

Benefits of increasing the EU's 2030 energy efficiency target

1. Introduction

The European Commission released its 'Clean Energy For All Europeans' package, which includes proposals for revising several pieces of EU legislation to give them a post-2020 perspective, including amending the Energy Efficiency Directive (EED)¹. The Commission proposed a 30 % energy efficiency target for 2030, considering the additional benefits, in particular the employment impacts, as identified by the Impact Assessment (IA)².

This paper looks at the additional benefits of increasing the target beyond 30% using the information available in the IA. Therefore the paper assess the average impact of increasing the target by one percentage point based on the differences of IA's EUCO30, the 30% energy efficiency target scenario, and EUCO+33, the 33.2% energy efficiency target scenario.

The reason to choose the difference between these two target levels is two-fold. For one, it treats the target proposed by the Commission as the baseline as this is the starting point for the legislative process. Second, the EUCO+33 scenario keeps assumptions regarding energy mix and costs close to the EUCO30 scenarios, while they change significantly for higher scenarios, EUCO+35 and EUCO+40, and make the interpretation more difficult.

2. Gas imports

The Commission has used multiple times in its communication a figure stating that for every 1% improvement in energy efficiency EU gas imports fall by 2.6%.³ The recent IA provides new numbers (see table 9, p. 44, IA pt 1). At EUCO30 gas imports would reach 272.7 billion cubic meters (bcm) by 2030 and at EUCO+33 net gas imports would reduce by 13% to 236.7 bcm. A 1% increase in efficiency reduces gas imports by 4.1%.

1% increase of the 2030 energy efficiency target => 4% reduction in gas imports

3. Energy bill savings

Average annual energy purchase costs are provided for all scenarios by the IA, broken down to industry, residential, tertiary and transport sectors (see table 16, p. 87, IA pt 2). In the case of the residential sector the costs drop by bn €11 from bn €397 in EUCO30 to bn €386 in EUCO+33. These are average annual savings, which means that over 10

¹ COM(2016)761; EC proposal for amending Directive 20012/27/EU

² SWD(2016)405final part 1, 2 and 3; Commission staff working document; Impact Assessment accompanying COM(2016)761

³ European Commission, European Commission proposes a higher and achievable energy savings target for 2030, July 2014. http://europa.eu/rapid/press-release_IP-14-856_en.htm



years around bn €110 savings are achieved. Assuming gradual increase of the savings starting in 2021 with bn €2 the cost reduction in 2030 reaches bn €20 (for a 3.2% increase in energy efficiency from EUCO30 to EUCO+33). This means that per 1% energy efficiency increase the energy bill savings in 2030 would reach bn €6.25. With around 219 million households in the EU28 this makes €29 savings per household.

1% increase of the 2030 energy efficiency target
=> €29 savings on the average annual household's energy bill

4. Job creation

The IA uses different macro-economic models to analyse the effects of on growth and jobs (see table 15, p. 54, IA pt 1. Using the E3ME model with partial crowding-out, the employment impact of EUCO30 is 0.17% and of EUCO+33 0.63% of additional jobs compared to the baseline (EUCO27). This means an additional 0.46% of 233.5 million jobs, thus 1.1 million jobs in total and 336,000 jobs per additional 1 % energy efficiency. These are net impacts. Investing in energy efficiency creates 2.5 to 4 times more jobs than investing in oil or gas.

1% increase of the 2030 energy efficiency target
=> 336,000 additional jobs

5. GHG Emissions

The impact assessment shows that GHG emissions drop by -40.8% from the 1990 level in the EUCO30 scenario and -43.0% in the EUCO+33 scenario⁴ (see table 16, p. 56, IA pt 1). This means that for each 1% extra energy efficiency, total GHG emissions are reduced by 0.7% or 39 MtCO₂-equivalent.

1% increase of the 2030 energy efficiency target
=> 39 MtCO₂-equivalent, approx. GHG emission of Slovakia

6. Pollution and health damage costs

The impact assessment shows that health costs would be reduced by 4.5 to 8.3 billion in the EUCO30 scenario and by 15.2 to 28.4 billion in the EUCO+33 scenario. Thus for each

⁴ In general, the IA does not provide a straight forward assessment of the GHG impact, as the 40% GHG target is treated as a cap. With increasing efficiency the energy mix becomes more carbon intensive, which is visible in table 6 of the IA (Page 40), where the share of solid fuels (mainly coal) in the energy mix increases by 4% in EUCO30, while others drop. We therefore verified the findings using a different calculation: Energy consumption drops from 1,321 at EUCO 30 to 1,260 Mtoe at EUCO+33, which means that for each % efficiency 19 Mtoe are saved. Assuming that the energy mix does not change due to energy efficiency and that therefore 1 Mtoe leads in average to 2 MtCO₂-equivalent emissions (based on PRIMES 2016 for 2030), 1% in energy efficiency increase reduces emissions by 38 MtCO₂-equivalent. This number is close to the one from the IA but only when moving from EUCO30 to ECO+33. In other scenarios this is different.



1 percent increase in the energy efficiency target the pollution and health costs would go down by up to bn €6.

1% increase of the 2030 energy efficiency target

=> up to €6 billion reduction in pollution and health damage costs

