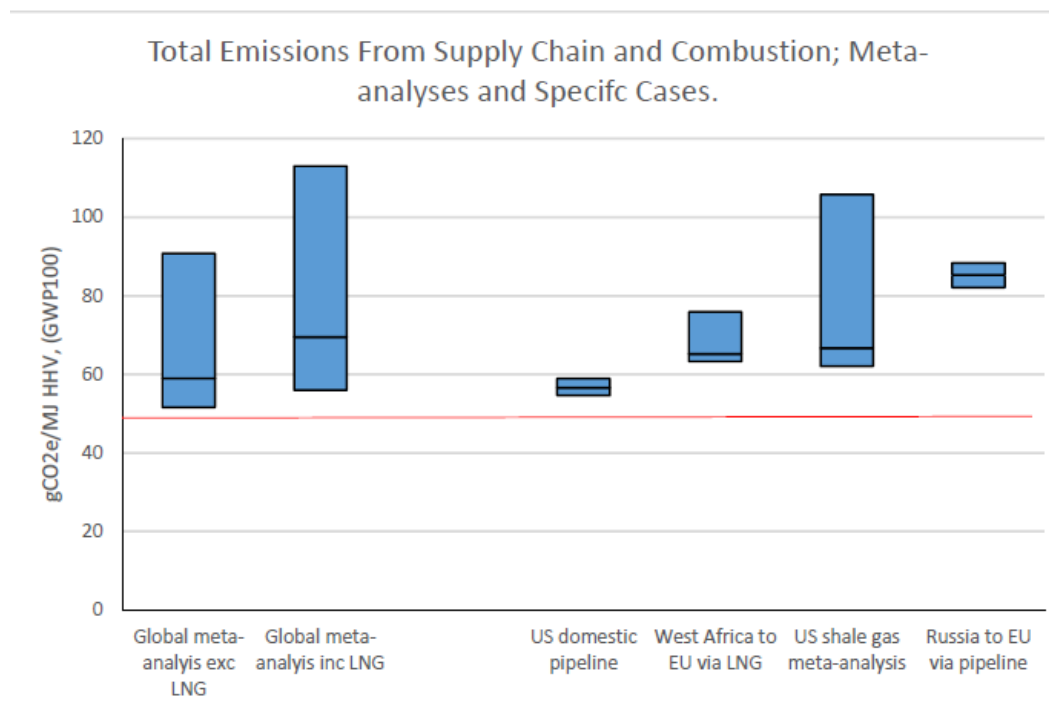


Natural gas and Climate commitments, two irreconcilable elements?

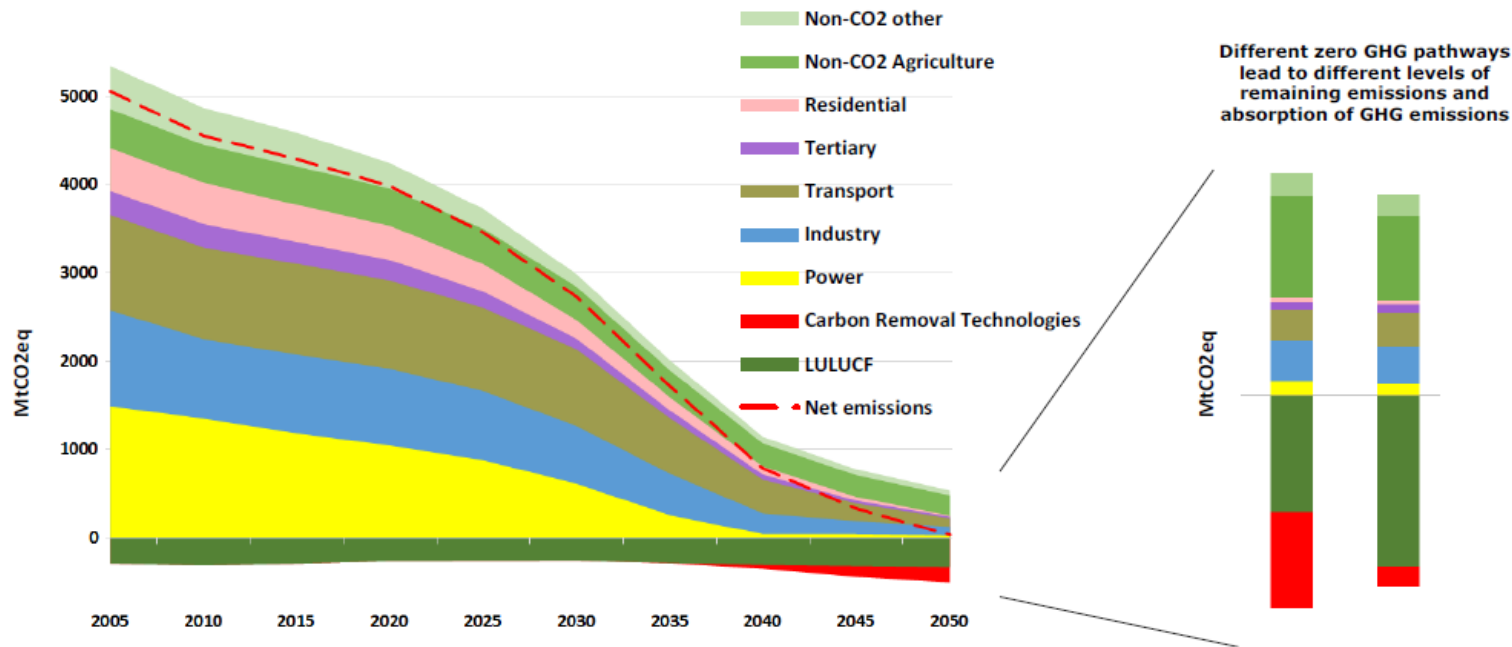
Nicolas Berghmans, Institut du développement durable et
des relations internationales



Source : Anderson and Broderick (2017), Natural Gas and Climate change

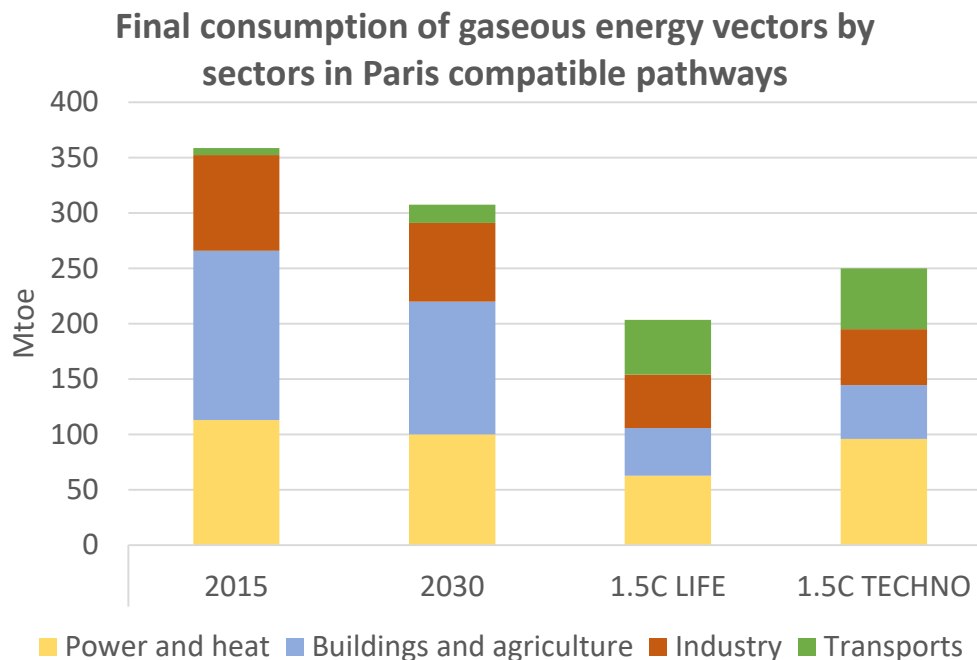
- Natural gas combustion : 6 GtCO₂ or 12 % of global GHG emissions
- LC analysis depends heavily on production and distribution mode
- Uncertainty on gas leaks

GHG emissions trajectory in a 1.5C scenario



Source : IDDRI & DDP EU based on data from EC (2018) Long term strategy

- **Paris Agreement calls to achieve Climate neutrality** : *“a balance between anthropogenic emissions by sources and removals by sinks of GHGs in the second half of the century”*
- **Implies a Net Zero GHG emissions energy sector**



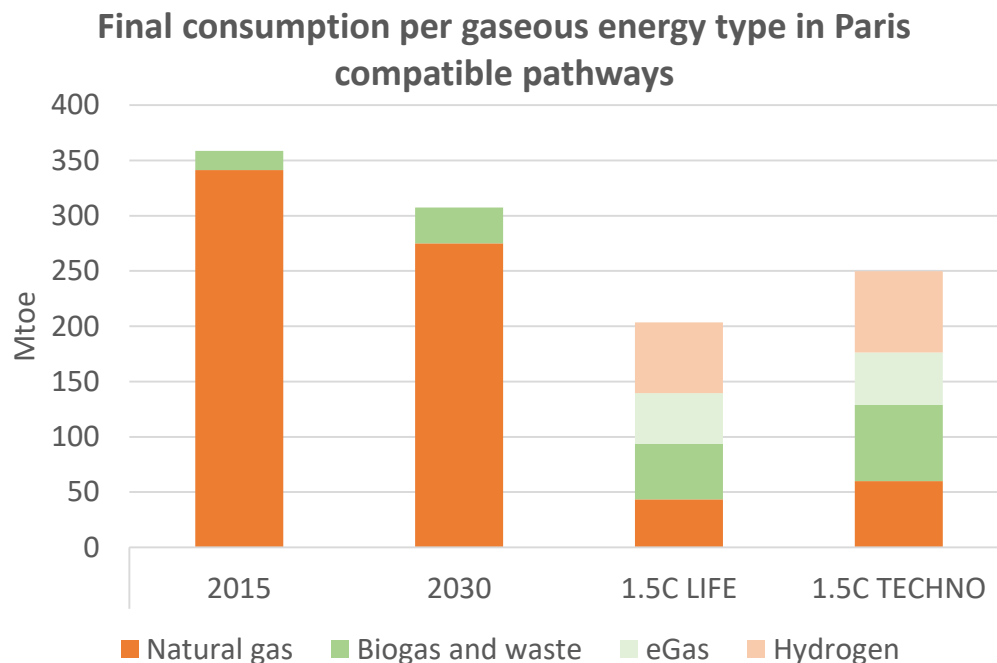
Source : IDDRI & DDP EU based on data from EC (2018) Long term strategy

- **Net zero energy system = reduced role for gaseous energy carriers**

Industry : technical constraints in some processes

Transport : long distance, especially freight transport will use the storability of gas vectors

Some demand for **heating** kept. Role for **inter-seasonal energy storage**



Source : Iddri based on EC (2018), A Clean Planet for all European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy

- **Achieving Net Zero will need to keep an open mind on technologies...however :**
 - **Natural gas demand to decline** by a factor of 6 to 9 in all EC pathways
 - **New zero-carbon gas solutions** will be necessary for neutrality

- **Environmental integrity will need to be a priority for zero carbon gas**
Biogas : Need to be confronted to other uses of biomass/land use to ensure its sustainability.
- **Synergies between sectors to bring down cost**
Power-to-gas : depends on the electricity system we build.
- **Uptake will depend on technological progress and social acceptability**
CCS : might be necessary but limited fields and acceptability...keep it for industrial decarbonization?
- **What other major economies develop will matter**
Solar based Egases in some regions?

- Lower natural gas means a decreased import dependency !
- Investments in the gas network need to be confronted to climate objectives
 - Some investments in distribution for biogas injections
 - High scrutiny is needed on transport infrastructure
- Even bio-or syngas is not climate neutral if it leaks : compatible with a pan-EU gas network?

Figure 36: Energy import dependency

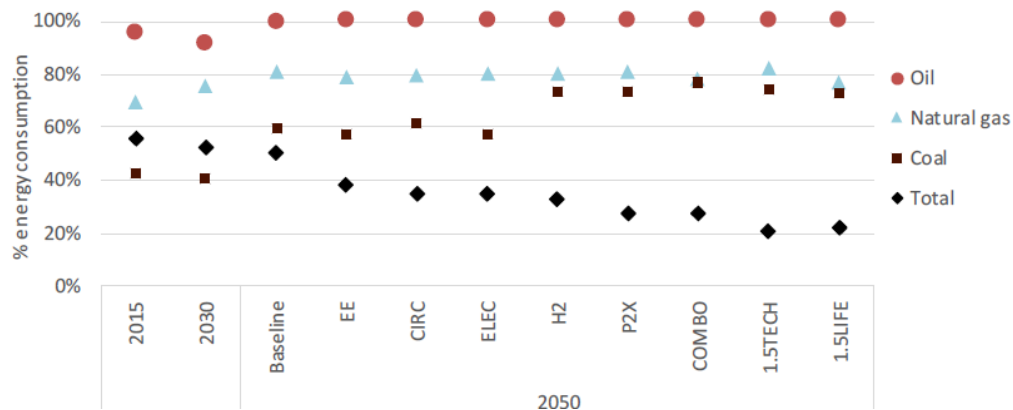
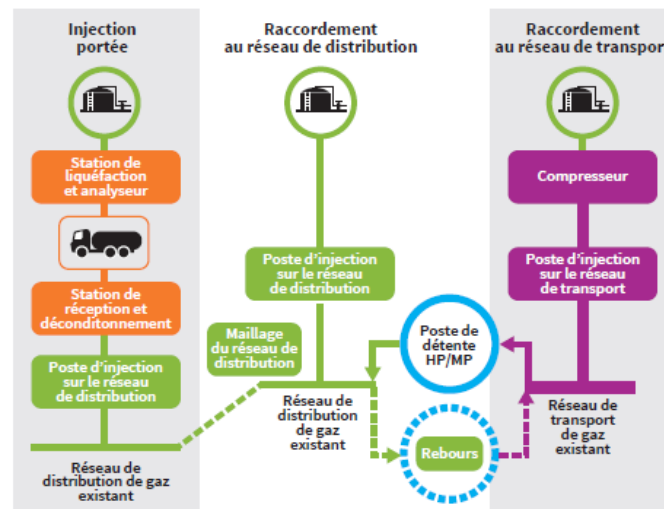


FIGURE 9 : ILLUSTRATION DU PANEL DE SOLUTIONS POUR RACCORDER UNE INSTALLATION DE METHANISATION



Source : Etude Ademe « Un mix de gaz 100% renouvelable en 2050? »

- **Natural gas to be drastically reduced to reach climate targets**
- **Confront today's investments in infrastructure with LT Zero carbon vision**
- **Build a coherent vision across the EU on gas : important to discuss national strategies**
- **Zero carbon gas will have to play a role : portfolio approach and reevaluate development strategy on a regular basis....**

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