

• What is it?

• Why are we worried?

What's going wrong?

• What do we do?

#### (1) What is it?

- unconventional oil and gas
- onshore
- held in rock in tiny particles not reservoir
- drill borehole up to 3km
- pump large volumes of water and chemicals at high pressure
- fracture the rock / release the gas, oil

- (2) Why are we worried?
- (a) climate carbon
- 260g / KwH
  - nuclear: 2 10g / KwH
  - wind / solar: close to zero
  - coal 800g / KwH
- displacement effects
- "transitional fuel" evidence?
- impact on investment / price
- NB: "if it's properly regulated"

#### (b) Water contamination

- groundwater: well failure, chemicals, faulted rock
- proven cases
- disposal of waste
- full Environmental Impact Assessment / hydrogeology
- / 3D seismic survey

(b) Water supply

- water supply
- 8 20M [litres] per well
- 20% of energy usage in UK
- water stressed areas (south east)

- (c) Air
- fugitive emissions
- flaring
- truck movements (50 per day during production)
- "industrialisation of the countryside" (Davies)
- cumulative impacts; background
- soil, agriculture, socio-economic etc

(d) Health

- endocrine disruption
- congenital heart defects (Colorado)
- Parr case

NB: fracking travels...

- (3) What's going wrong?
- Public participation
  - notifying landowners directly
  - trespass
  - "standard permits"
  - planning guidance: "presumption in favour"
  - local examples eg: Lancashire, West Sussex

#### Access to justice

- JR as block to growth v public interest litigation
- Aarhus Convention ACCC
- standing
- costs fixed costs orders
- attacks on JR
  - Legal Aid
  - disclosure of members' financial position
  - time period for challenge
  - "highly likely" test
  - intervener's costs

#### Effective regulation

- lacking dedicated regulation
- ineffective assessment of impacts
- inexperience / attitude of regulators
- conflicts inherent
- smoothing the path:
  - \* oil permits
  - \* tax

#### Transparency

- chemicals?
- standard permits
- lobbying...
- social licence / protest

- Precautionary principle
- effective environmental assessment
- involving local communities
- dedicated and robust regulation
- presumption against...?