

CO Oil Shale and CO₂

Dag Nummedal, CERI/CSM

Resource large enough to positively impact US energy “independence”

- Need a diversity of actors and technologies (now: Shell, Chevron, ExxonMobil, EGL)
- Must be produced with ZERO emissions (carboncapture from production to tailpipe)
- Local environmental issues are there – but can be solved



Stern Review (10/30/2006)

The Economics of Climate Change

- Using the results from formal economic models, the Review estimates that if we don't act, the overall costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year, now and forever. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20% of GDP or more.
- In contrast, the costs of action – reducing greenhouse gas emissions to avoid the worst impacts of climate change – can be limited to around 1% of global GDP each year, which implies stabilisation of greenhouse gases at levels of 500-550ppm CO₂e will cost, on average, around 1% of annual global GDP by 2050.
- Ultimately, stabilisation – at whatever level – requires that annual emissions be brought down to more than 80% below current levels.

A Subsurface Laboratory/Demo facility

- John Holdren – Harvard
 - Total global energy cap investment ~ \$12 trillion.
Turn-around time for large cap energy infrastructure (e.g. coal-burning power plants) is 30 – 40 yrs.
Currently, we are building one new coal plant per week somewhere in the world (most in China)
 - Need large-scale CO₂ sequestration demonstration facility
- Norway and North Sea neighbors want a “CO₂ migration laboratory”
- DOE sequestration partnerships across US