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MINISTRY OF ECONOMY

# What is the future for Poland's coal industry?

## Balancing low cost energy supply and energy security with the EU decarbonisation targets

**Maciej Bialek, Mining Dept, Ministry of Economy**

# Mining sector in Poland 2013 – facts and figures

-**Coal production**: 76,5 Mt (down from 79,2 Mt in 2012)

-**Production of steam coal**: 64,4 Mt (down from 67,4 Mt in 2012)

-**Production of coking coal** 12,1 Mt (up from 11,7 Mt in 2012)

-**Trade: coal sales (total)** 77,5 Mt (up from 72,0 Mt in 2012)

Including: **domestic sales** (66,9 Mt) and **export** (10,6 Mt)

# Electricity Generation in Poland (in terawatt hours)

| | 2012 | 2013 |
|---|---|---|
| **Production (in total)** | **159,9** | **162,5** |
| *Including conventional power plants* | | |
| **-hard coal power plants** | **84,5** | **84,6** |
| **-lignite power plants** | **55,6** | **57,0** |
| -natural gas power stations | 4,5 | 3,1 |
| -wind power stations | 4,0 | 5,8 |
| *-industry Power Plants* | 9,0 | 9,2 |

# Domestic coal sales in 2012

| | 2012 | 2013 |
|---|---|---|
| ***Domestic coal sales*** | ***64,6 Mt*** | ***66,9 Mt*** |
| **-Electricity generation/industry** | **37,1 Mt** | **38,2 Mt** |
| -Heating plants/stations | 5,5 Mt | 4,4 Mt |
| -Other industry | 0,3 Mt | 0,5 Mt |
| -Coke plants | 9,8 Mt | 10,4 Mt |
| - other (domestic) | 11,7 Mt | 13,4 Mt |
| - Export | 7,4 Mt | 10,6 Mt |

# Factors influencing mining sector in 2013

- increased export of coal

-record price drops of coal, especially coking coal

- drastically lower revenues of Polish mining companies

- high levels of coal imports to Poland

# Restructuring process of hard coal mines in Poland

| | 1989 | 1995 | 2000 | 2005 | 2010 | 2012 |
|---|---|---|---|---|---|---|
| - coal output (Mt) | 117,4 | 135,4 | 102,2 | 97,1 | 76,2 | 79,2 |
| - employment (x 1000) | 407 | 272 | 155 | 123 | 112 | 106 |
| - no. of coal mines | 70 | 63 | 42 | 33 | 31 | 30 |
| -no. of longwalls | 861 | 415 | 183 | 130 | 116 | 114 |
| -Average exploatation Depth (m) | 524 | 557 | 614 | 662 | 700 | 713 |

# Energy security - definitions

**World Coal Association:** Providing a secure supply of energy comprises two areas:

1. Long term security or resource availability, and
2. Short term security – associated with supply disruptions of the primary fuel of of the electricity generated

**International Energy Agency:**

Uninterrupted availability of energy resources at an affordable price (…)

Long term energy security = timely investments to supply energy in line with economic developments and environmental needs.

Short term energy security = ability of the energy system to react promptly to sudden changes in the supply- demand balance

# The EU's 2030 climate and energy framework

The package was presented on 22 January 2014 as a successor to the three 20-20-20 targets of 20% greenhouse, improvements in energy efficiency and renewable energy market penetration, all by 2020.

For 2030, the EU framework has proposed:

-A 40% greenhouse gas reduction target that is binding at nation state level an may not be bet by carbon offsets

-The use of carbon offsets to meet further emissions reduction commitments made in international climate talks.

# Energy Security of Poland - 2050

The official document:: **„Energy security and Environment"**

- adopted by the Govt on April 15th 2014,

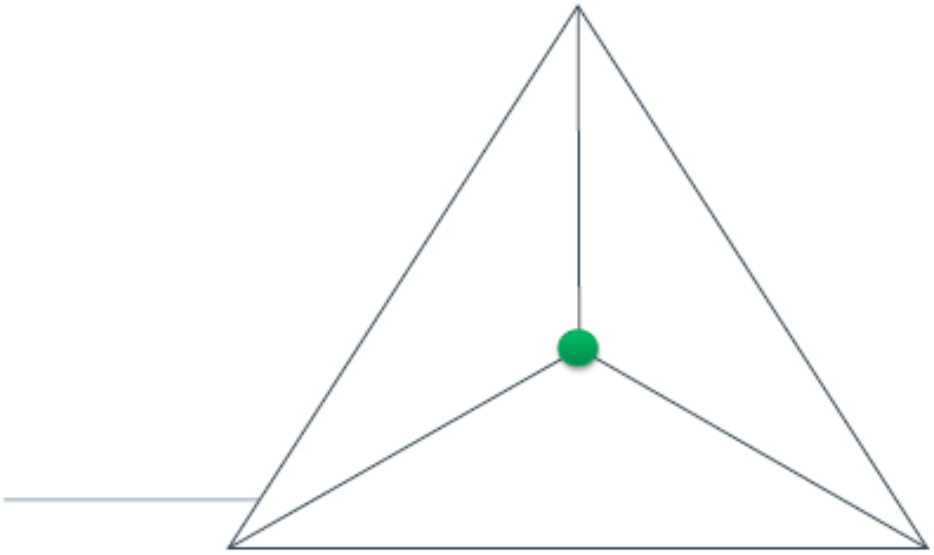
- forms an intergrated approach to energy and environmental issues with time horizon to 2020, and

- Includes guidelines for the energy policy of Poland until 2050 (in preparation),

**According to one of the guidelines,**
**coal <u>will remain</u> a key fuel of Poland's energy policy.**

# *Doctrine of energy security*

**Energy security**



**Competitiveness of the economy**

**Environmental protection**

# Energy Security of Poland – 2050 (scenarios)

## Leading Scenario – business as usual, continuation of present energy trends and implementation of investment projects

**Two Additional scenarios (only hypothetical, auxiliary scenarios)**

1. **Nuclear Energy Scenario** (dominant position of nuclear power in Poland's energy mix)
2. **Natural Gas + Renewables** - based on assumptions regarding:

   a) large scale production of natural gas from unconventional resources

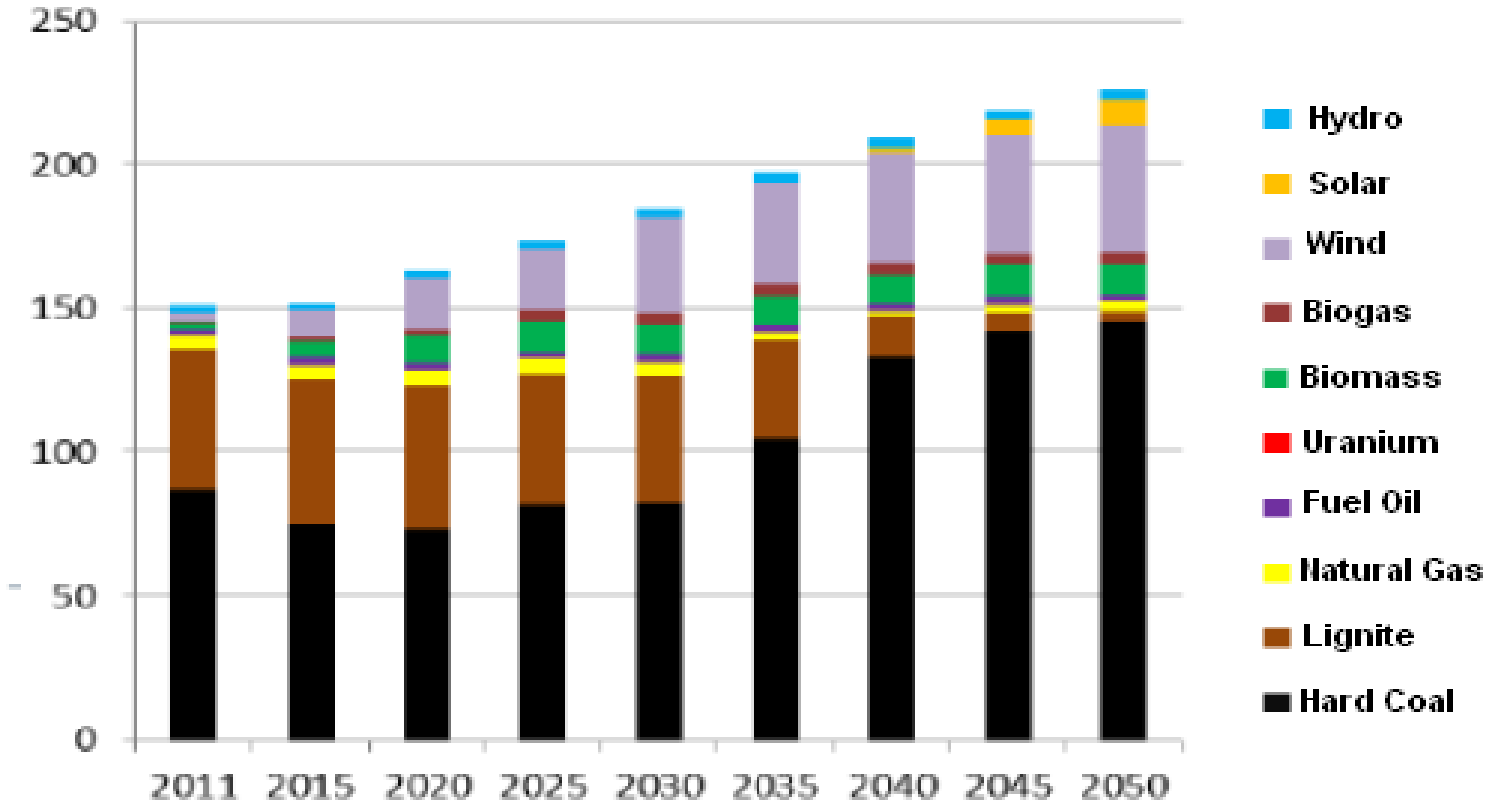
   b) technology development of renewable energy

# Energy Policy Scenarios – 2050

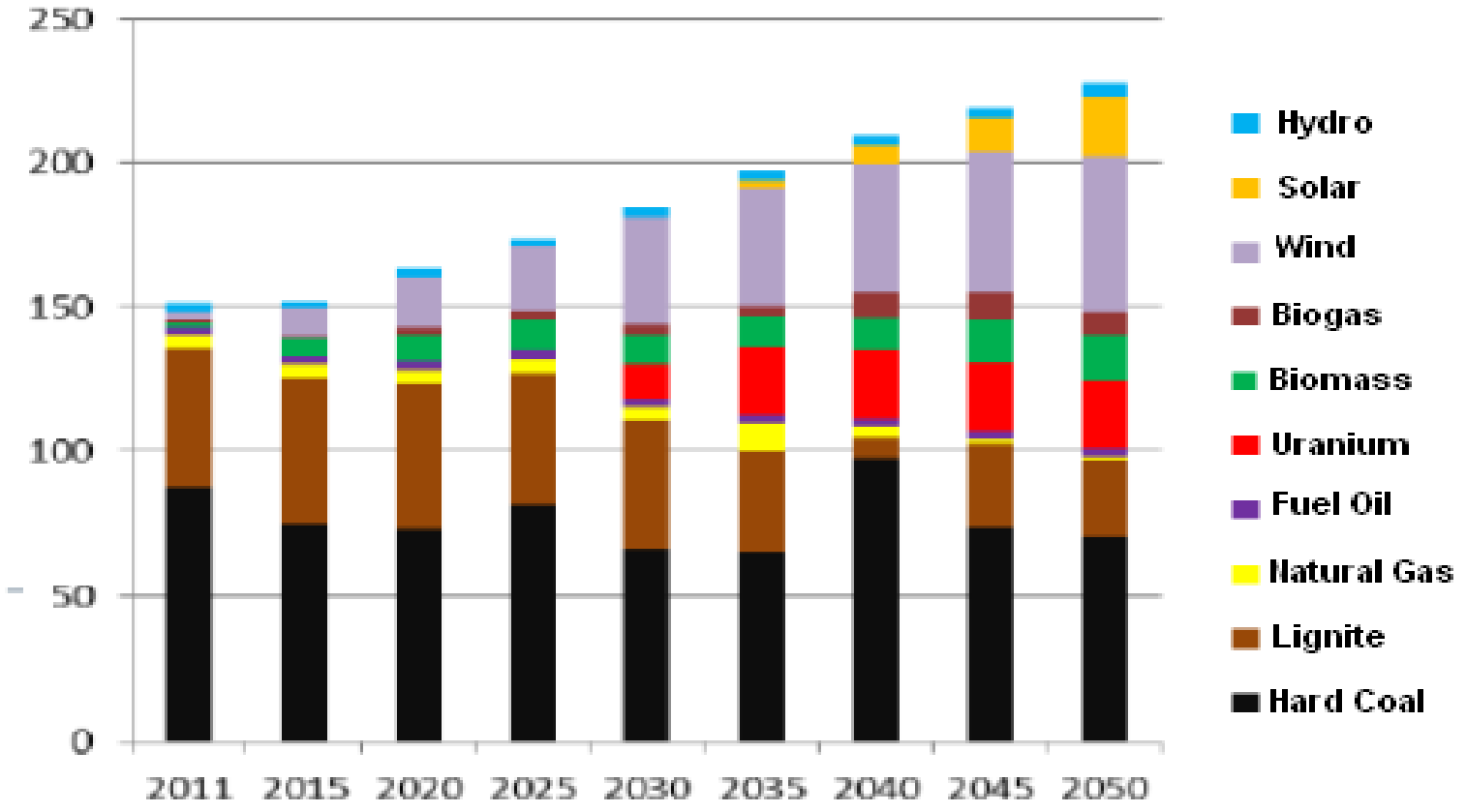
- The Mineral and energy economy institute – Polish Academy of Science

1. Status Quo Scenario
2. Expansion of Renewables Scenario
3. ‘Nuclear Max’ Scenario
4. Natural Gas Scenario
5. Natural Gas Scenario + High $CO_2$ Emission Price

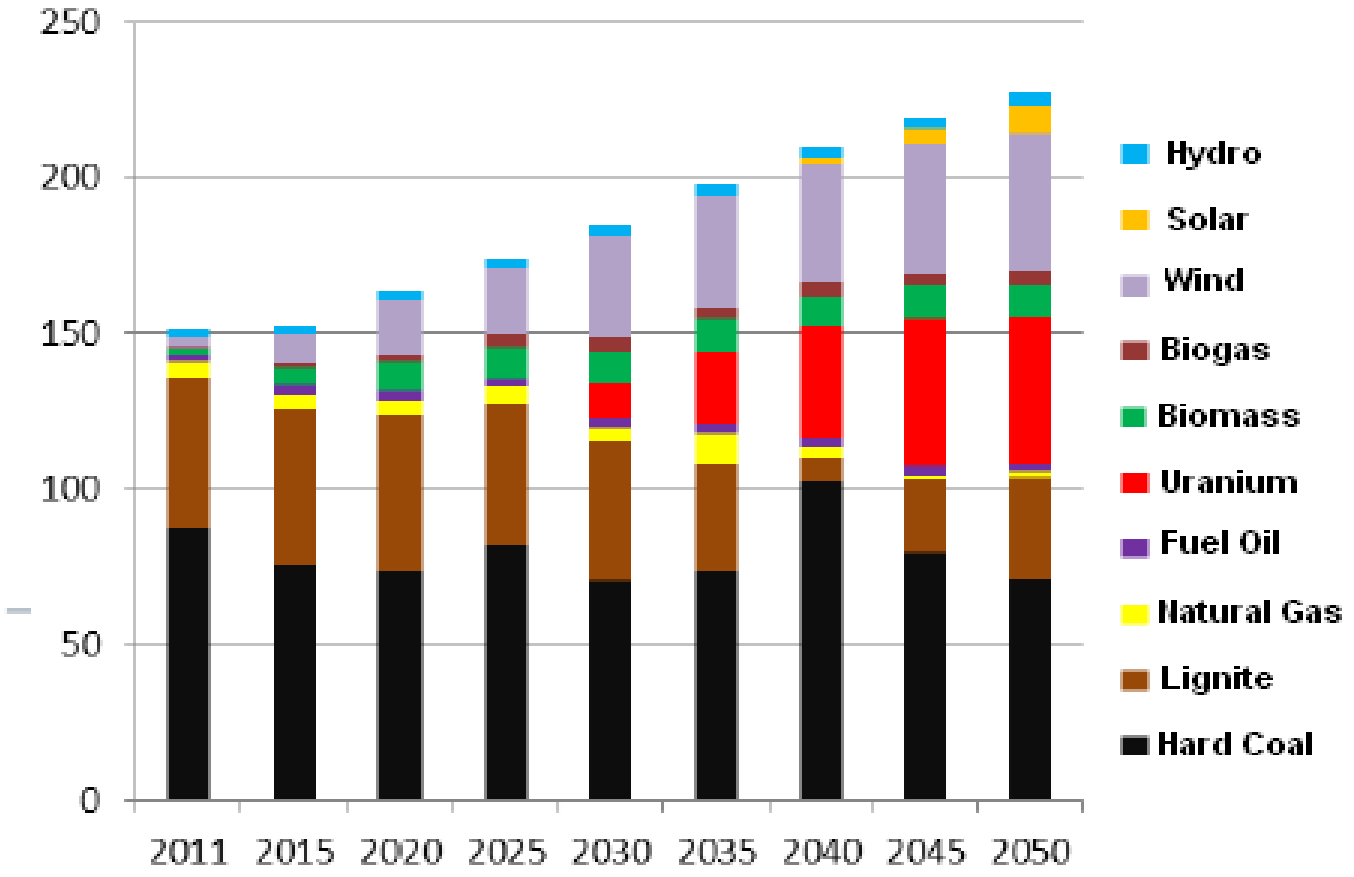
# 1. Status Quo Sc. (ELECTRICITY PRODUCTION BY FUEL TYPE IN TWh)



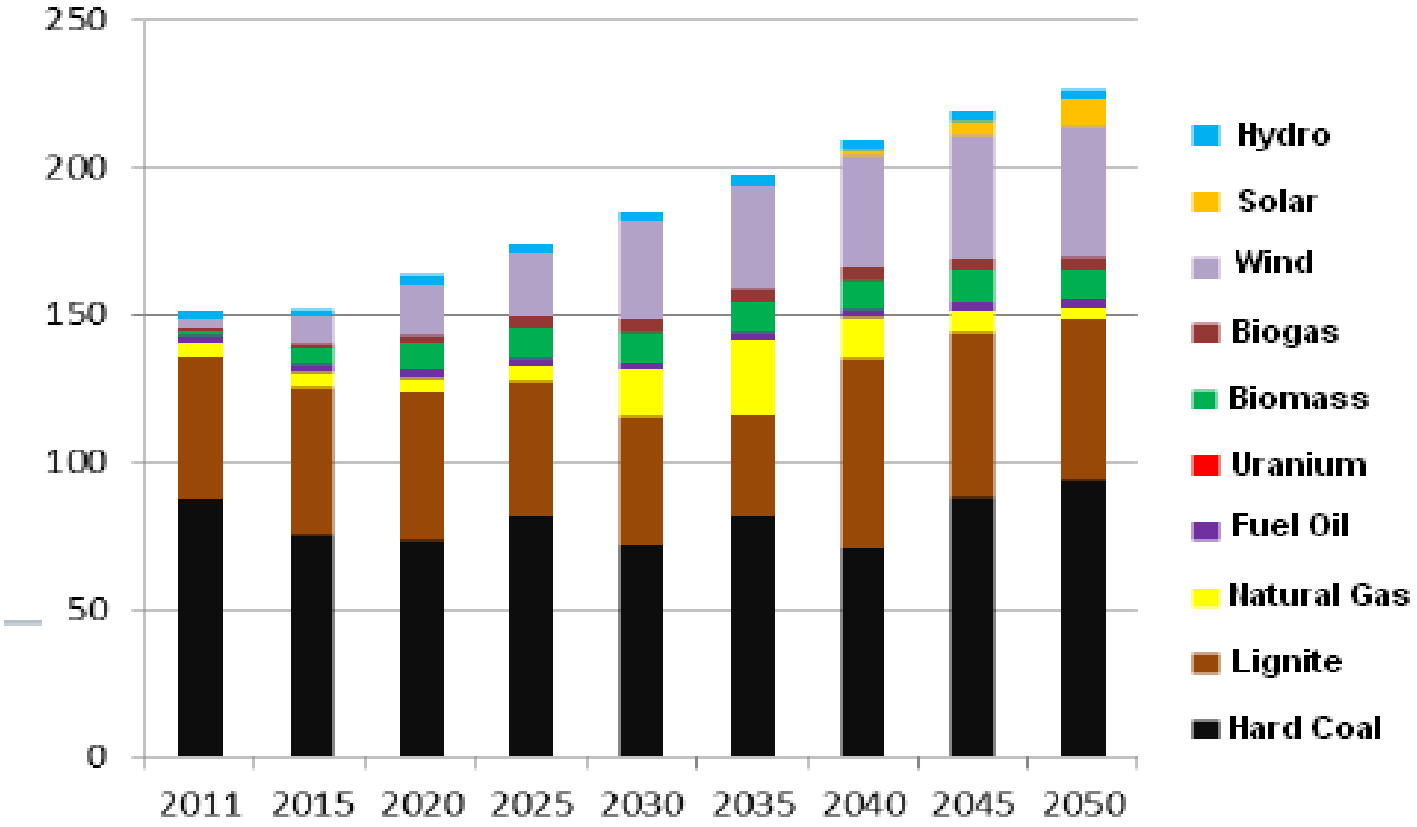
# 2. Expansion of renewables Sc (ELECTRICITY PRODUCTION BY FUEL TYPE IN TWh)



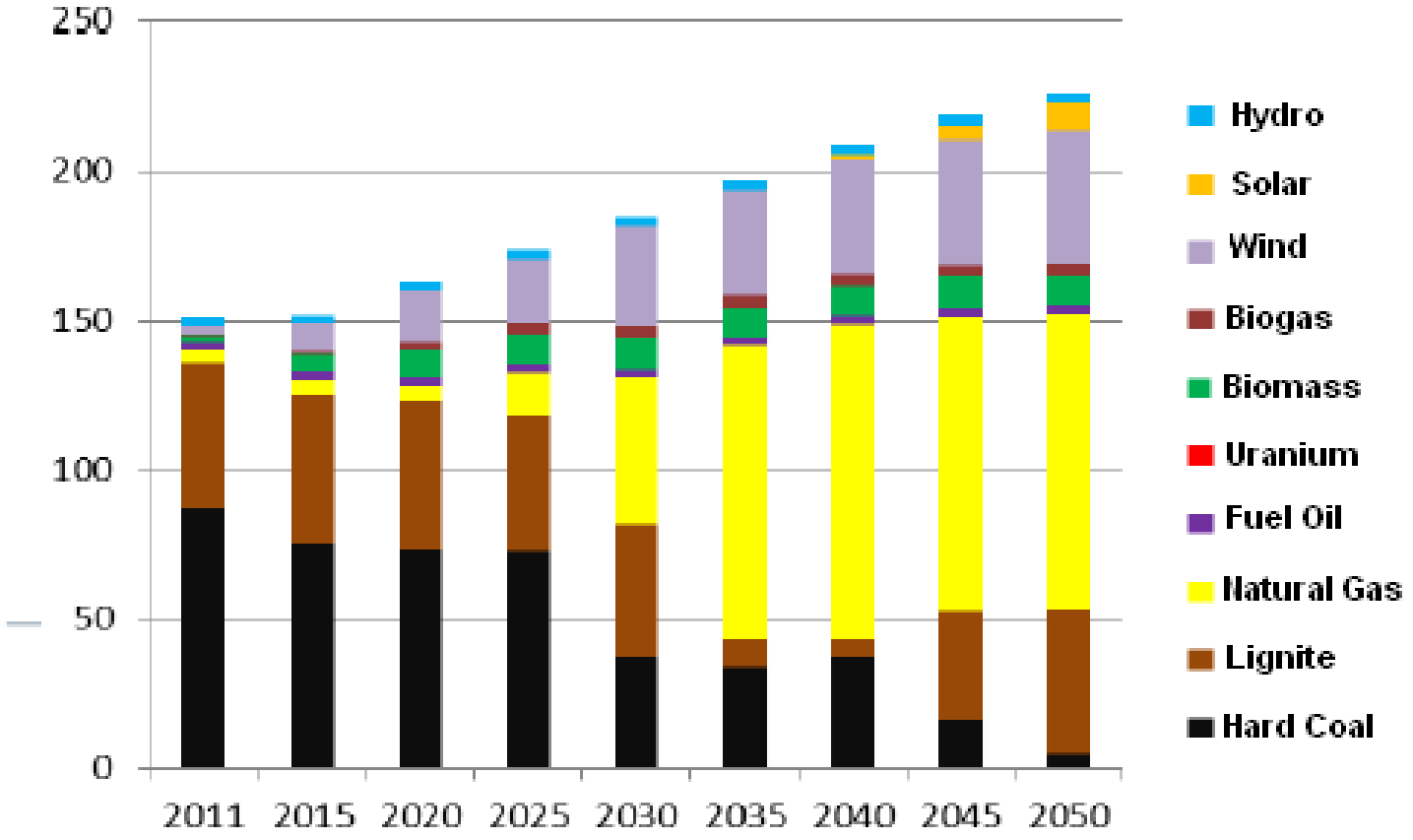
# 3. Nuclear Max Sc (ELECTRICITY PRODUCTION BY FUEL TYPE IN TWh)



# 4. Natural Gas Sc. (ELECTRICITY PRODUCTION BY FUEL TYPE IN TWh)



# 5. Natural Gas Scenario + High CO2 Emission Price (ELECTRICITY PRODUCTION BY



# Thank You!

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