



# MURE Industry case study: Impact Assessment of the Energy Efficiency Plan of Italy

## MURE工业案例研究： 意大利能源效率规划影响评价

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# Energy efficiency policies in the NEEAP

## 国家能源效率行动计划NEEAP的能源效率政策

- The "Energy Service" Directive of the European Union demands member states to elaborate **national energy efficiency action plan (NEEAP)**, which shall show how the country intends to fulfil its binding targets of energy efficiency improvement by 2016. 欧盟能源指令要求各成员国详细报告他们的国家能源效率行动计划，该报告应说明国家将如何在2016实现能源效率提高的目标。
- The NEEAPs covers a certain set of current and planned policies and measures to improve energy efficiency 国家能源效率行动计划阐述了一系列提高能源效率的现有和规划的政策、方案。
- For industry, the Italian NEEAP includes the following policies/measures 为提高工业能源效率，意大利国家能源效率行动计划列出了以下政策/方案：
  - **Efficient lighting** 高效照明
  - **High efficient motors** 高效能马达
  - **Variable speed drives in motor systems** 马达系统的变速传动装置



# Definition of operational measures 操作方法的定义

*What are the options and measures behind the general policies?  
Which technologies are affected and by which means is energy saved?*  
一般性政策背后的可选方案和措施是什么？什么技术将受到影响？通过什么途径节约能源？

## □ Efficient lighting in industry 工业高效照明

- The replacement of T8 and T12 by T5 fluorescent lamps 用T5日光灯代替T8和T2日光灯
- The replacement of magnetic ballasts by electronic ballasts 用电子镇流器代替磁镇流器
- The wider usage of lighting control systems 推广使用照明控制系统

## □ High efficient motors 高效能马达

- A minimum energy efficiency standard for electric motors, which prohibits the usage of Eff2 motors 电动机最低能效标准，禁止使用Eff2型马达

## □ Variable speed drives 变速传动装置

- The wider introduction of inverters for the usage of motor control 在马达控制中推广使用反流器

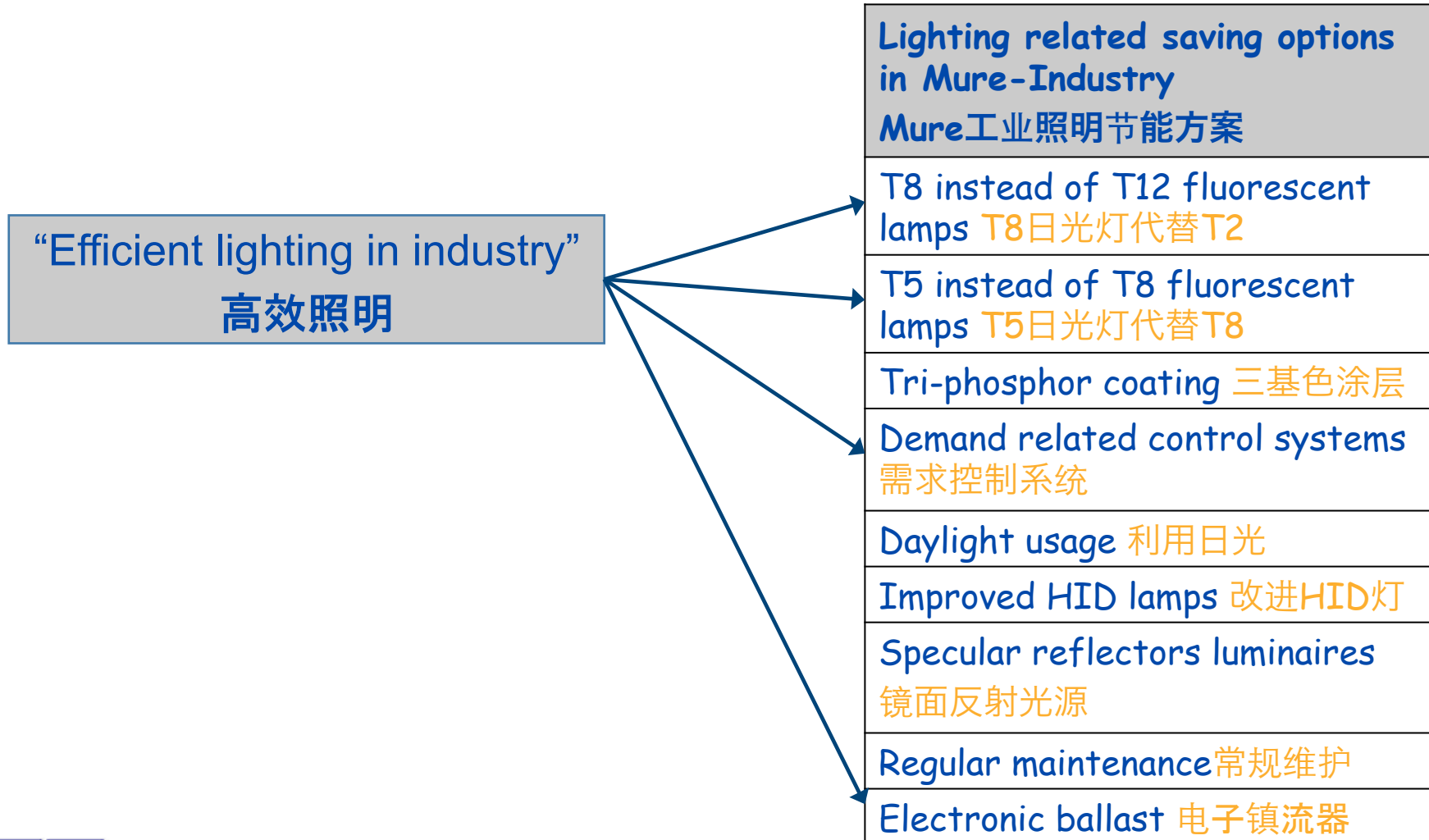




# Relation of policies to saving options

## 节能方案政策间的相互关系

### Efficient lighting 高效照明





# Relation of policies to saving options

## 节能方案政策间的相互关系

### Efficient motors 高效能马达

“High efficient motors”  
高效能马达

“Assumption: minimum standard for IE2 motors”  
假设:IE2马达最低能效标准

Motor related saving options in Mure-Industry Mure工业马达节能方案	
IE2 Motors with less than 10 kW	小于10千瓦的IE2马达
IE2 Motors with 10 to 70 kW	10-70千瓦的IE2马达
IE2 Motors with above 70 kW	大于70千瓦的IE2马达
IE3 Motors with less than 10 kW	小于10千瓦的IE3马达
IE3 Motors with 10 to 70 kW	10-70千瓦的IE3马达
IE3 Motors with above 70 kW	大于70千瓦的IE3马达
Variable Speed Drive with less than 10 kW	小于10千瓦的变速传动装置
Variable Speed Drive with 10 to 70 kW	10-70千瓦的变速传动装置
Variable Speed Drive with above 70 kW	大于70千瓦的变速传动装置





# Relation of policies to saving options 节能方案政策间的相互关系



## Variable speed drives 变速传动装置

"Variable speed drives"  
变速传动装置

Motor related saving options in Mure-Industry Mure工业变速传动装置节能方案
IE2 Motors with less than 10 kW
IE2 Motors with 10 to 70 kW
IE2 Motors with above 70 kW
IE3 Motors with less than 10 kW
IE3 Motors with 10 to 70 kW
IE3 Motors with above 70 kW
Variable Speed Drive with less than 10 kW
Variable Speed Drive with 10 to 70 kW
Variable Speed Drive with above 70 kW





## Diffusion rates 普及率

- For policies based on minimum standards, or on phasing out/banning of specific technologies, the expected diffusion rate is relatively easy to determine 有关最低能效标准或逐步淘汰/禁用某种技术的政策的预期普及率相对容易确定。
- Policies based on incentives => decrease of price paid by users => price elasticities can be used 激励政策 => 用户支付价格降低 => 可以采用价格弹性政策
- For policies based on other mechanisms (voluntary agreements, awareness and information campaigns, etc.) future diffusion rates are much more difficult to forecast 与其它机制（节能自愿协议和公众教育灯）相关的政策的远期普及率相对较难预测。



## Diffusion rates 普及率

Policies 政策	Diffusion rate 普及率	Explanation 说明
Efficient lighting in industry 工业高效照明	From 2010: 100% 2010年开始达100%	Minimum standards lead to 100% of max diffusion of T5 lamps and electronic ballasts. While it is a very optimistic assumption on the usage of demand related control systems.最低能效标准使得T5日光灯和电子镇流器普及率达100%，但这只是需求控制系统一个相对乐观的假设。
Energy efficient electric motors 高效电动马达	From 2010: 100% 2010年开始达100%	Minimum standards lead to 100% of max diffusion of IE2 motors最低能效标准使得IE2马达普及率达100%。
Variable speed drives 变速传动装置	From 2010: 50% 2010年开始达50%	Assumption from NEEAP, VSDs are installed in 50% of eligible cases 根据国家能源效率行动计划的假设，50%合格的项目装有变速传动装置。



# Calculation and results 计算及结果



The main calculation steps are 主要的计算步骤包括:

1. The calculation of saving potentials related to autonomous and technical diffusion for each saving option 与每一个节能方案的自我管理和技术普及相关的节能潜力计算
2. The calculation of the policy induced saving potential, which lies between the autonomous and the technical diffusion 政策引导节能潜力计算, 介于自我管理和技术普及之间
3. The results in terms of saving potentials and costs by saving option are aggregated for each policy 综合计算节能潜力和节能方案成本

Policies 政策	Savings by 2016* [GWh] 2016年节能
Efficient lighting in industry 工业高效照明	1328
Energy efficient electric motors 高能效电动马达	696
Variable speed drives 变速传动装置	3248

\*2016 is the target year for the NEEAPs.

2016年是国家能源效率行动计划的目标年份

