


“ Geen kwartiertje meer voor het klimaat!!! ” Felnet  
Brussels, 16 May 2019

# Impact assessment of the Clean Energy Package

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## Content

Source: 3 FPB's studies

- (1) Oct. 2014: Economic impact of the 2030 EU Climate and Energy framework
- (2) Oct. 2017: Long term energy outlook: REF scenario
- (3) May 2018: Impact assessment of three policy scenarios (WP 5-18)

1. Introduction: context and scenarios
2. Impact assessment
  - 5 dimensions of the Energy Union
  - [(1) Decarbonisation (GHG (1a), RES (1b))
  - (2) Energy efficiency (“EE first” principle)
  - (3) Energy security
  - (4) Internal energy market
  - (5) Research, innovation and competitiveness]
  - + (macro)economic impacts ←

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## 1. Introduction: context

- 2030 EU Climate and Energy Framework & Low carbon economy Roadmap (2011-2014)
- The Clean Energy Package (Nov 2016)
  - Governance Regulation
  - Integrated national energy and climate plans 2030-2040 (NECP) [reporting 2018/2019](#)
  - Long term strategy 2050-2070 (LTS) [reporting 2020](#)
- Interfederal Energy Pact (Dec 2017)
  - Belgium's energy vision & strategy to 2050

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## 1. Introduction: scenarios

- Economic impact
  - Reference scenario (*REF*): “unchanged policy” + 2020 binding targets
  - 3 policy scenarios : compatible with the 2030 EU Climate and Energy framework and 2050 EU GHG reductions (as defined end 2016)
  - Alt1*, *Alt2* and *Alt3* which differ according to GHG reductions (in 2030 compared to 2005) in the Belgian non-ETS, reflecting flexibilities provided in the ESR
  - Alt1*: -27% < EU CO<sub>2</sub> (EC, 2016)
  - Alt2*: -32%
  - Alt3*: -35% = target for BE
- Macroeconomic impact
  - Reference scenario (*REF*) + 2 policy scenarios (*GHG40*): carbon price of 40 EUR/t CO<sub>2</sub>; with/without recycling of tax receipts

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## 2. Impact assessment: (direct) economic impact (I)

### Indicators:

- Energy trade balance
- Energy system cost
- Investment expenditures (power sector, industry, residential and tertiary sector)
- Average cost of electricity generation
- Unit energy cost (industry, residential and tertiary sectors)

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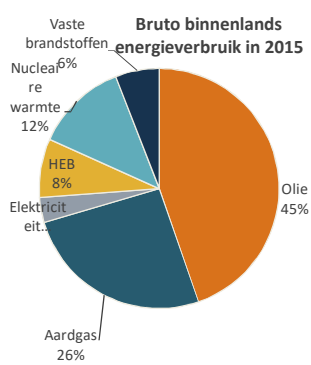
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## 2. Impact assessment: (direct) economic impact (II)

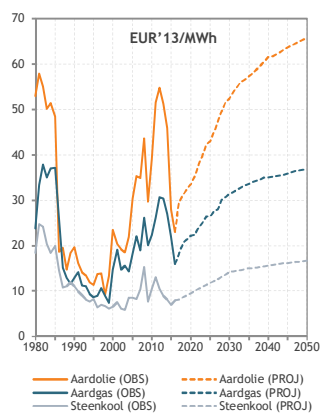
### Energy trade balance (1)

= net energy imports x energy price



Source: FPB (2017, 2018)

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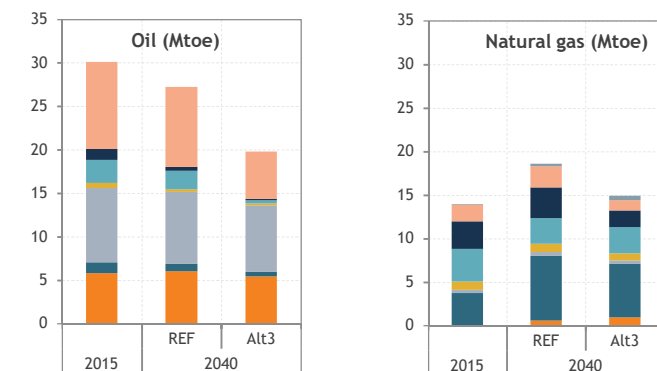
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## 2. Impact assessment: (direct) economic impact (III)

### Energy trade balance (2)

< mainly from oil and natural gas



Source: FPB (2017, 2018)

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## 2. Impact assessment: (direct) economic impact (IV)

### Energy trade balance (3)

Impact in 2030 and 2040  
 In % of GDP  
 Focus on fossil fuels  
 All fossil fuels are imported  
 Negative numbers = deficit  
 2015: -2.9% of GDP

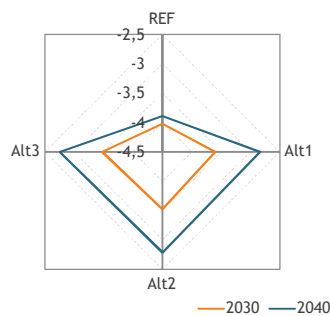
#### Results

REF: increase of the deficit compared to 2015

price (+) vs. volume (-)

Alt: decrease of the deficit compared to REF

volume (-); → 2040 = 2015



Source: FPB (2017, 2018)

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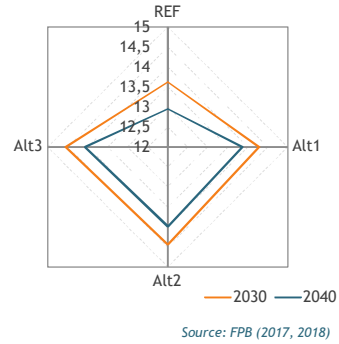
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## 2. Impact assessment: (direct) economic impact (V)

### Energy system cost

Impact in 2030 and 2040  
 In % of GDP  
 Encompass investment/fuel  
 2015: 11% of GDP



### Results

REF: increase compared to 2015  
 energy price (+) investments (+)  
 Alt: increase compared to REF  
 investments (++) and electricity purchase cost (+) vs. fuel cost (-)

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## 2. Impact assessment: (direct) economic impact (VI)

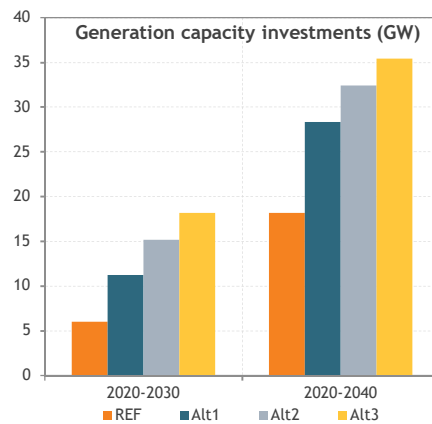
### Investment expenditures in the power sector (1)

< (New installed capacities x investment cost) + power grids

Investments ('20-'40)

18-35 GW

- Increasing load (demand)
- Higher RES capacities
- Back-up for variable RES
- Replacement



Source: FPB (2017, 2018)

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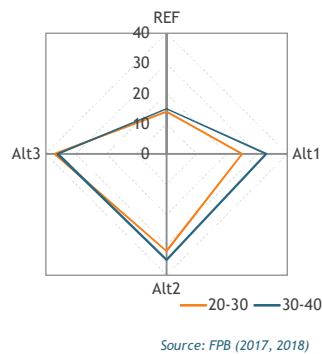
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## 2. Impact assessment: (direct) economic impact (VII)

### Investment expenditures in the power sector (2)

Impact periods 2020-2030 and 2030-2040  
 In billion EUR  
 Production capacities and grids



### Results

REF: 14-15 billion EUR, each period  
 Alt: increase compared to REF  
 production (almost) = grids  
 on a yearly basis (2020-2040)  
 2.8 to 3.7 billion EUR vs. 1.5 billion EUR in REF

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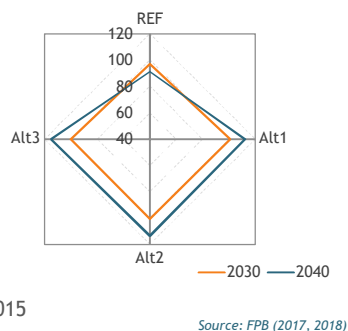
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## 2. Impact assessment: (direct) economic impact (VIII)

### Average cost of electricity generation

Impact in 2030 and 2040  
 In EUR/MWh  
 Fixed and variable costs incl.  
 purchase of emission allowances  
 2015: 87 EUR/MWh on average



### Results

REF: (slight) increase compared to 2015  
 Alt: increase compared to REF  
 100 EUR/MWh (2030) → 112-115 EUR/MWh (2040)  
 fixed (+) allowances 2040 (+) vs. variable (-)

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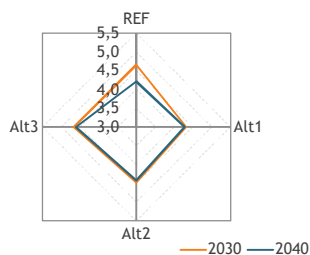
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## 2. Impact assessment: (direct) economic impact (IX)

### Unit energy cost in the residential sector (1)

Impact in 2030 and 2040  
 In % of private consumption  
 Energy purchase cost only  
 Energy price x energy intensity  
 2015: 4.3 % on average  
 (range according to income deciles !)



### Results

REF: compared to 2015

increase in 2030 (price) followed by a decrease in 2040 (intensity)

Alt: compared to REF

decrease in 2030 (intensity) to slight increase in 2040 (electricity price)

Source: FPB (2017, 2018)

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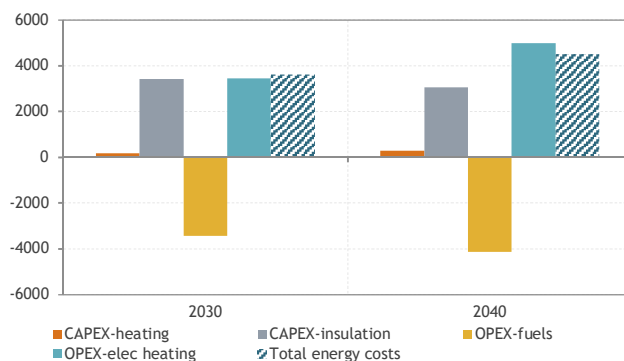
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## 2. Impact assessment: (direct) economic impact (X)

### Unit energy cost in the residential sector (2)

Energy cost : Alt3 variation wrt REF (in bn EUR)



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Source: FPB (2019)

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## 2. Impact assessment: (direct) economic impact (XI)

**In a nutshell** : impact with respect to REF in 2030

	Alt1	Alt2	Alt3
Energy trade balance	+	+	+
Energy system cost	-	-	-
Investment expenditures power sector	-	-	-
Investment expenditures industry	-	-	-
Investment expenditures tertiary	-	-	-
Investment expenditures residential	-	-	-
Average cost of power generation	-	-	-
Unit energy cost- industry	+	+	+
Unit energy cost- tertiary	+	+	+
Unit energy cost- residential	+	+	+

+ : favourable; - : unfavourable

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## 2. Impact assessment: macroeconomic impact

### Carbon pricing:

REF : 35 EUR/t CO<sub>2</sub> in ETS; 0 EUR/tCO<sub>2</sub> in non-ETS

GHG40 : 40 EUR /t CO<sub>2</sub> in ETS and non-ETS

### Use of additional tax revenues (compared to REF):

Without recycling : reduction of the public debt

With recycling: decrease in employer's social charges

Change compared to REF in 2030 (in %)

	sans recyclage	avec recyclage
PIB (en volume)	-0,28	0,08
Déflateur de la consommation privée	1,38	1,03
Emploi total	-0,38	0,37
Solde de la balance extérieure (% du PIB)	-0,16	0,04
Coûts unitaires du travail	0,83	-0,30
Solde des finances publiques (% du PIB)	0,22	0,04

Source: FPB (2014)

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Thank you for your attention  
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[www.plan.be](http://www.plan.be) → theme Energy

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Geen  
Academisch  
Kwartierje voor  
het Klimaat!  
Dinsdag 16 mei 2019  
14:00 - 17:00 uur