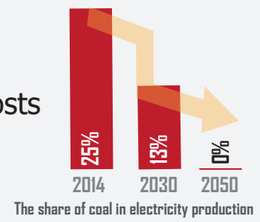
THE SHIFT PROJECT
THE CARBON TRANSITION THINK TANK

1/Low-carbon electricity

Our proposal

Close all coal-fired power plants

Substitution by renewable and/or nuclear energies,
on the basis of a re-assessment of the economic and ecological costs
(intermittency management, safety, etc.) of each sector.



The share of coal in electricity production

The stakes for the climate

Closing coal-fired power plants should lead to a reduction in annual emissions across the European Union of around **800 million tonnes of CO_2 equivalent** by 2050,
i.e. almost **24% of the total emission reductions required to meet our "carbon budget"* responsibilities**.

Other reasons to adopt this solution

Job creation

The development of alternative energy sectors to replace coal will create a significant number of jobs. The quality of the support provided to offset the disappearance of coal sector jobs will be decisive, particularly in Germany and Poland. The overall result should be positive.

Economic activity

Alternative sectors to coal will benefit significantly.
This priority given to the energy sectors of the future will provide Europe with the opportunity to assert itself as a model of the post-carbon industrial revolution.

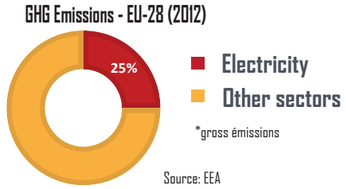
Environment, health & well-being

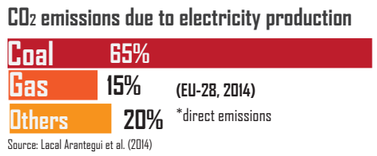
The measure will lead to a reduction in pollution and a corresponding improvement in air quality, thereby avoiding more than 400,000 premature deaths among European citizens annually.

*Our "carbon budget": target greenhouse gas emission ceiling for 2050, corresponding to a four-fold reduction in European Union Member State emissions compared to 1990 levels.

Why?

Electricity production is responsible for 25%
of the European Union's greenhouse gas emissions.





Among all the energy sources used to produce electricity, coal is responsible for the biggest share of CO_2 emissions (up to 65%).

How ?

- **Gradually reduce to zero the credits in the European Union emissions trading system** (EU ETS) allocated to electricity production by 2050.
- Install, via European regulation, **an emission factor ceiling** (gCO_2/kWh) for electricity production installations, if the receding measure cannot be adopted.
- Establish a **subsidy system for the replacement of the most polluting plants** based on the criterion of investment cost per tonne of CO_2 avoided.
- Continue to support **R&D for low-carbon production methods**, as well as the adaptation of the electricity transmission and distribution network.
- Provide 100% state funding for **R&D relating to carbon capture and storage** (CCS), targeting the industrail development of the technology by 2030.

How much does it cost?

The total investment cost associated with the implementation of these scenarios is likely to be between **€400 billion and €1 300 billion**, over the period 2015-2050.

- **Scenario A (€ 1 300 bn)** → all coal-fired power plants in the European Union are replaced by renewable energies.
- **Scenario B (€ 800 bn)** → countries that wish to do so replace their coal-fired power plants with nuclear power plants, the others opt for a solution based entirely on renewable energies.
- **Scenario C (€ 700 bn)** → countries that wish to do so replace their coal-fired power plants with nuclear power plants, the others opt for a mix of renewable energies and natural gas.
- **Scenario D (€ 400 bn)** → all coal-fired power plants in the European Union are replaced by nuclear power plants.

Scenarios A, B and C do not incorporate the cost of intermittency management for systems based on wind and solar power, nor that of adapting them to the network. Difficult to estimate, these costs are considerable and may increase the total investment costs associated with these scenarios significantly.

Who pays ?

The additional costs associated with replacing coal-fired power plants with low-carbon methods will be shared between industrial players, governments (subsidy system) and electricity consumers (effect of the price of carbon on the price of electricity).