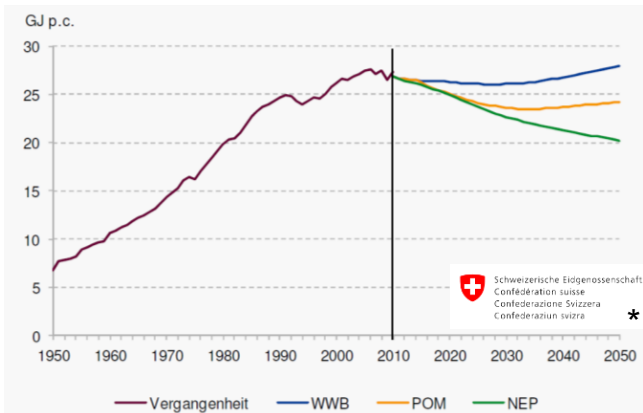
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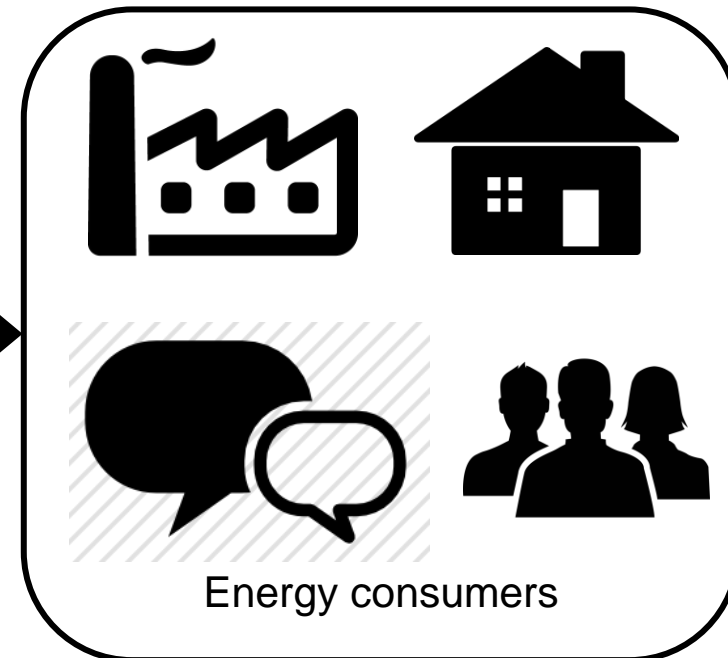
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# Utilities are key agents in meeting political energy efficiency goals



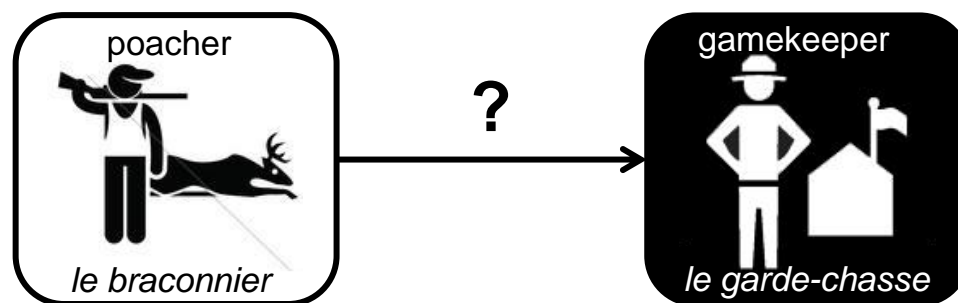
Energy Policy

Utilities



# The challenge of «turning poachers into gamekeepers»\*

- Helping their customers to use energy more efficiently cuts into utilities' profits



- In a liberalized market cost of energy efficiency activities cannot simply be passed on to customers

→ Policies that decouple revenues from sales are the primary way to incentivize energy efficiency programs by utilities

## Two observations and one guiding question

- I. Switzerland has no national decoupling scheme
- II. Yet, many utilities are very active in promoting energy efficiency

### One example (of many):



- Tariff incentive «Stromsparbonus»
- Rental of mobile energy meters
- Energy consulting services
- ...

→ «Why do some Swiss utilities promote energy efficiency – even in the absence of saving obligations – and others do not?»

# There exist alternative motivations for utilities to promote energy efficiency

Motivation	Relevance for Swiss utilities
Local policy	<ul style="list-style-type: none"><li>• Large majority of utility assets are owned by cantons or communities</li><li>• Many communities have adopted ambitious goals (e.g. 2000W Society)</li></ul>
Sell excess electricity	<ul style="list-style-type: none"><li>• Many utilities own power production capacities</li><li>• Current market prices are very low</li></ul>
Marketing & Positioning	<ul style="list-style-type: none"><li>• Market liberalized for large consumers (&gt;100 MWh)</li><li>• Market liberalization for residential customers planned</li></ul>
New area of business (energy services)	<ul style="list-style-type: none"><li>• Shakeup of the policy framework (Energy strategy 2050, EU 20/20/20)</li><li>• New technologies (“Smart Grid”) provide opportunities</li></ul>
Grid relief	<ul style="list-style-type: none"><li>• Electricity service reliability in Switzerland is very good in an international comparison (SAIDI ~30 min)</li></ul>

# Empirical study: An online survey among Swiss electric utilities

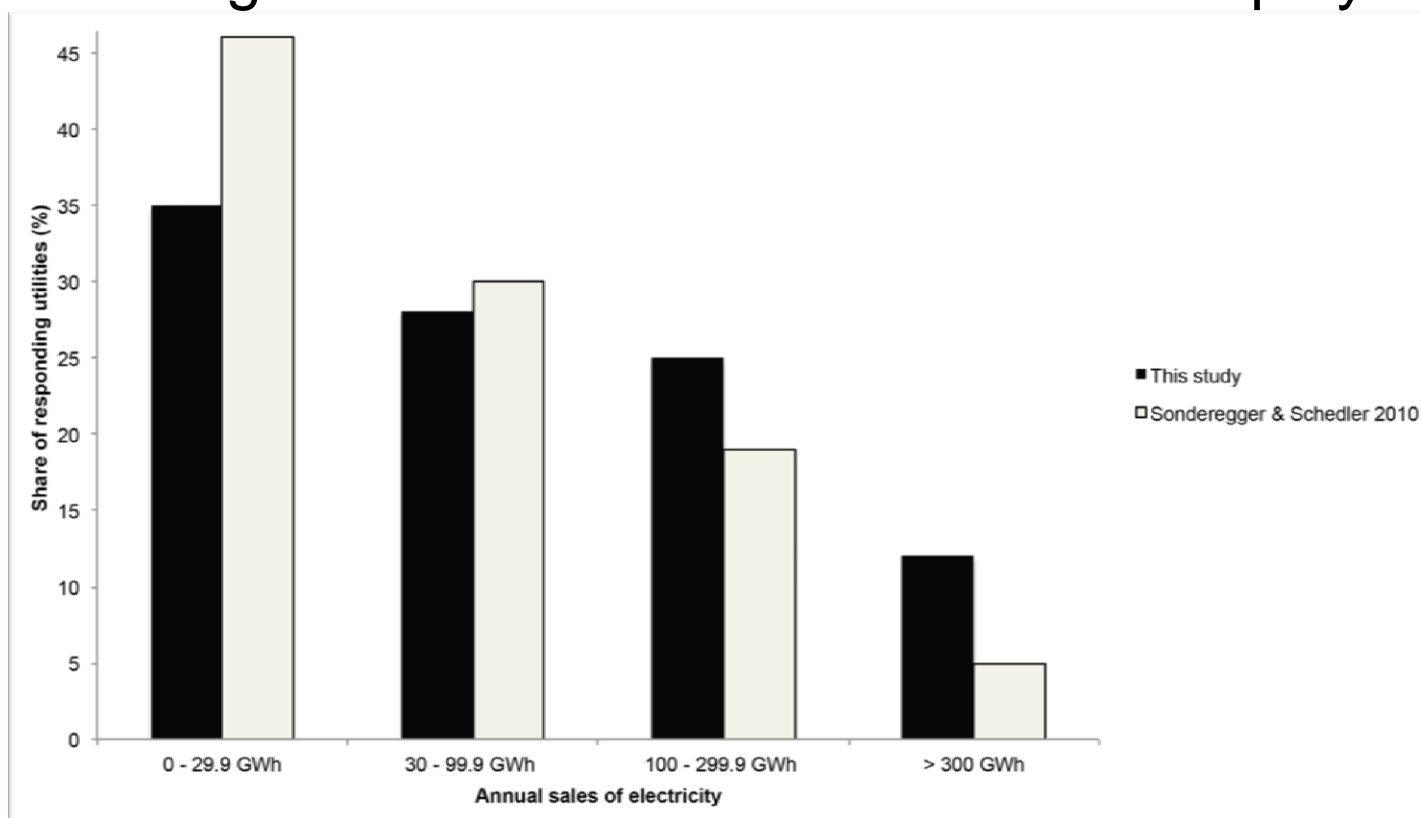
	Overall	German	French	Italian
Contacted utilities	296	247	35	14
Answered surveys	114	96	11	7
Response rate	38.5%	38.8%	31.4%	50.0%

- Conducted between May 25 and June 12, 2012
- Annual sales of electricity by participating utilities ~ 34 TWh (60% of Swiss electricity consumption)

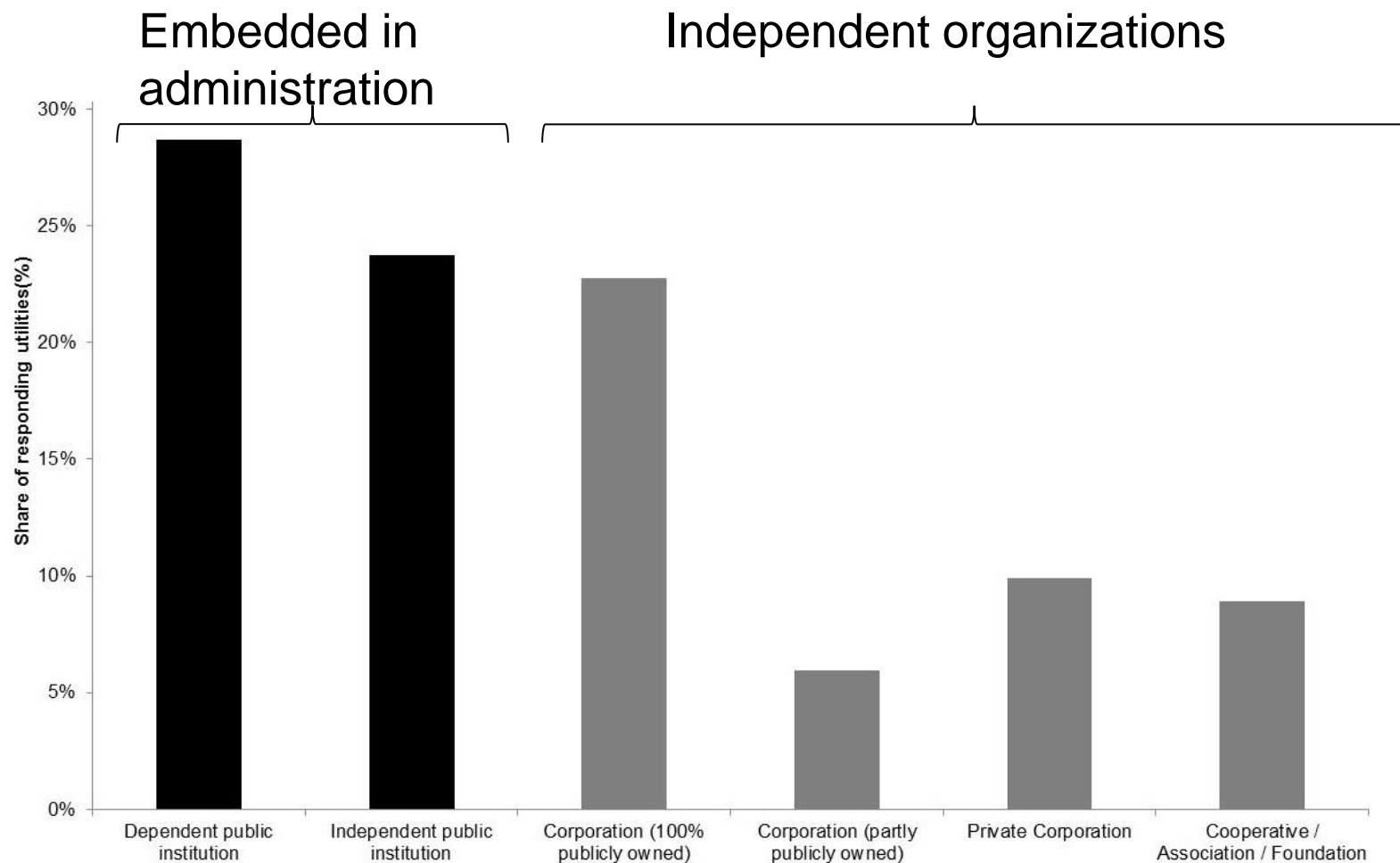


# High variety of electric utilities in Switzerland: Size

- There exist more than 700 electric utilities in Switzerland
- These range from less than 1 to over 1000 employees



# High variety of electric utilities in Switzerland: Legal form





# Measuring Swiss utilities' energy efficiency performance

- Most utilities conduct energy efficiency activities
- Contrast between activities' implementation and effectiveness

Energy efficiency activities of Swiss utilities	Implementation (% of sample)	Effectiveness (expert ranking)
Tariff agreements for large clients	9%	1
Tariff incentives (e.g. "Stromsparbonus")	12%	2
Promotion of efficient appliances	33%	4
Distribution of energy meters	37%	6
Public events	39%	7
Lighting concepts	42%	3
Efficiency consulting (via telephone)	61%	9
Efficiency consulting (on-site)	61%	5
Distribution of information material	75%	8

→ **Weighted sum of activities = «energy efficiency performance»**

# Utilities' characteristics and their influence on energy efficiency performance

## *Relevant characteristics*

- ✓ Larger organizations are more active
- ✓ Independent organizations are more active

## *Irrelevant characteristics*

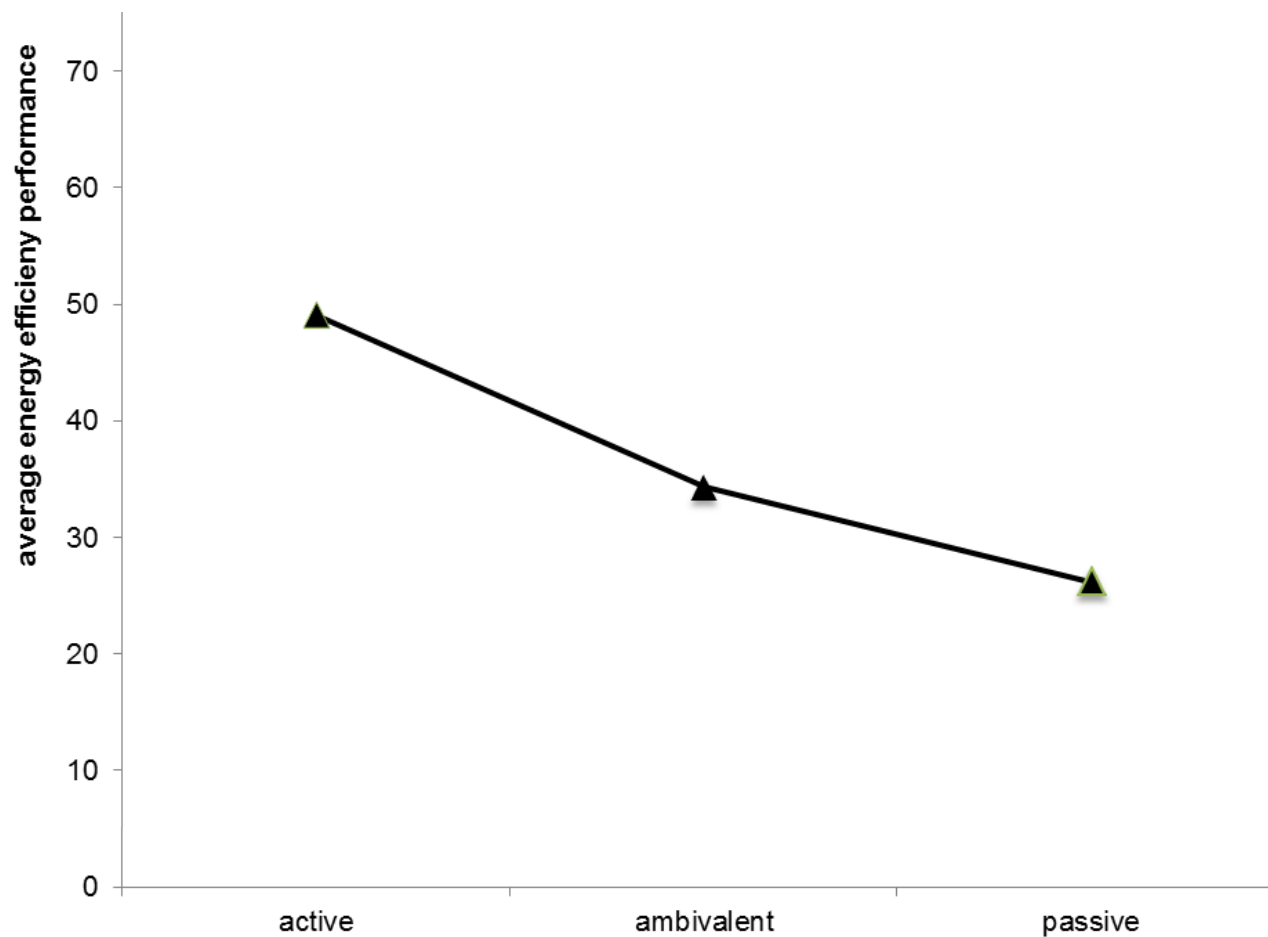
- ✗ Number of large customers (>100MWh)
- ✗ Own production capacities

→ But unexplained variance is still quite high  
(multivariate regression,  $R^2 = 0.14$ )

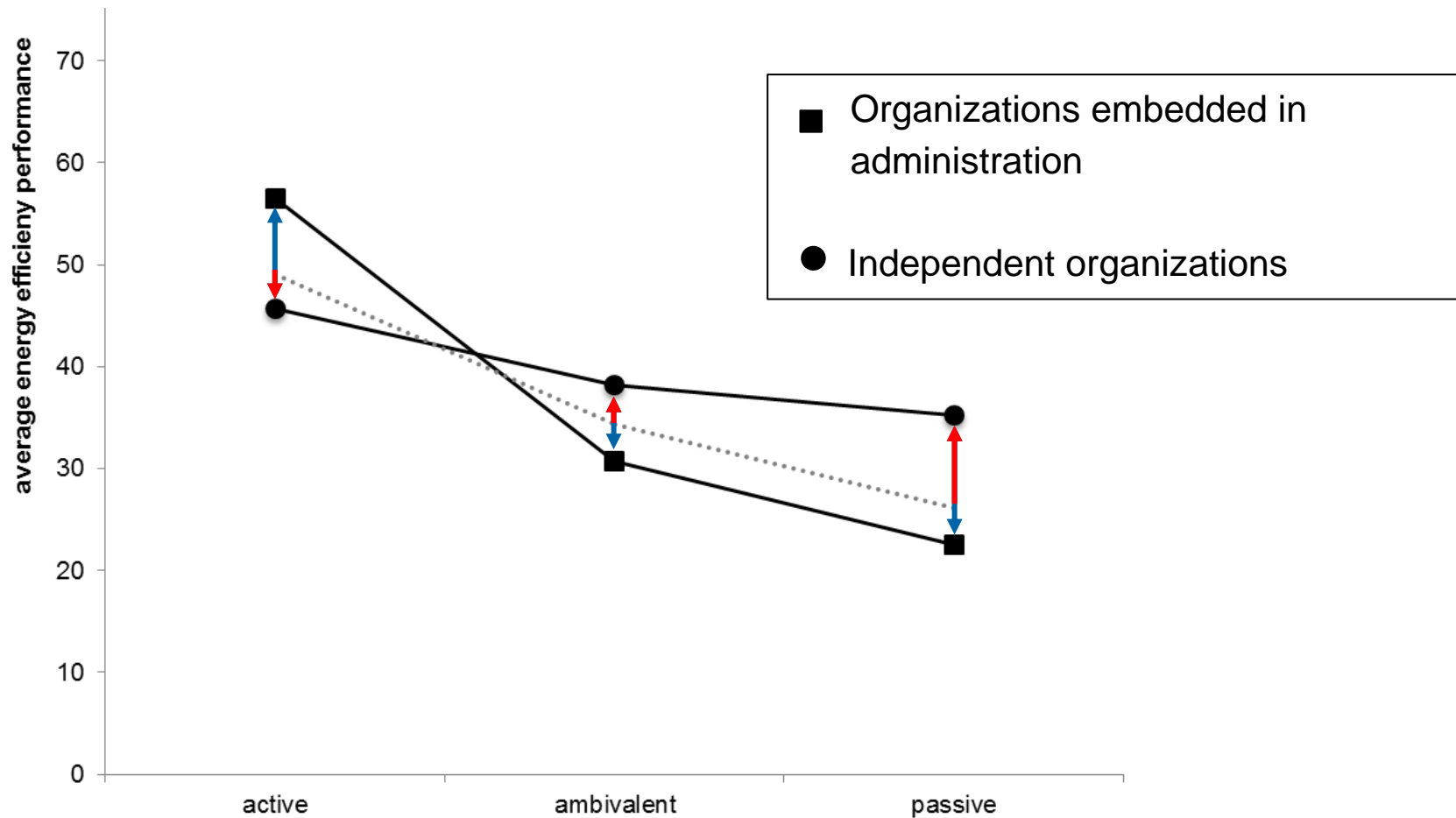
## 3 clusters of utilities based on their incentives and constraints to promote energy efficiency

	<b>“Active”</b>	<b>“Passive”</b>	<b>“Ambivalent”</b>
<b>cluster size</b>	35 utilities	41 utilities	25 utilities
<b>emphasis</b>	Incentives (image, access to customers, political pressure)	neither incentives nor constraints	Incentives, but primarily constraints (lack of resources)
<b>Number of employees</b>	Largest on average ( $M = 116.6$ )	Smallest on average ( $M = 17.7$ )	Medium ( $M = 29.3$ )
<b>legal form</b>	Mostly independent organizations	Mostly part of administration	Half-half

# Cluster membership is a strong predictor of utilities' energy efficiency performance



# Independence can be good or bad for energy efficiency – depending on the type of utility



# Summary

- Poachers do sometimes act as gamekeepers (*Les braconniers agissent parfois comme des gardes-chasses*) – even in absence of national saving obligations
- These are – by trend – large and independent organizations
- Communal policies are key driver of energy efficiency activities – particularly in cities
- Still, there exists a large difference between utilities and overall there is ample room for improvement

## There exists no single best policy to incentivise promoting energy efficiency

- Large heterogeneity of Swiss utilities
  - Some profit from white certificate schemes
  - Many may require additional resources (e.g. regional intelligence centres)
- Mergers will be a condition for small utilities to play a role in promoting energy efficiency
- Uncertainty regarding the implementation and design of white certificates can incentivize “leaving the low hanging fruits on the trees”

## Publicly owned utilities: A double-edged sword

- Changes of the role of utilities for communities (e.g., less income, less sovereignty)
- Liberalization exposes citizens to market risks
- ✓ Powerful levers for realizing the ambitious goals of the new Swiss energy strategy
- ✓ Warrantors for ensuring energy security throughout periods of change



**Thank you for your attention!**

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