A photograph of an industrial facility, likely a refinery or chemical plant, with several tall smokestacks emitting thick white plumes of smoke or steam. The sky is blue with scattered white clouds. A large red rectangular box is overlaid on the left side of the image, containing white text.

Counterfactual analyses –  
Energy efficiency in industry

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SWEDISH NATIONAL  
AUDIT OFFICE

# Introduction

- › Voluntary programme for improving energy efficiency in industries (PFE)
- › Electricity tax exemption
- › Has the programme contributed to outcomes in the form of better energy efficiency or reduced emissions?

## Counterfactual analyses

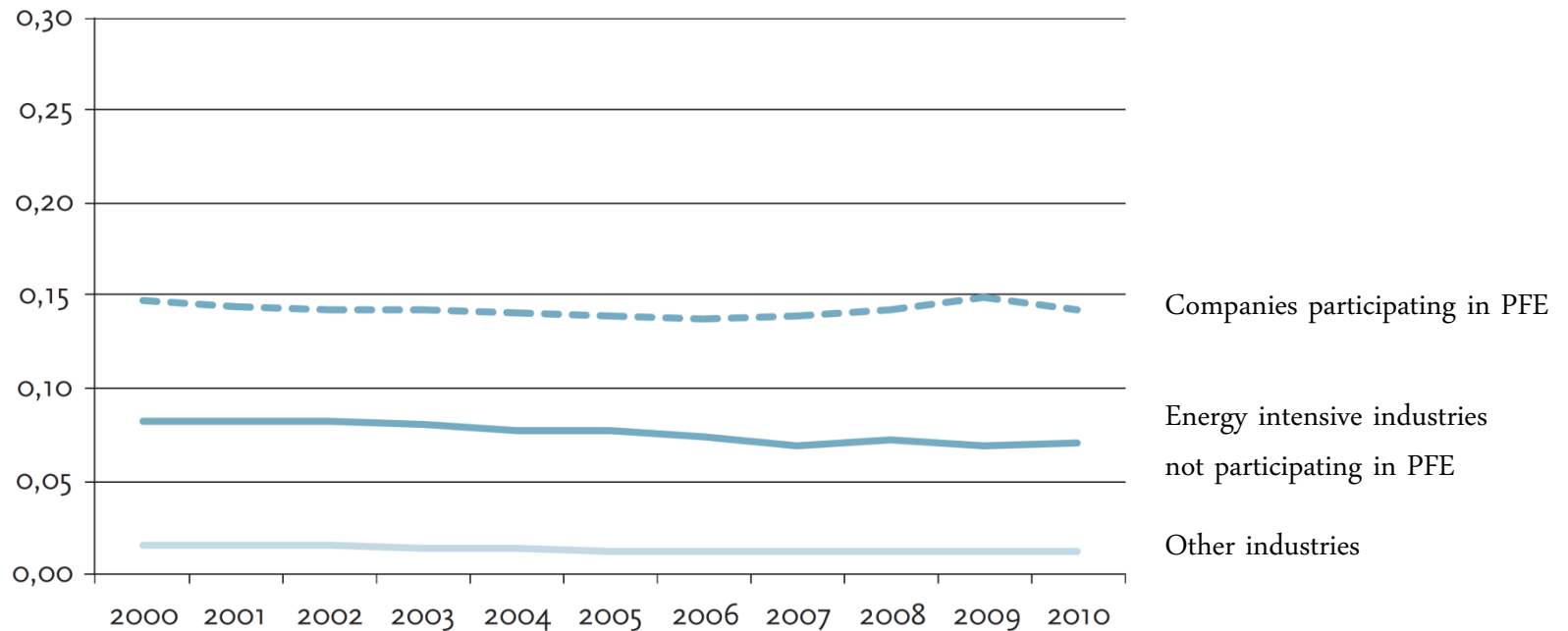
- › What effects would have occurred without the programme (PFE)?
  
- › New calculations for energy use divided into three groups:
  - Companies participating in the first period of PFE (2005–2009)
  - Energy intensive industries not participating in the programme
  - Other industries
  
- › Source: Statistics Sweden
  - Survey Industrial Energy Consumption
  - Extraction and manufacturing industries NACE 05-33
  - More than 9 employees

## Validity and reliability

- › Not exactly the same type of companies compared
- › Hard to measure additionality
- › Effects caused by several factors, for example the financial crisis and high energy prices
- › Long term effects (available limited time series)
- › A new supplement to the follow-up based on the involved companies own estimations

# Small changes in electricity use by production value

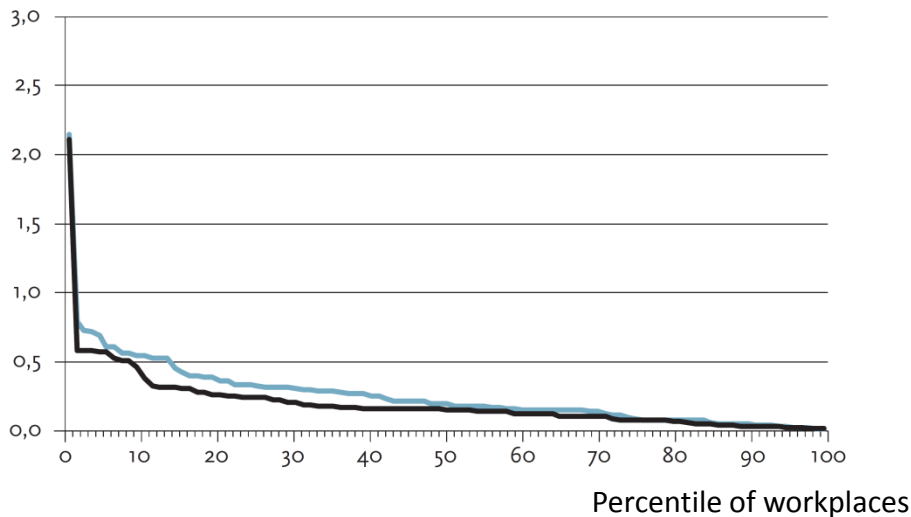
Electricity use (GWh)/production value SEK million



## Energy use per production value in PFE-companies has not decreased more than in other energy intensive companies

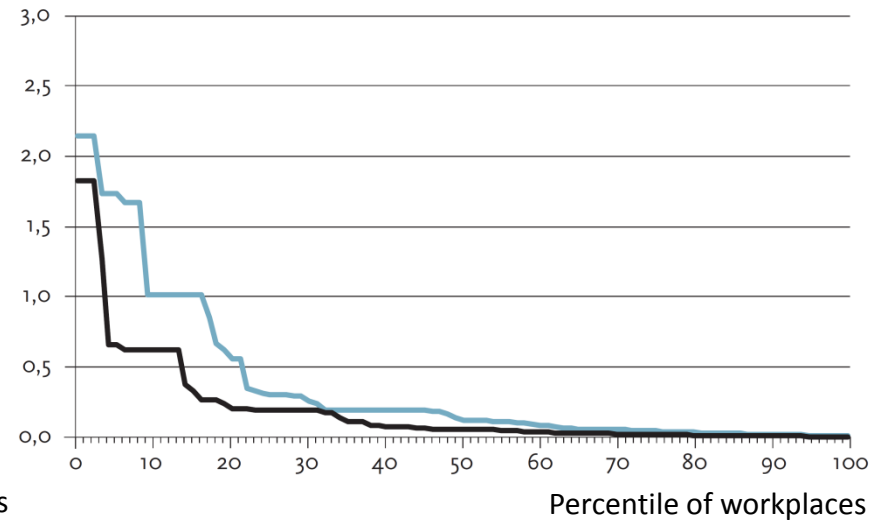
Companies participating in the PFE

Energy use (GWh)/production value SEK million



Energy intensive industries not participating in the PFE

Energy use (GWh)/production value SEK million



— 2004 — 2010

## Lessons learned

- › Specify definitions of categories
- › A supplement to other analyses
- › Calculate more time when new data and methods are used

Thank you for your attention!