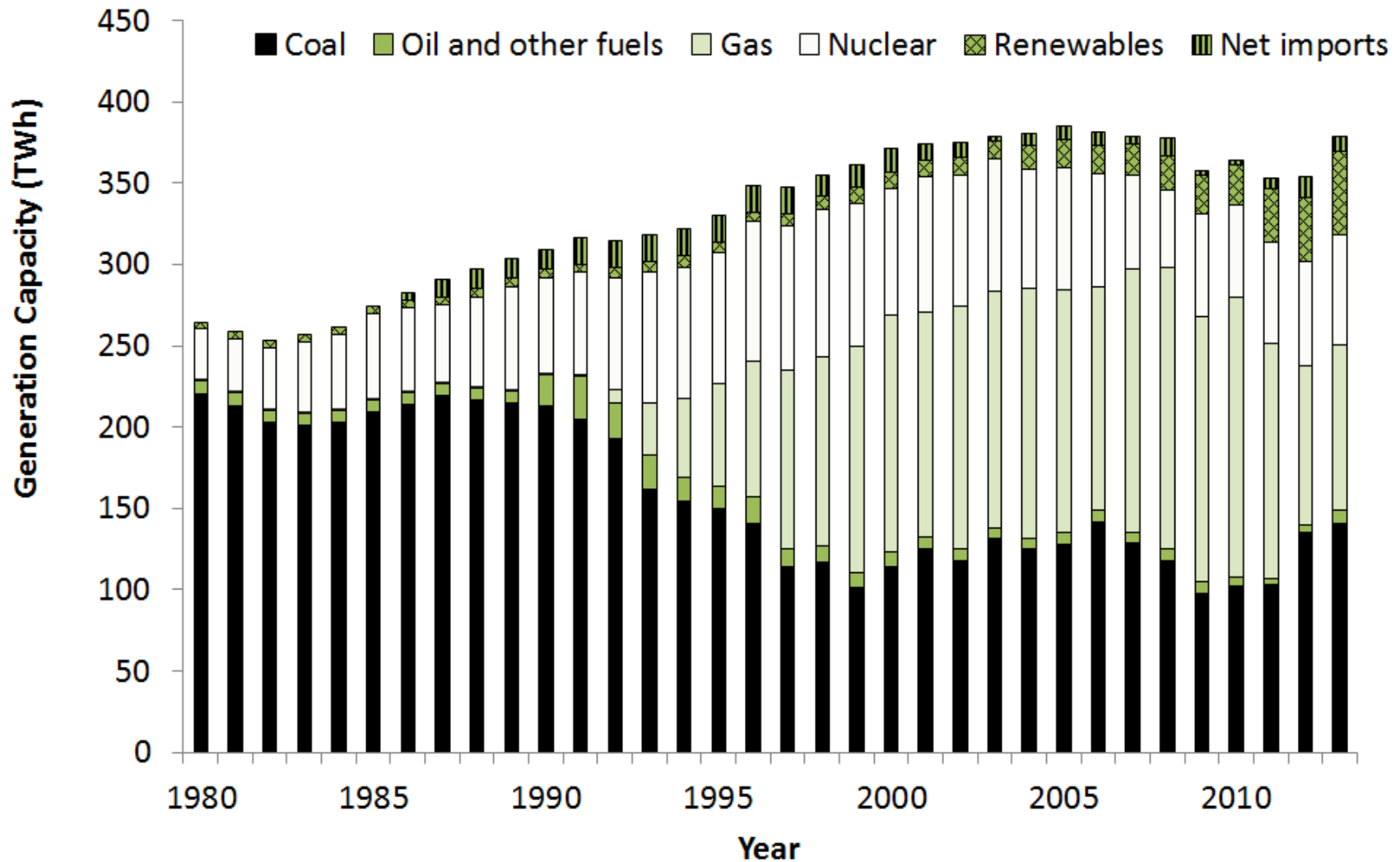


Sustainability Assessment of Shale Gas in the UK Energy Market

Jasmin Cooper
MiSET 2014

Why all the fuss in the UK?



Why all the fuss in the UK?

Source	Percentage of gas mix (2012)
UK	45.8
Belgium	1.4
Netherlands	7.9
Norway	29.8
LNG	14.6

Situation in the UK

- Government keen but strong environmental opposition.
- Tax allowance for shale gas operators of 30 %.
- Three wells drilled and one hydraulically fractured.



VS

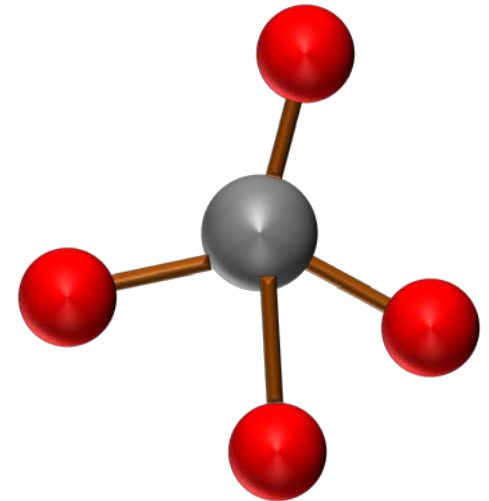


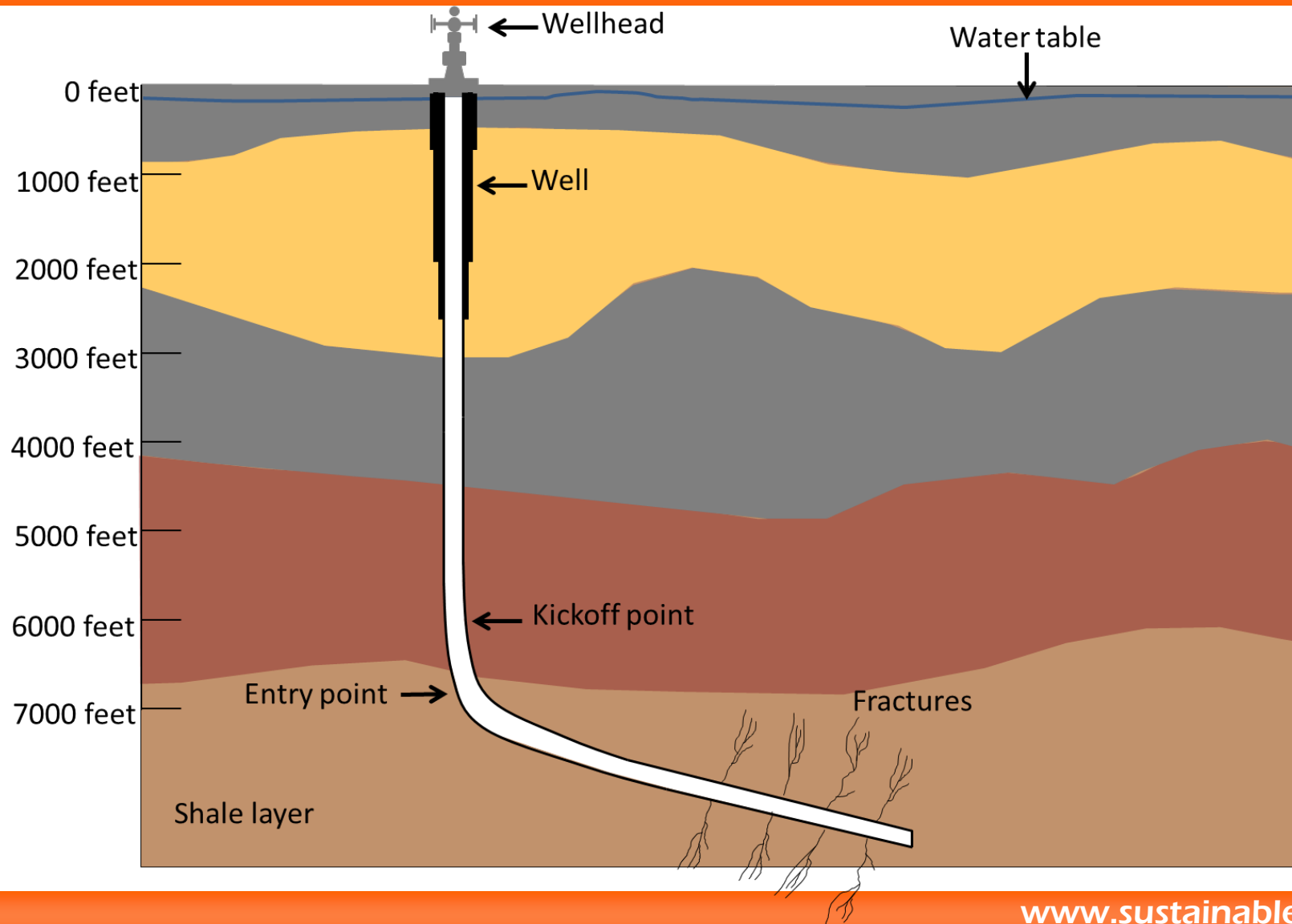
UK potential

- 2.8 trillion cubic feet (tcf) consumed in the UK in 2012.
- British Geological Society (BGS) estimated UK to have 1300 tcf.
- If 10 % recoverable, enough to fuel UK for 50 years.
- Community Engagement Charter- £100,000 per well site and 1 % revenue.
- Worth £2.4 million to £4.8 million to host communities.
- 32,000 to 74,000 jobs created.

What is it?

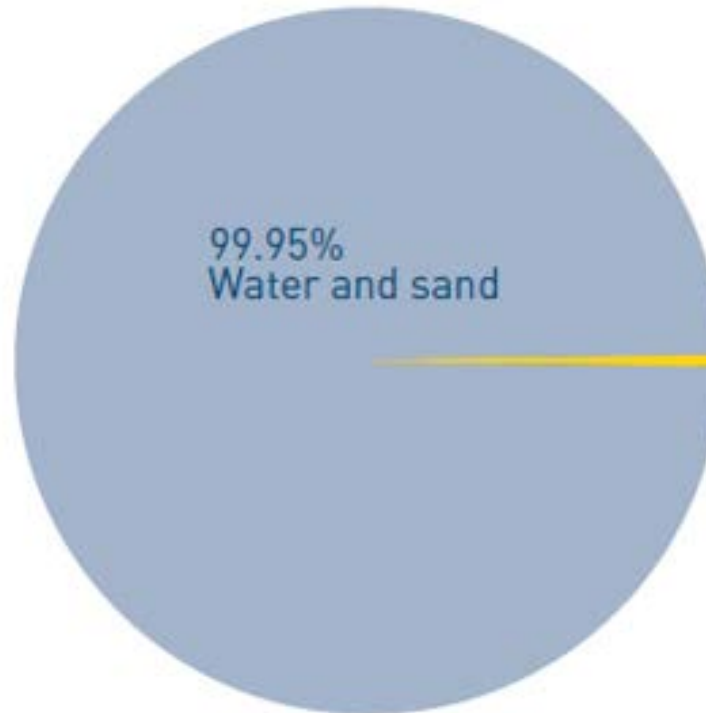
- Natural gas extracted from shale rock.
- Mixture of mostly methane, light hydrocarbons and other gases- dependant on source rock.
- Extracted using horizontal drilling and hydraulic fracturing.





Fracking fluid

Mixture of water, proppant and chemical enhancers



0.05%
polyacrylamide

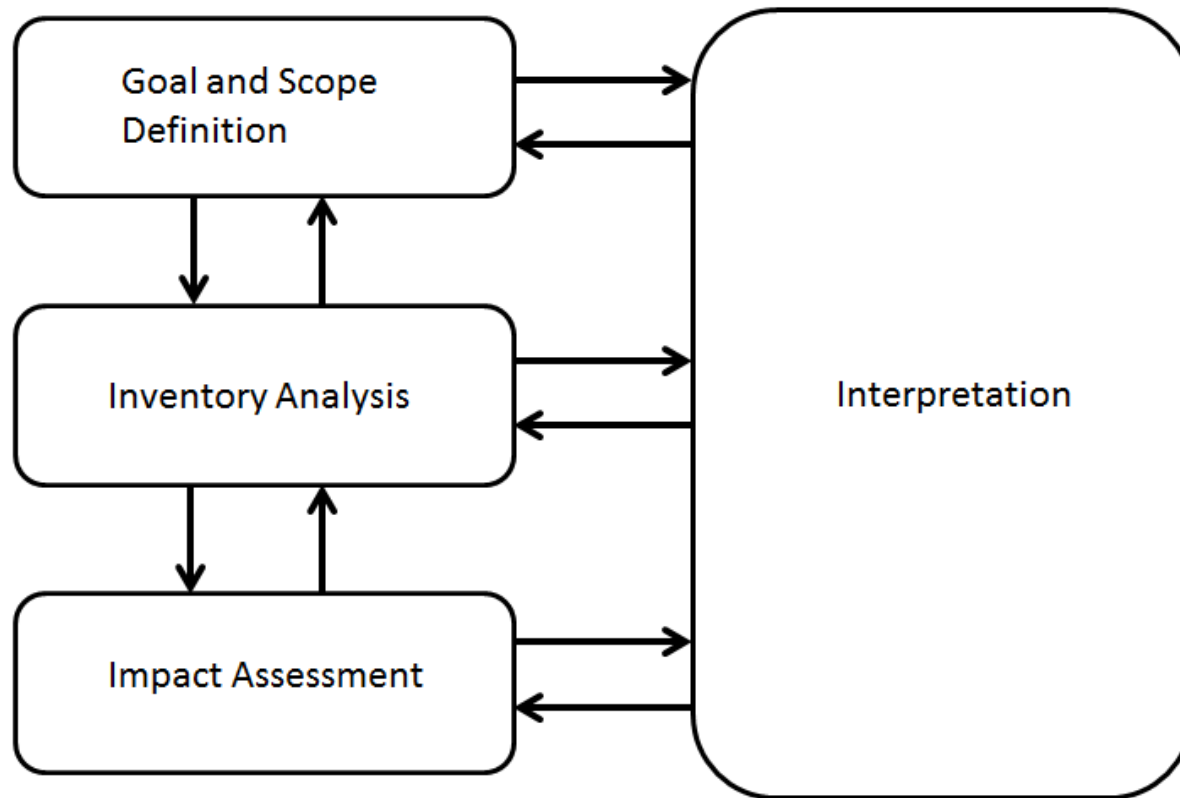
Controversy

Believed to have caused:

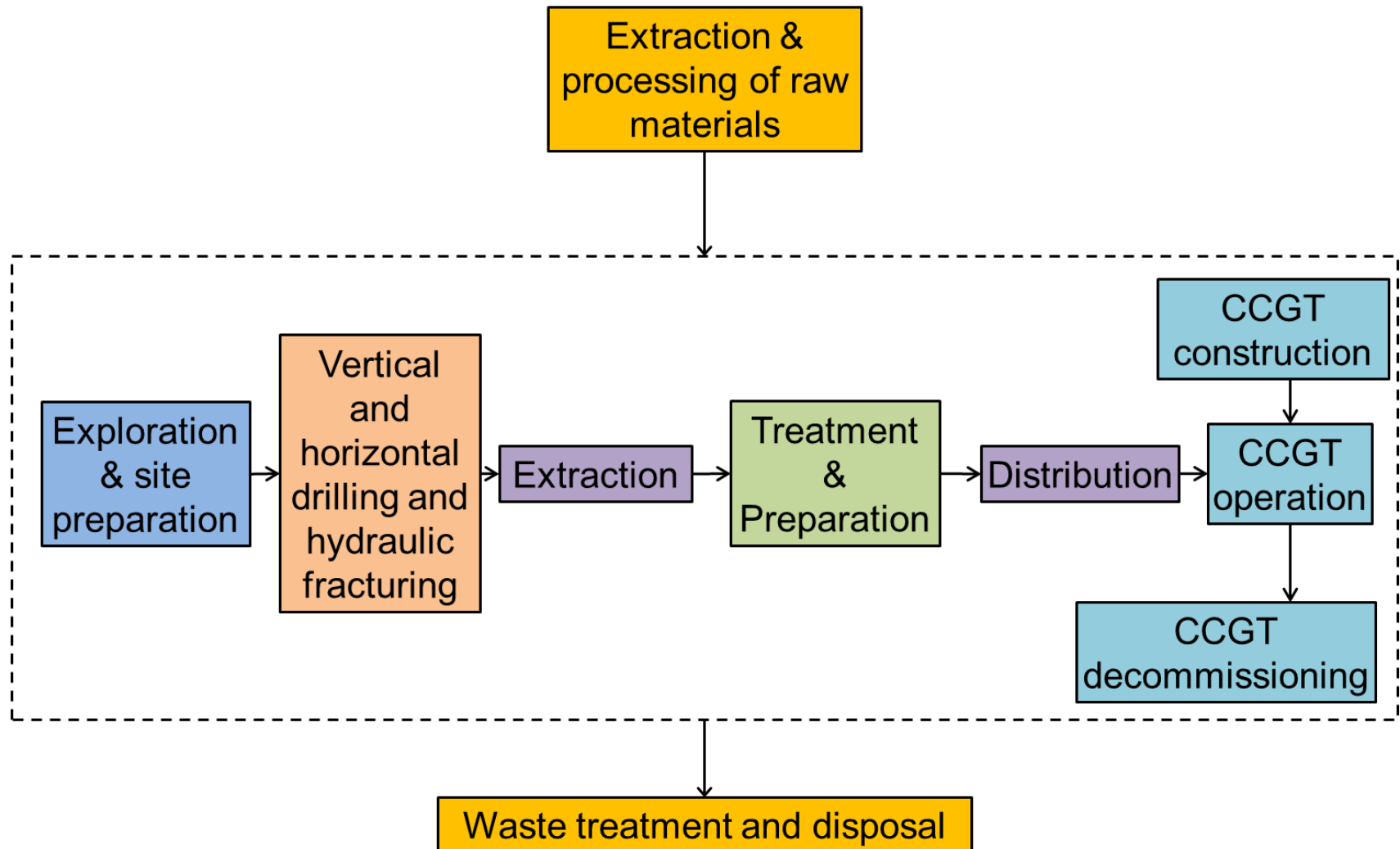
- Water contamination
- Earthquakes
- Emit greenhouse gases
- Damage landscape
- Hazardous to human and ecological health
- Social tension and conflict



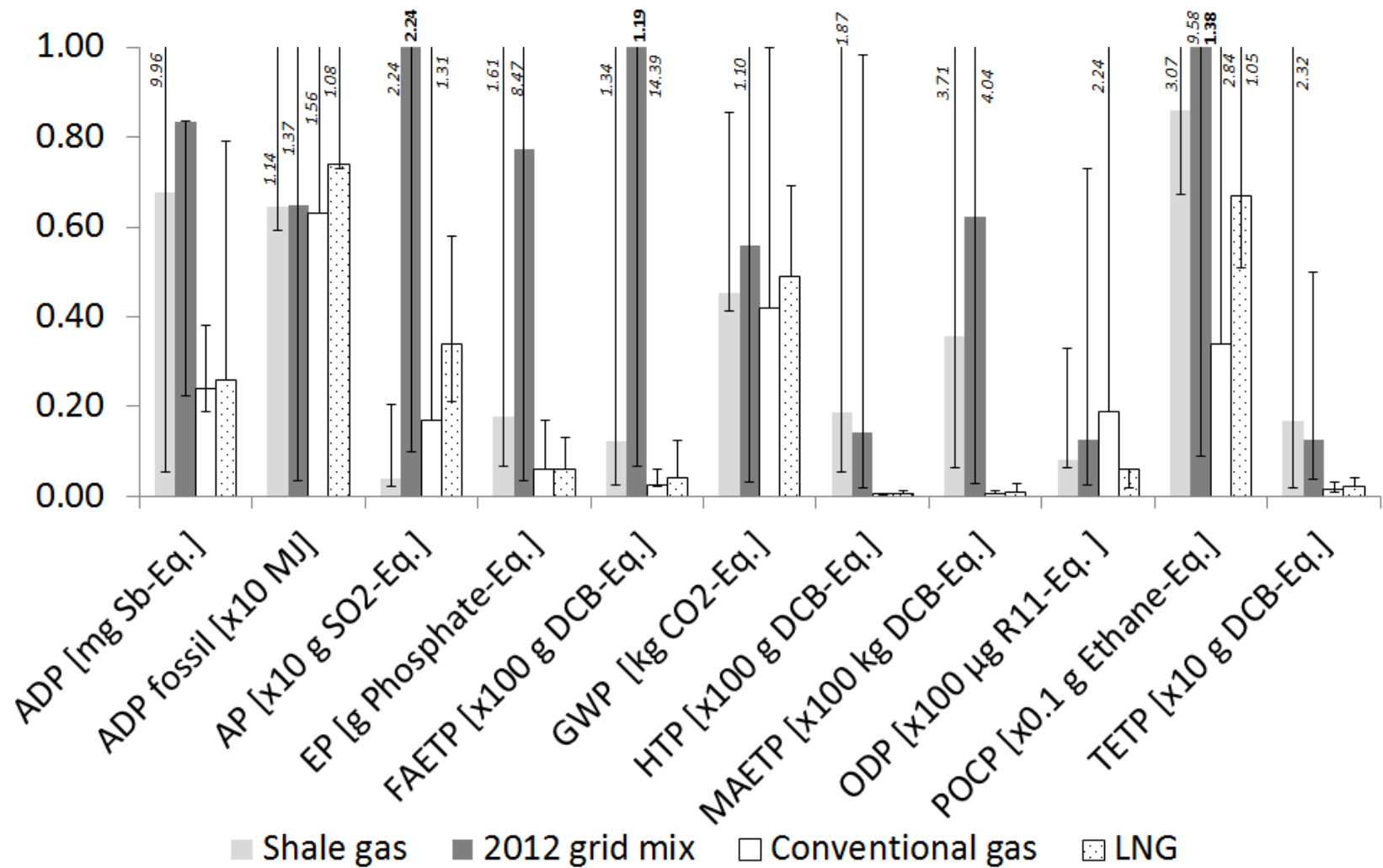
Life cycle assessment (LCA)



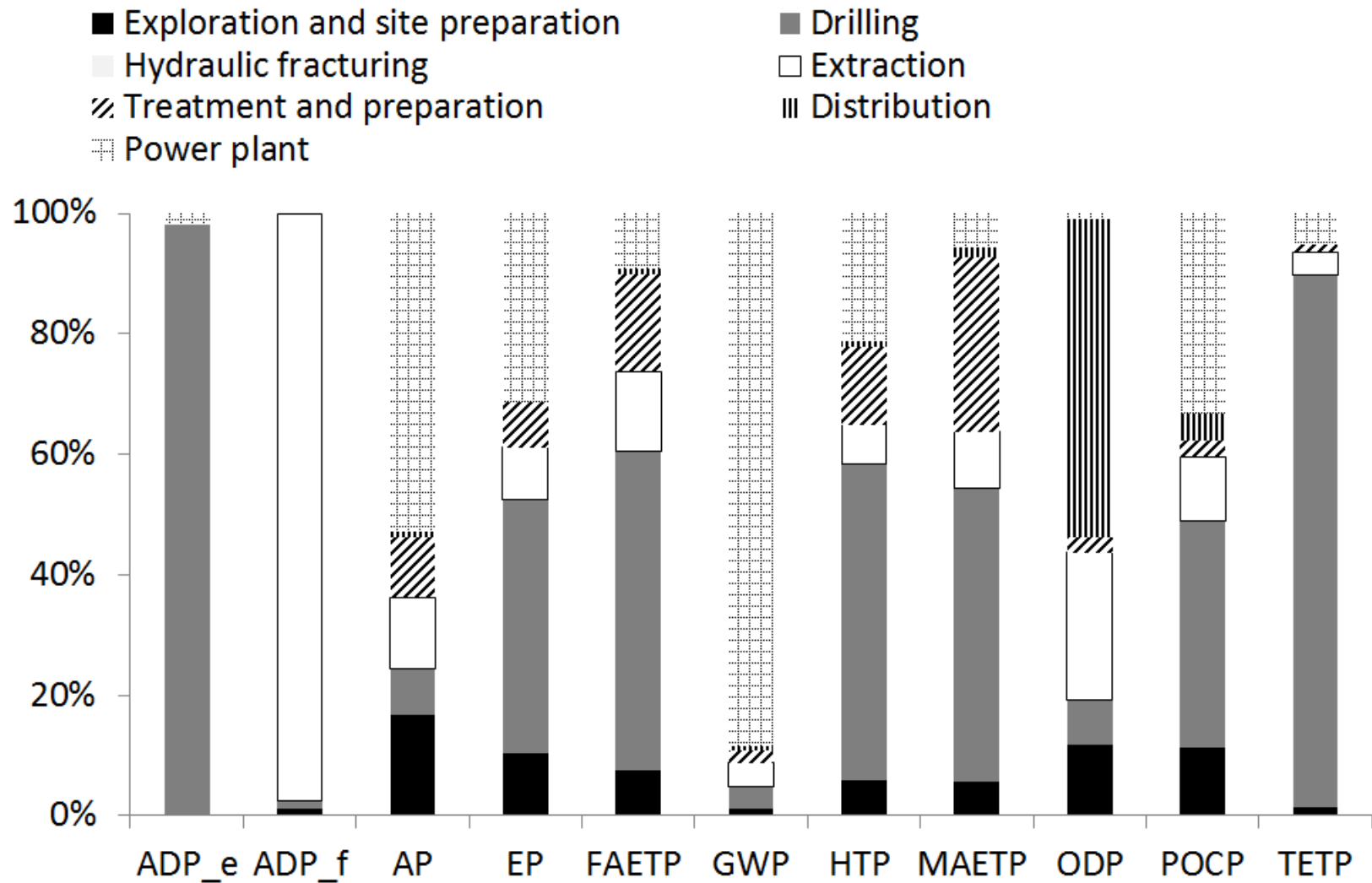
System boundary



Results



Results



Future work

- Economic and social assessments using life cycle costing and social life cycle assessment.
- Gather more data to refine LCA model.





Thank you for listening!
Questions?

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