Energy security within the EU

What's the current situation and how could we manage internal EU energy security ?

Contemporary European Politics 2022

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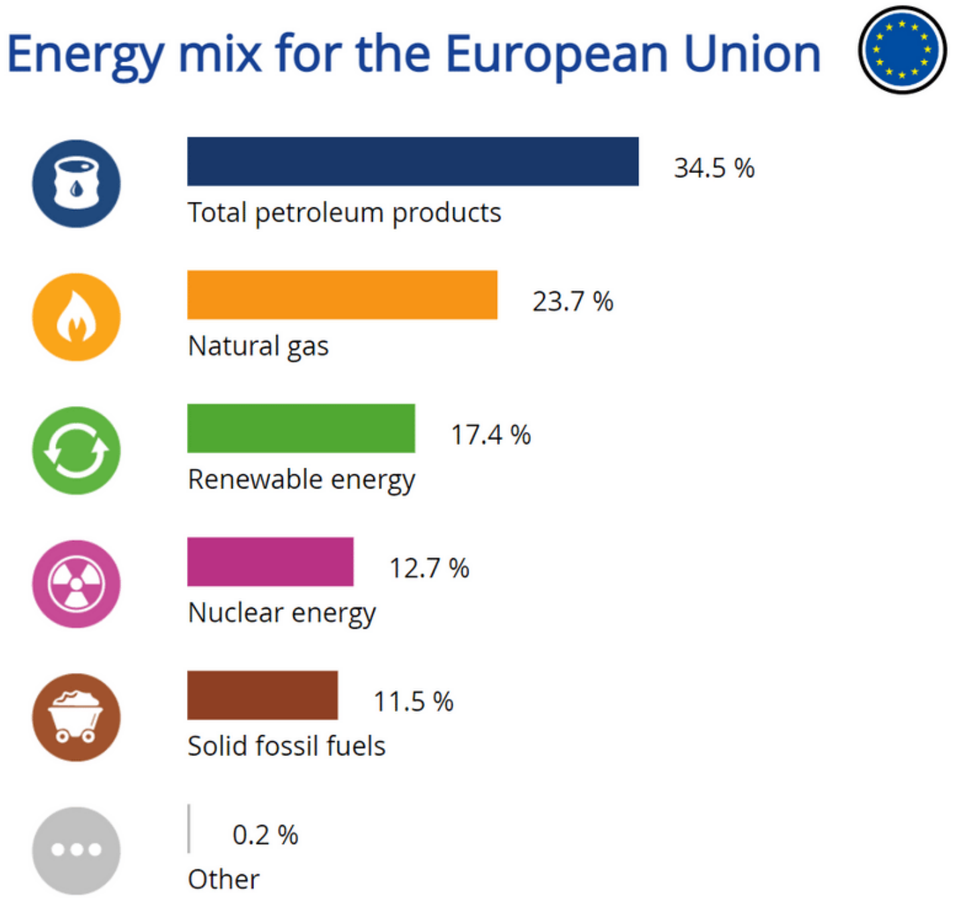
Where does the EU's energy come from ?



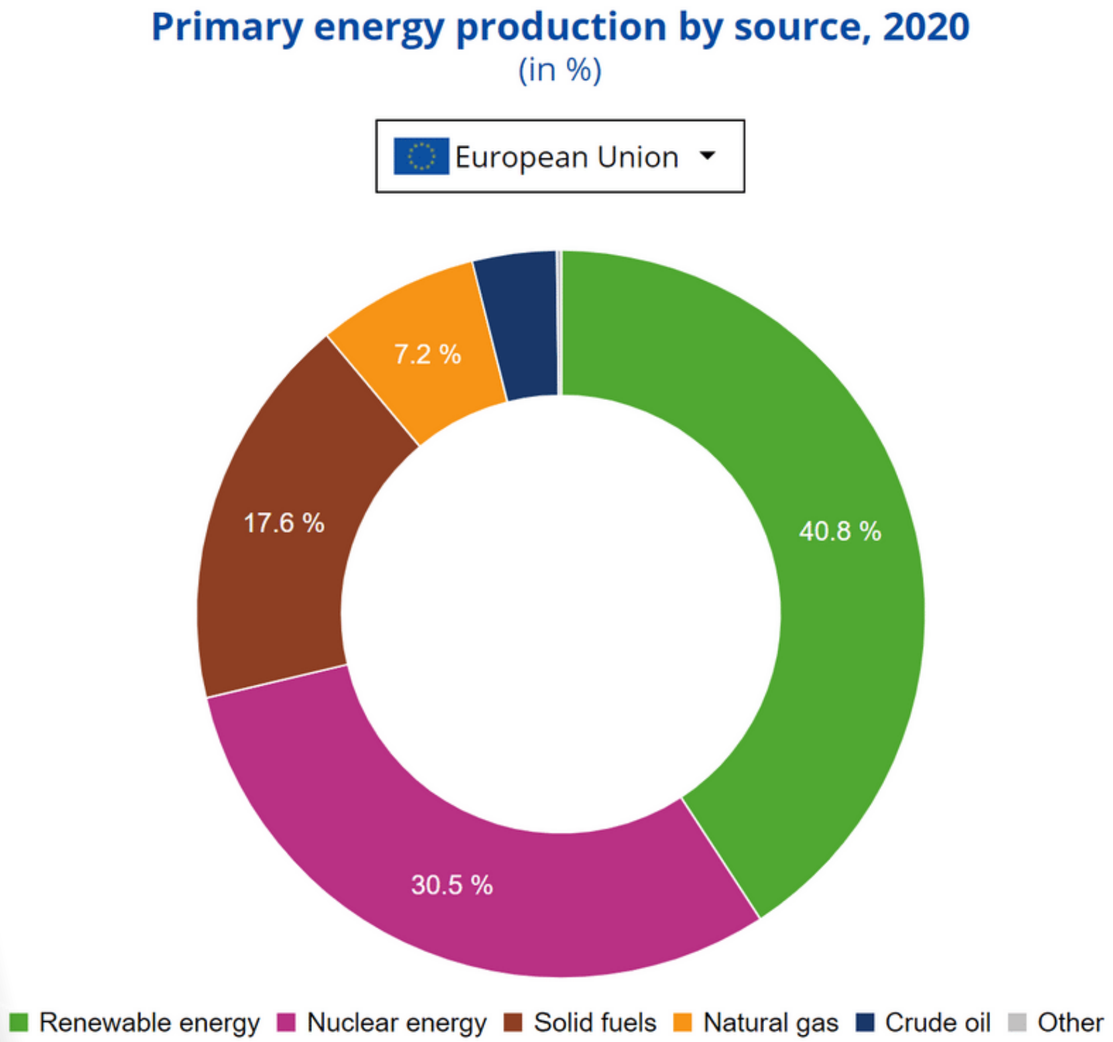
Shares of different energy sources of total energy available in each country **varying** across EU member states:

- **Petroleum products** (Cyprus, Malta, Luxembourg)
- **Natural gas** (Italy, Netherlands)
- **Renewable energy** (Sweden, Latvia)
- **Nuclear energy** (France, Sweden, Slovakia)
- **Solid fossil fuels** (Estonia, Poland)

Where is the EU's energy produced ?

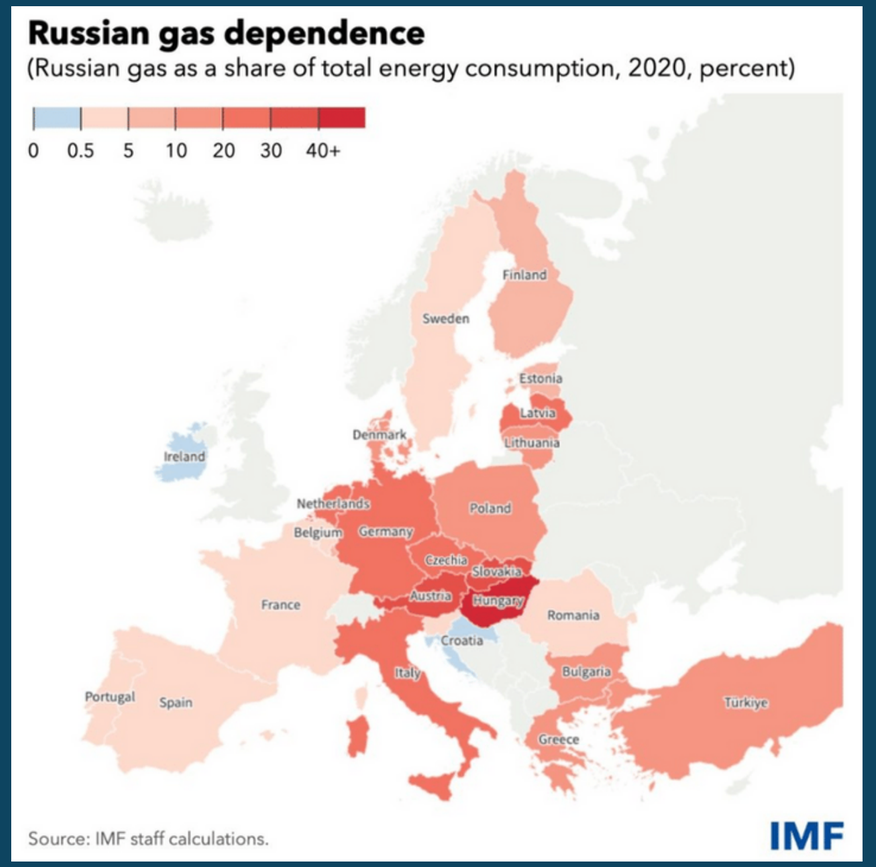
Production of energy in EU comes from a range of different energy sources:

- **Solid fuels** : 18%
- **Natural gas** : 7%
- **Crude oil** : 4%
- **Nuclear energy** : 31%
- **Renewable energy** (e.g. hydro, wind, solar energy) : 41%



From where is energy imported ?

https://ec.europa.eu/eurostat/cache/infographs/energy_trade/entrade.html?geo=DE&year=2020&language=EN&trade=imp&siec=G3000&filter=all&fuel=gas&unit=TJ_GCV&defaultUnit=TJ_GCV&detail=1&chart=pie



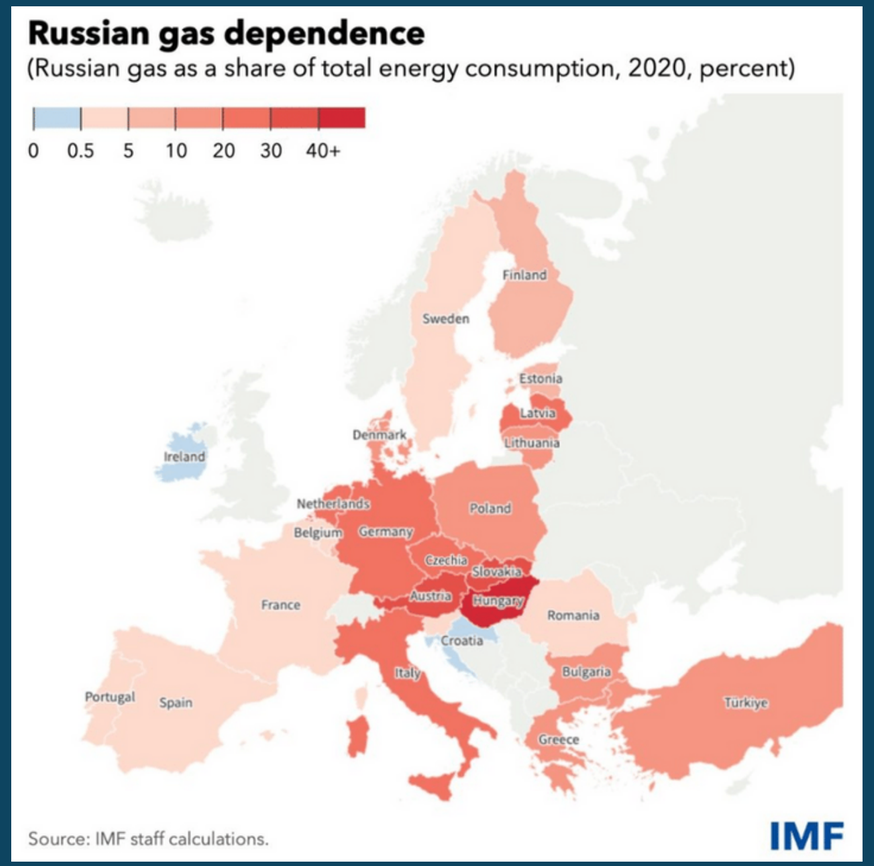
2/3
of the EU's energy imports are petroleum products

+ 3/4
of the EU's natural gas imports come from Russia

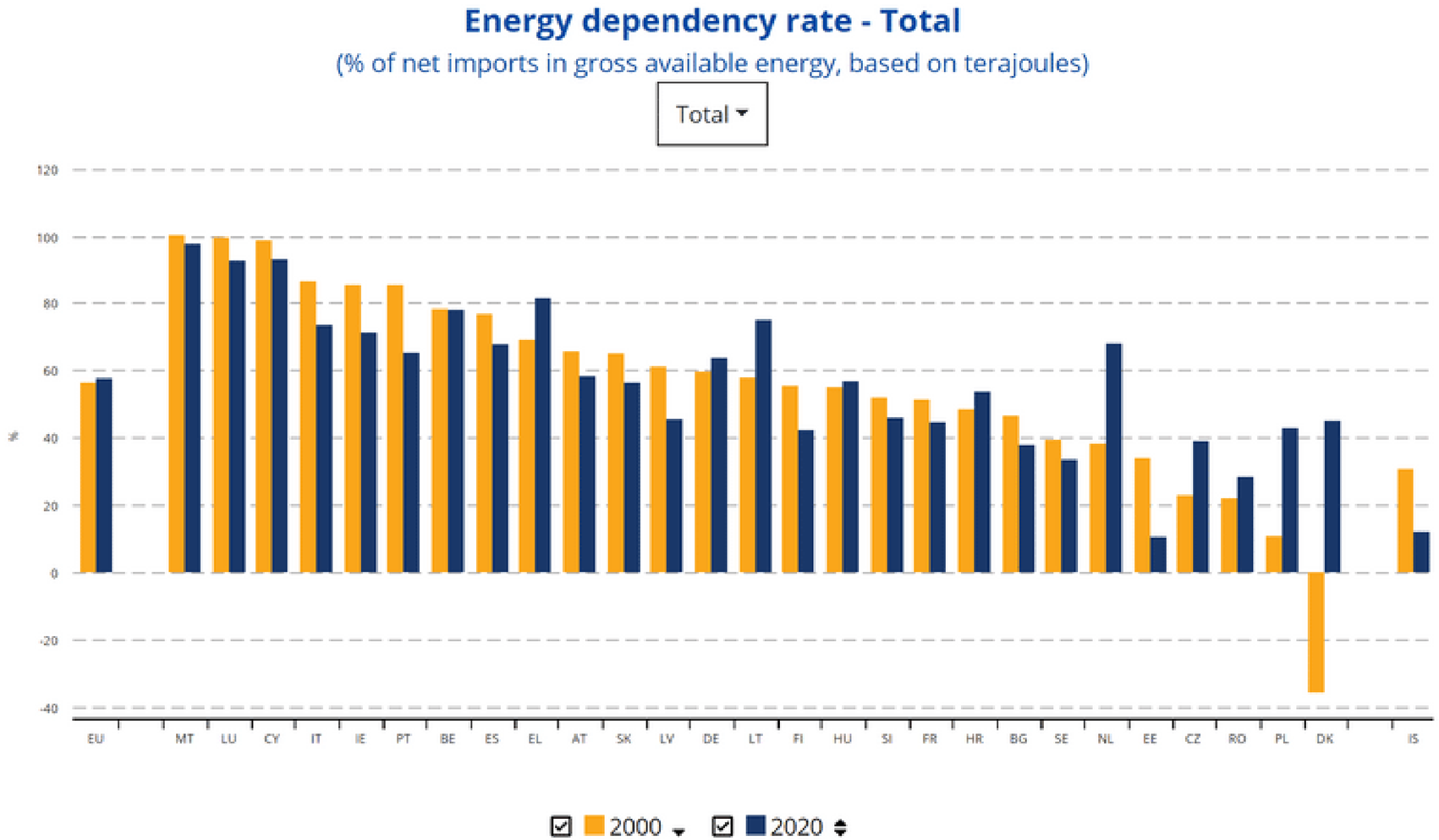
54%
of the EU's solid fossil fuel come from Russia

Russian gas dependence

- Europe is highly dependent on Russian gas exports
- Energy exports from Russia have dropped by over 60% since June 2021
- Result: Higher energy prices, economic problems
- Time to be more independent!



Dependency on external sources



The dependency rates for Norway (2000: –723.0 %; 2020: –623.1 %) are significantly negative, so they are not shown to avoid distorting the graph.

(Eurostat, What kind of energy do we consume in the EU?, n.d.)

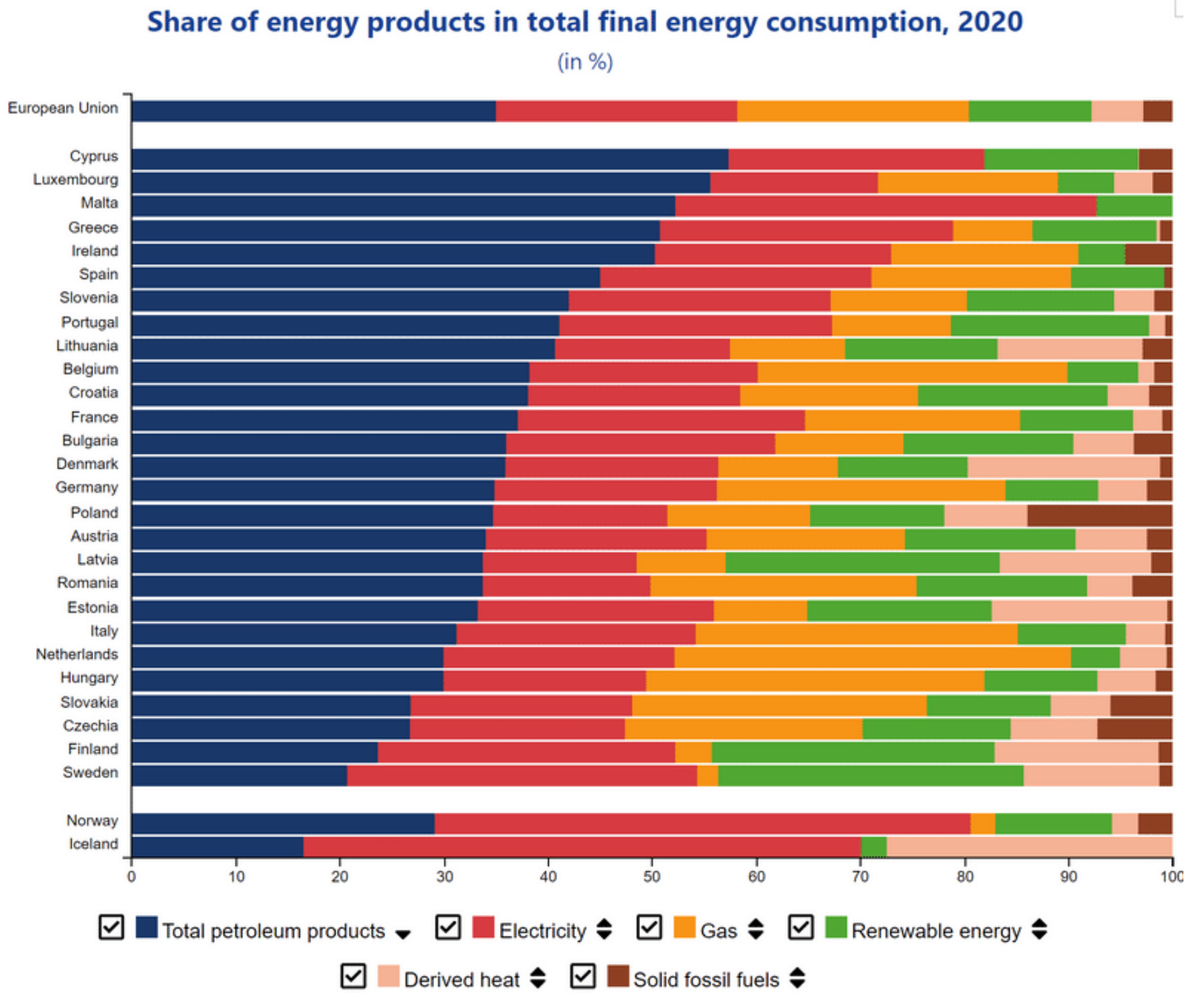
The EU's energy consumption

What kind of energy is consumed in the EU?

- 2/3 of total energy consumed by end users

Consumption by product:

- Petroleum products: 35%
- Electricity: 23%
- Natural gas: 22%
- Renewable energy: 12%
- Derived heat: 5%
- Solid fossil fuels: 3%

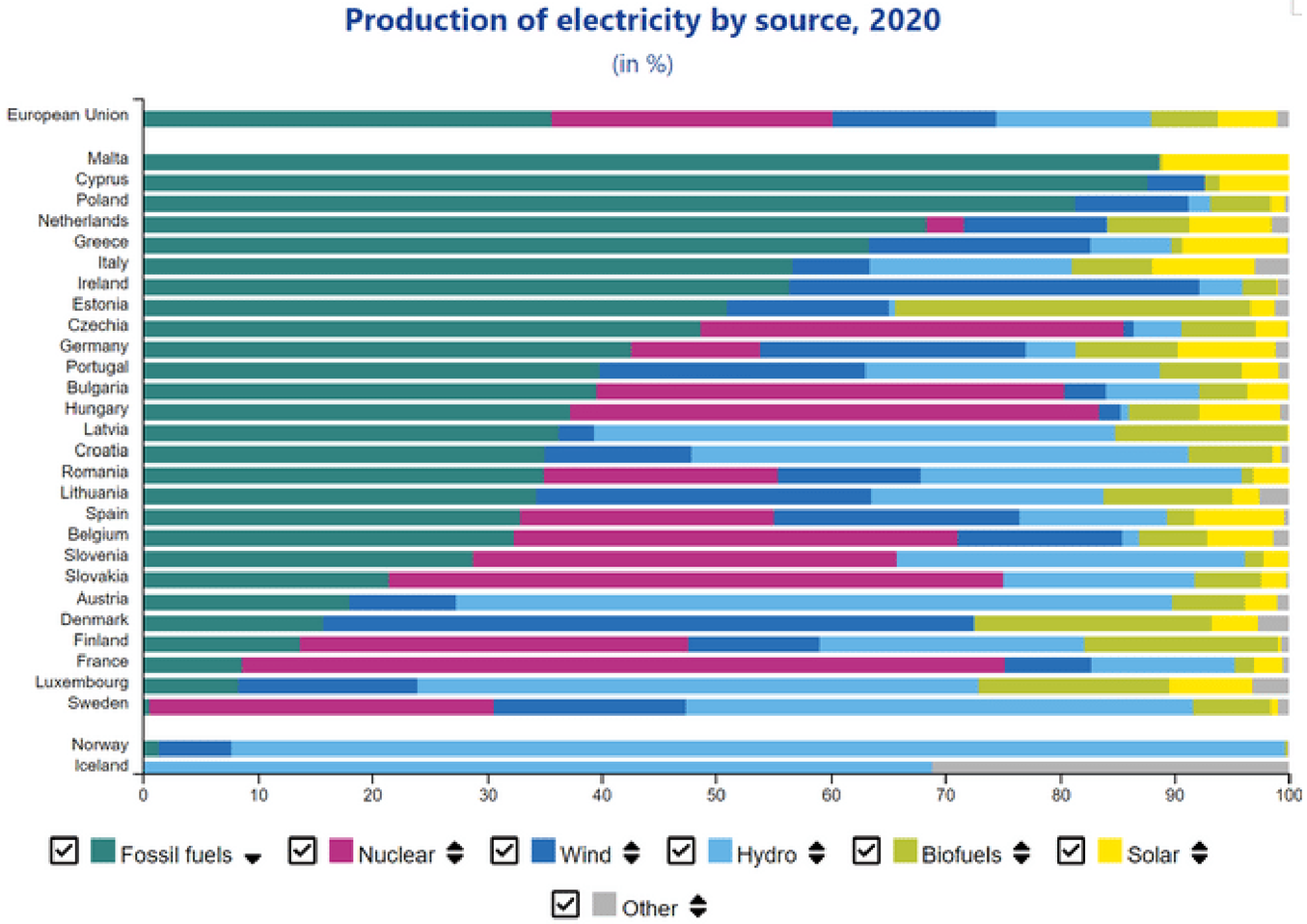


(Eurostat, What kind of energy do we consume in the EU?, n.d.)

The EU's energy consumption

Source of consumed electricity

- Renewable energy sources (39%)
  - Wind turbines (14%)
  - Hydropower plants (13%)
  - Biofuels (6%)
  - Solar power (5%)
- Fossil fuels (36%)
- Nuclear power plants (25%)



(Eurostat, What is the source of the electricity we consume?, n.d.)

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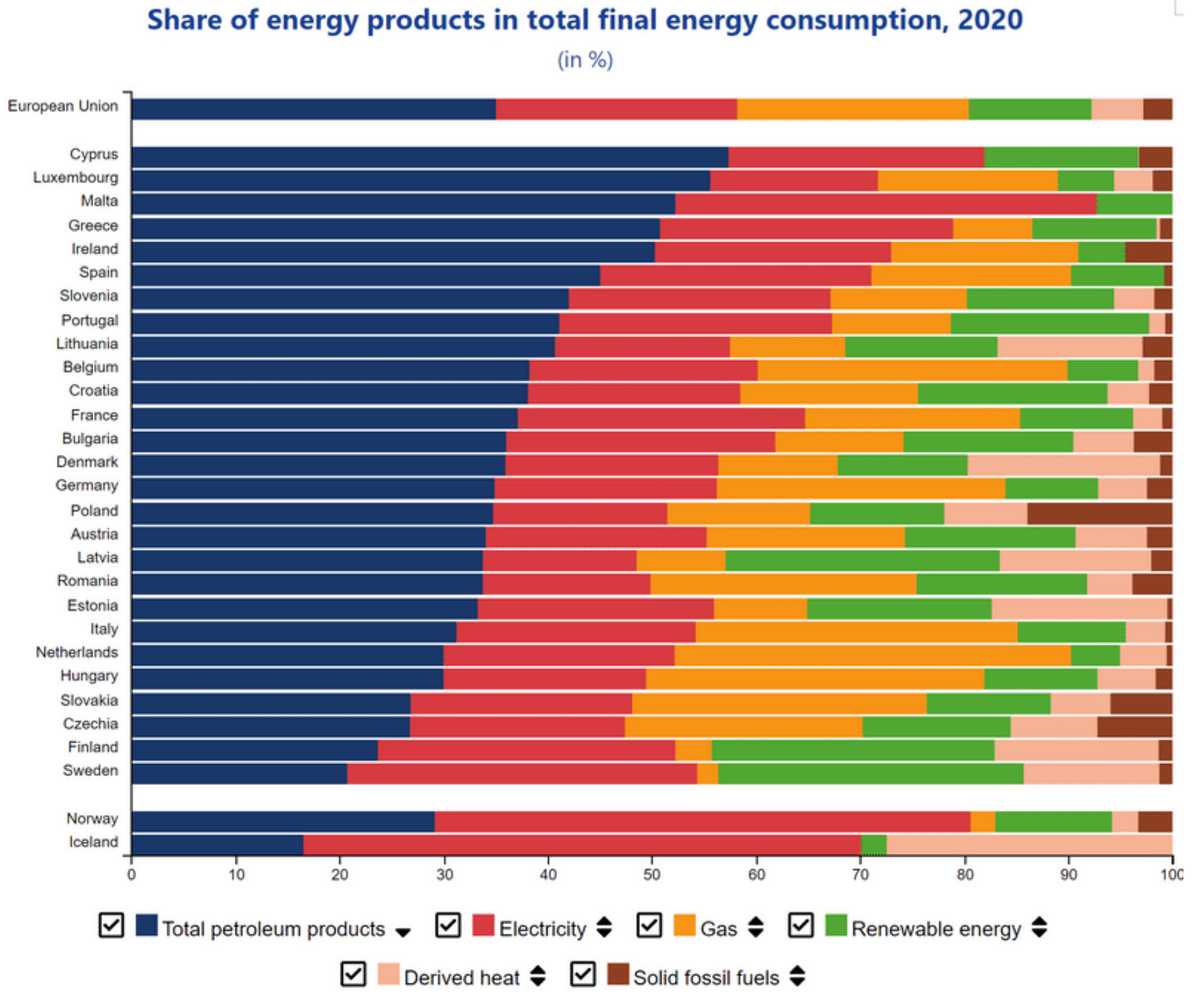
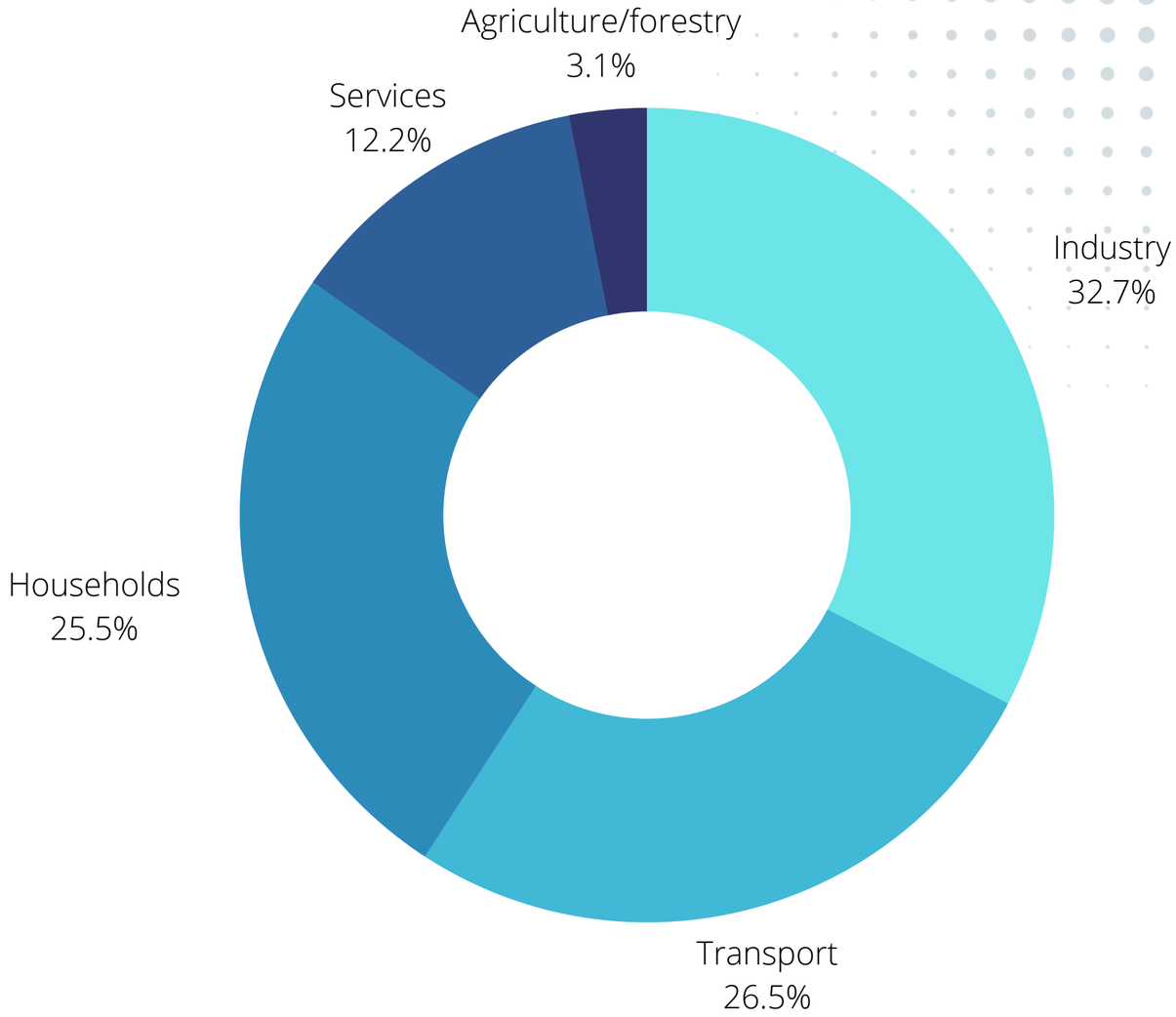


(Eurostat, What kind of energy do we consume in the EU?, n.d.)

The EU's energy consumption

Energy consumption by economy sector

- Industry: 32%
- Transport: 26%
- Households: 25%
- Services: 12%
- Agriculture/forestry: 3%



REPowerEU

Affordable, secure and sustainable energy for Europe

- Plan by the European Commission
- Response to energy disruptions by Russia
- Increase of energy independence from volatile suppliers
- Independence before 2030

https://audiovisual.ec.europa.eu/en/video/I-225403?&lg=EN

Main goals of REPower EU

1. Saving energy
2. Producing clean/renewable energy
3. Diversifying our energy supply

Saving energy

1. Improving infrastructure of public transport
2. Incentives to use public transport more
3. Abolition of domestic flights/flights within a specific distance
   in favour of increased travel by train
4. Subsidy system (y-1 / y / y+1): higher demand of energy subsidies
   lower demand of energy
5. “EU Save Energy Communication” to reduce gas usage by citizens and businesses

Energy independence

- New energy partnerships with reliable suppliers
- Increasing energy production within EU
- Emergency plan in case of crisis
- Creation of system of distribution within EU

Energy independence

New energy partnerships with reliable suppliers

Increasing energy production within EU

Emergency plan in case of crisis

Creation of system of distribution within EU

1. **Rapid roll out of solar and wind energy projects combined with renewable hydrogen deployment**

→ **save around 50 bcm of gas imports**

1 bcm = 678,000 tons of gas = 800million KWH (Average household 12000kwh per year)

2. **Increase production of biomethane**

3. **Fund renewable energies and respective emerging and enabling technologies**

Energy independence

New energy partnerships with reliable suppliers

Increasing energy production within EU

Emergency plan in case of crisis

Creation of system of distribution within EU

1 **Emergency stocks**

2 **Solidarity mechanisms**

- **coordination of risk assessments and contingency plans**

Energy independence

New energy partnerships with reliable suppliers

Increasing energy production within EU

Emergency plan in case of crisis

Creation of system of distribution within EU

1 **Building a well-functioning and fully integrated internal market**

- **coordinating network developements**
- **greater cooperation at regional and European level**

EUR-Lex - 52014DC0330 - EN - EUR-Lex (europa.eu)

Renewable energy

1. Solar Energy
2. Hydro Energy
3. Wind Energy

Renewable energy pros

1

Lower costs in the long run

2

Renewable & sustainable

3

Lower maintenance costs

4

Less emissions, better for environment

Renewable energy cons

1

High upfront costs

2

Energy storage and transport

3

Weather dependent

4

Noise and visual pollution

Diversifying energy

- Alternative energy suppliers
- Long term partnerships

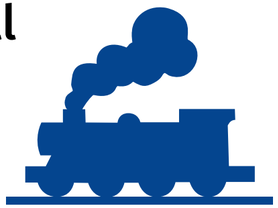
- New energy cooperation with Norway and Azerbaijan

- Easier to absorb shocks

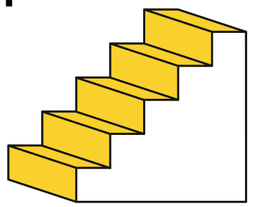
Economic consequences

The cost of inaction would actually be higher than the cost of the measures needed to avoid ecological damage.

1. make transport networks free of charge during certain periods
2. give subsidies when using a transport instead of a car
3. develop the use of night train all over Europe



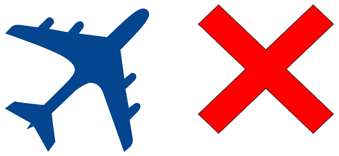
4. develop a progressive system



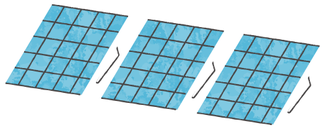
5. financial support

Environmental consequences

reduce the transport consumption

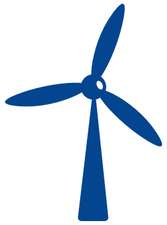


more renewable energy and therefore more installations that allow it



reduce shipping

independent and respectful of the environment



"We confirm that on a global scale, the potential of wind and solar energy is really important, this potential is even well above our current needs"
By Hervé Jeanmart, Professor at the Polytechnic School of Leuven

Conclusion

Energy security ultimately is a wicked problem, therefore the solution depends on the perspective with which one regards the problem and depending on the focus, different solutions might be concluded (Rittel & Webber, 1973).

Debate

In your opinion, what other solutions could there be with regards to the energy security and dependence?

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Thank you!