

Security of sustainable energy supplies

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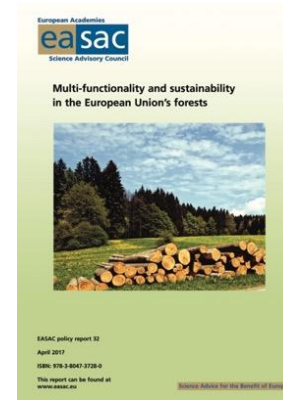
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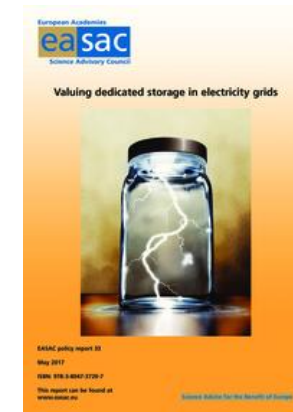
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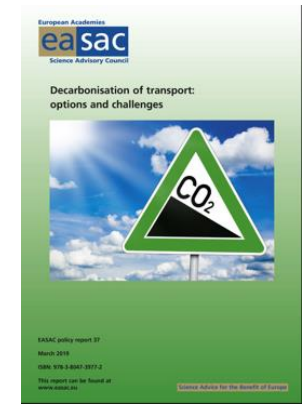
Recent EASAC energy reports



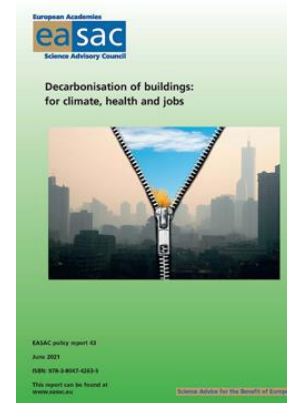
Forests



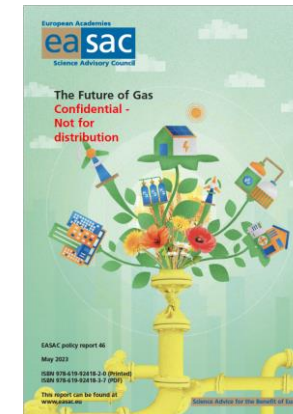
Storage



Transport



Buildings

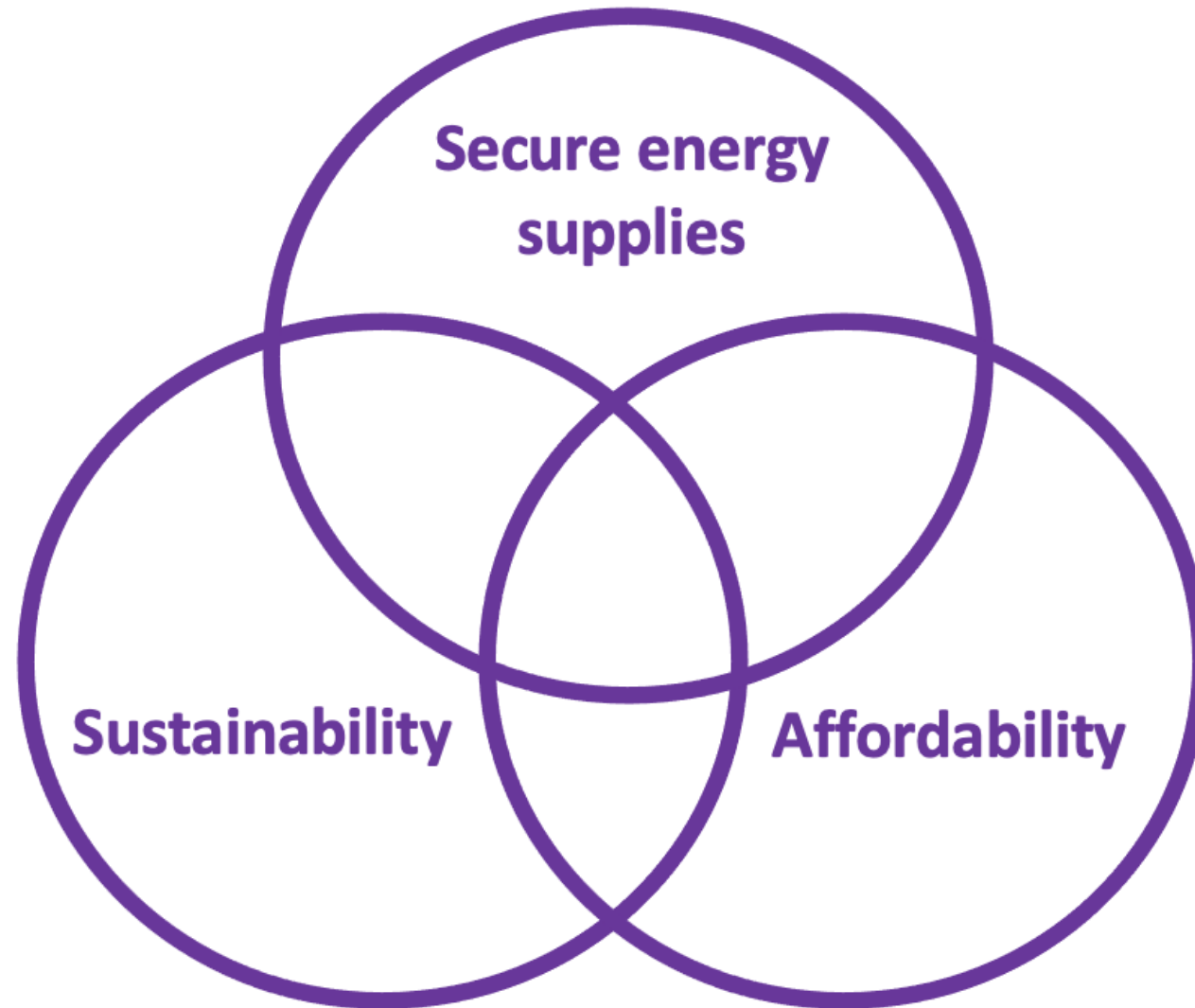


Future of gas

Security of sustainable energy supplies

on-going

EU energy policy – energy security is linked to sustainability and affordability



REPowerEU calls for actions to deliver secure, affordable, and sustainable energy supplies, following Russian invasion (2022) which led to gas supply cuts and higher prices

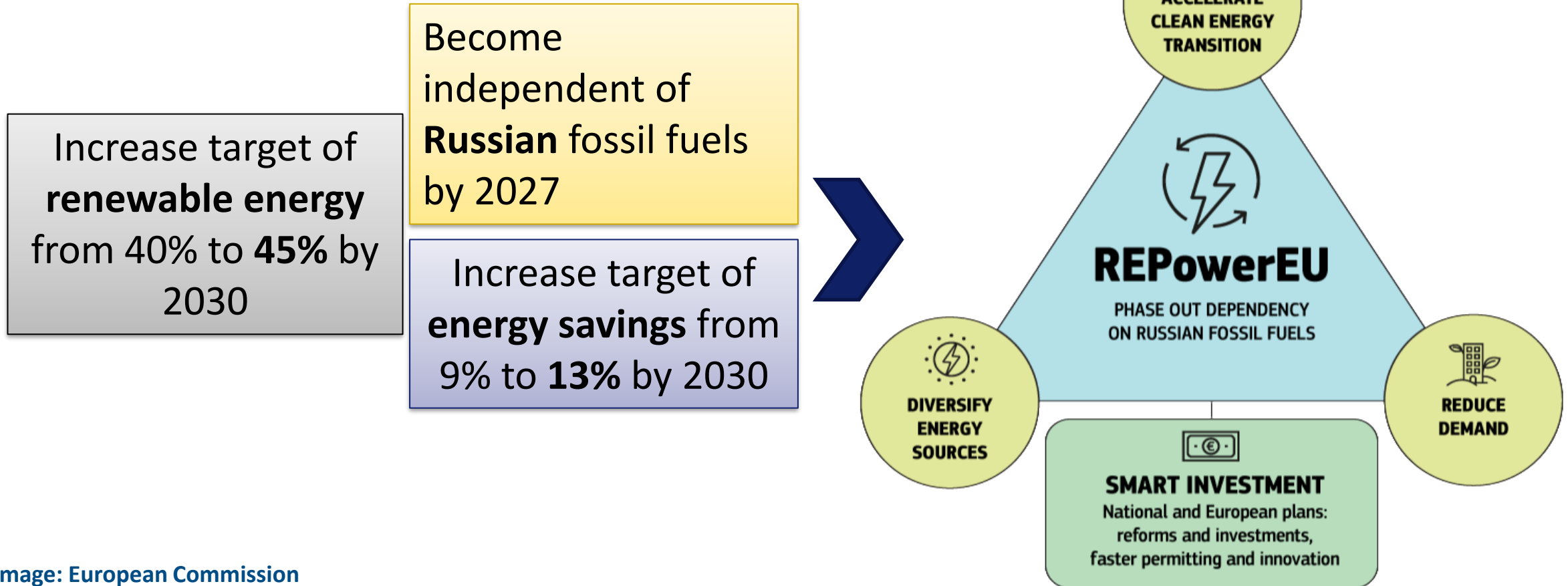


Image: European Commission

BUILDINGS – ban gas boilers to reduce GHG emissions

1. U.K.

Ban on gas and oil boilers in new homes from 2025.

2. BELGIUM

Ban on fossil heating systems in newbuilds from 2025 in Flanders.

3. NETHERLANDS

Ban on new natural gas connections since 2018.

4. FRANCE

De-facto ban on gas boilers in new homes from 2022 due to introduction of emissions limits.

5. GERMANY

De-facto ban on new fossil-powered heating system via a requirement of 65% renewables input from 2024.

6. AUSTRIA

Sale of new gas boilers, and repair of old ones, banned from 2023.

7. DENMARK

Ban on new gas boilers since 2013. Plan to move 50% of households using gas heating to district heating by 2028.

8. NORWAY

Ban on installation of new gas boilers since 2017.



S&P Global

- Building renovation rates must rise from 1 to 3% pa
- GWP of methane (20 yr) is >80 times CO₂.
- EU has **65 million** gas boilers
- **New gas boilers to be banned in 8 European countries**



Heat pumps and district heating are efficient alternatives

MOTORISED TRANSPORT – 3 ways to reduce GHG emissions

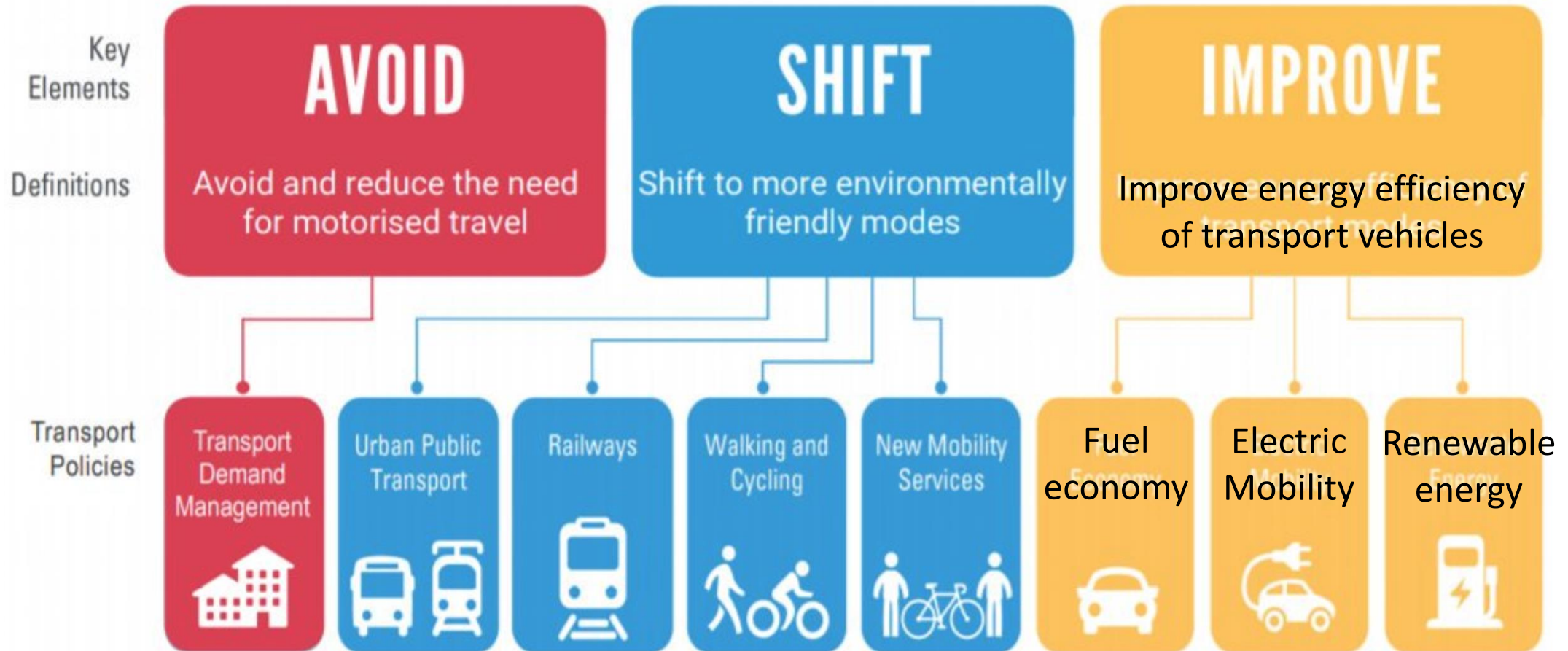
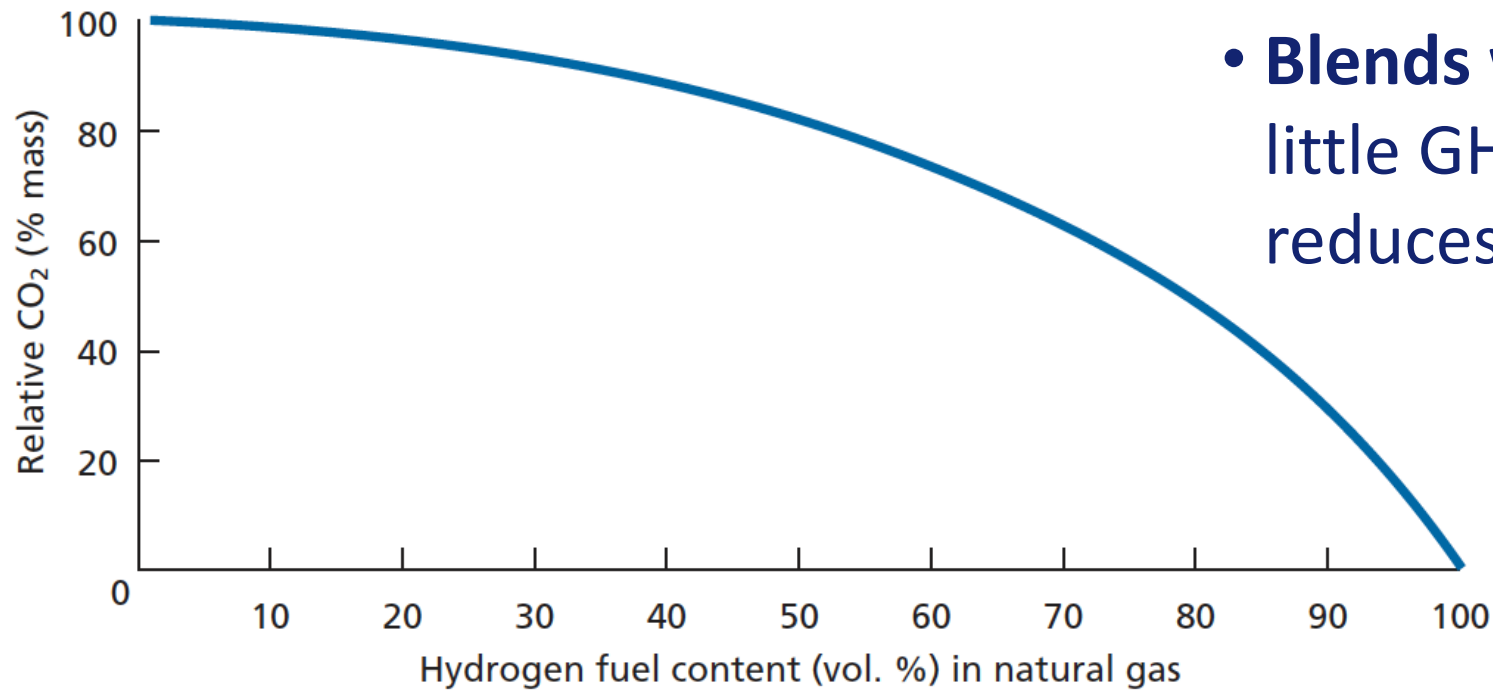


Diagram from SLOCAT

HYDROGEN (green and blue) will be costly, so use it wisely

- Use in hard-to-electrify applications (heavy duty transport, steel production)
- Monitor hydrogen leaks - Global Warming Potential (20 yr) is ~30 times CO₂



- Blends with natural gas offer little GHG reduction (10% blend reduces GHG by ~1%)

BIOENERGY – resources are limited, so prioritise

- **EU Forestry strategy:** do not burn whole trees
 - **EU Forestry biomass cascade:** use wood first for applications with highest economic and environmental values

- **Do not replace gas boilers with biomass boilers unless they burn biomass wastes**



Diagram from European Commission

ENERGY POVERTY : “Polluter pays” principle is not affordable for vulnerable groups / households



Price increases (from emission trading or carbon tax) **incentivise energy saving**

BUT, vulnerable groups and households need support (eg EU Social Climate Fund):

- (i) for investing** in energy efficiency and renewable energy systems to reduce their needs for costly fossil fuels
- (ii) To pay their energy bills**

Energy security – EU policies must respond to volatile geopolitics but still transition to sustainable energy

EASAC is still working on this – no conclusions yet !



Definitions of energy security:

“the uninterrupted availability of energy supplies at an affordable price”

Volatile geopolitics

- **more cyber and malicious attacks**

Phase out fossil fuels (sustainability)

- Strengthen electricity infrastructure
- Produce more RE systems in EU

Some ENERGY SECURITY BENEFITS of sustainable energy supplies

1. **Reduced dependence on imports of fossil fuels**
2. **Less conflicts** in international energy markets
3. **Reduced risks of major energy supply interruptions** because distributed systems are less vulnerable than centralised supplies.
4. **Reduced risks of extreme weather damage**, due to lower GHG emissions
5. **Citizens are empowered** by renewable energy, and it helps peace building
6. **New investment opportunities, green jobs, and lower energy costs**

Concluding remarks for EU policy makers

- **Sustainability (GHG emissions) – maintain EU’s global leadership role.**
EU must work with others to phase out fossil fuels soon, because this will bring climate and competitiveness benefits for all
- **Affordability - prioritise proven, low-cost options (EE and RES).**
Communicate and engage with citizens. Support strategic industries and vulnerable groups to reduce energy poverty
- **Energy security – maximise security benefits of sustainable energies**
Invest in energy efficiency, renewables, and infrastructure, but prepare for volatile geopolitics, and for increases in cyber and malicious attacks.
- **Science (evidence)-based EU policies** help to build investor confidence

Thank you!