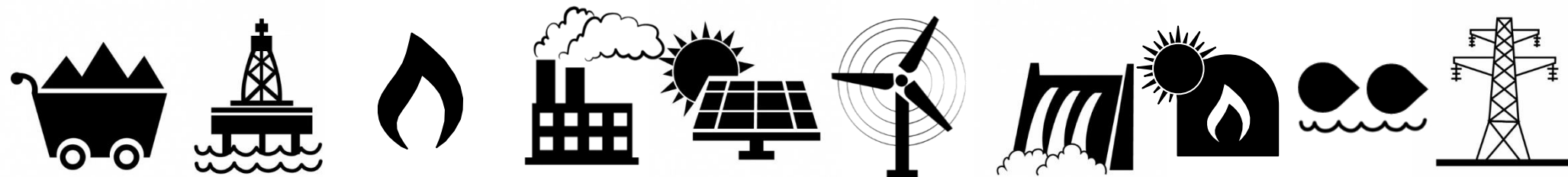


Pale Blue Dot.

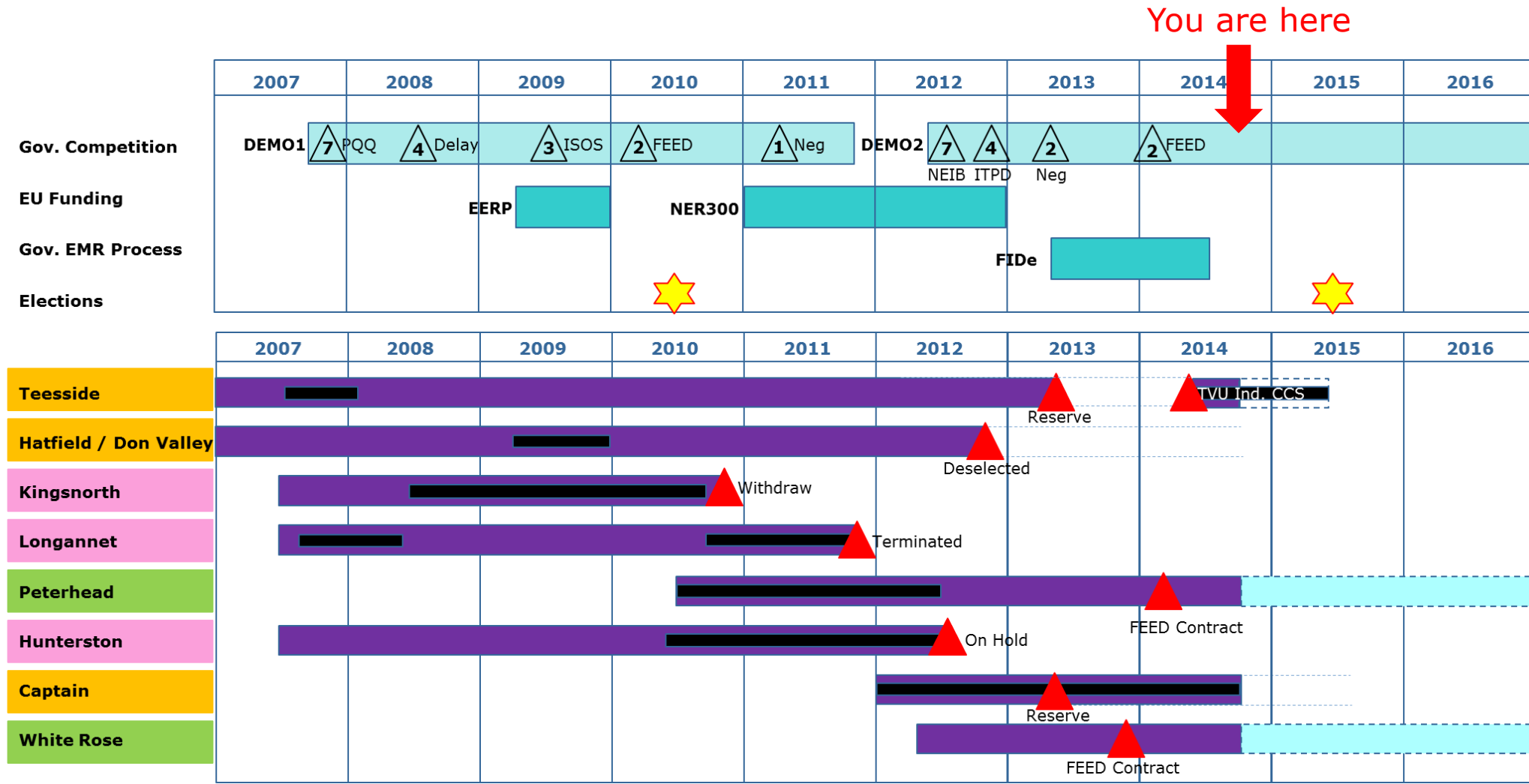
UK CCS phase 2 projects: status & schedules

Sam Gomersall
CCJ Conference
20th November 2014

Corporate Development Advisors to the energy business



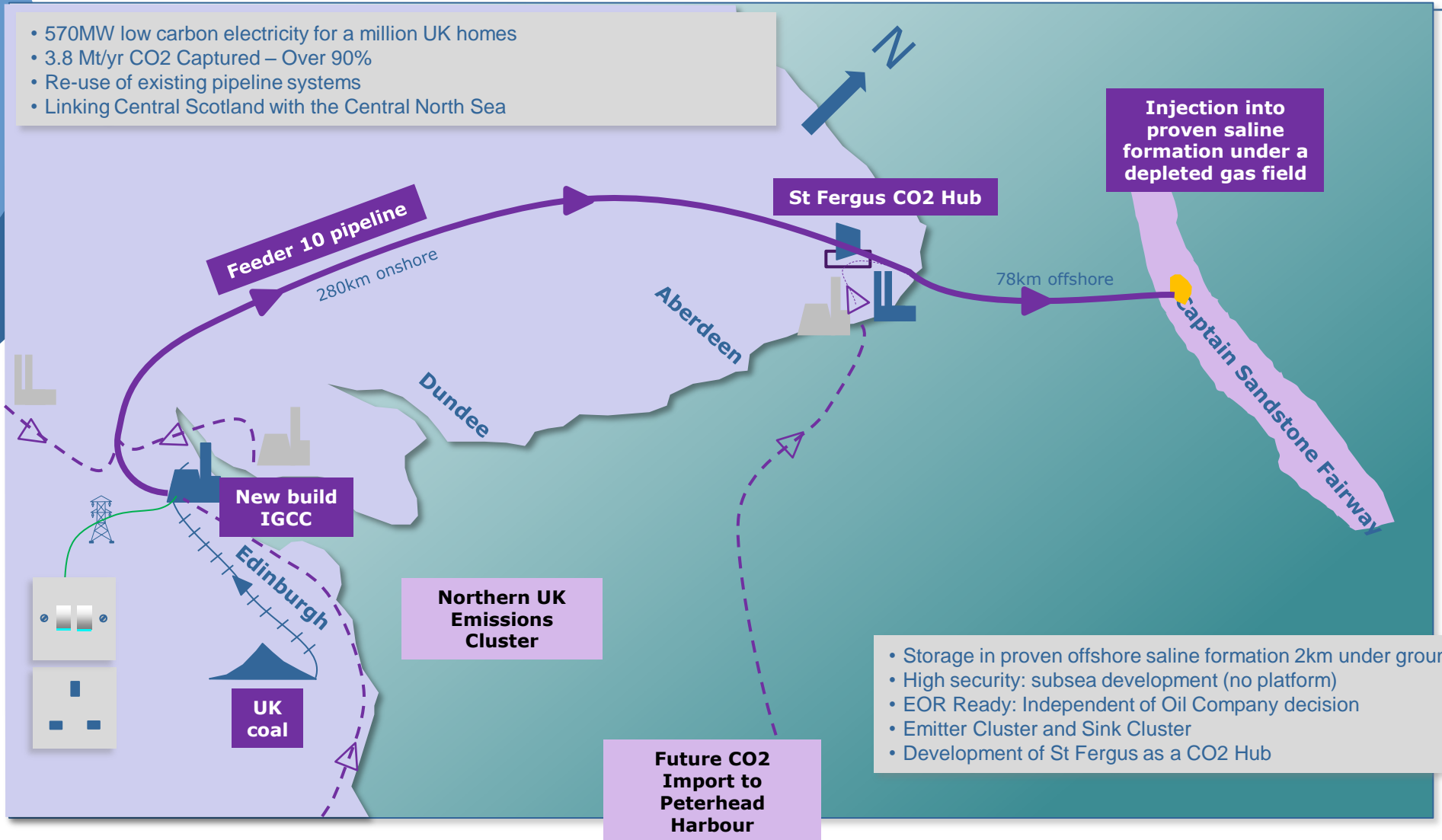
UK CCS timeline: 2007 to present





Captain Clean Energy Project

- 570MW low carbon electricity for a million UK homes
- 3.8 Mt/yr CO2 Captured – Over 90%
- Re-use of existing pipeline systems
- Linking Central Scotland with the Central North Sea

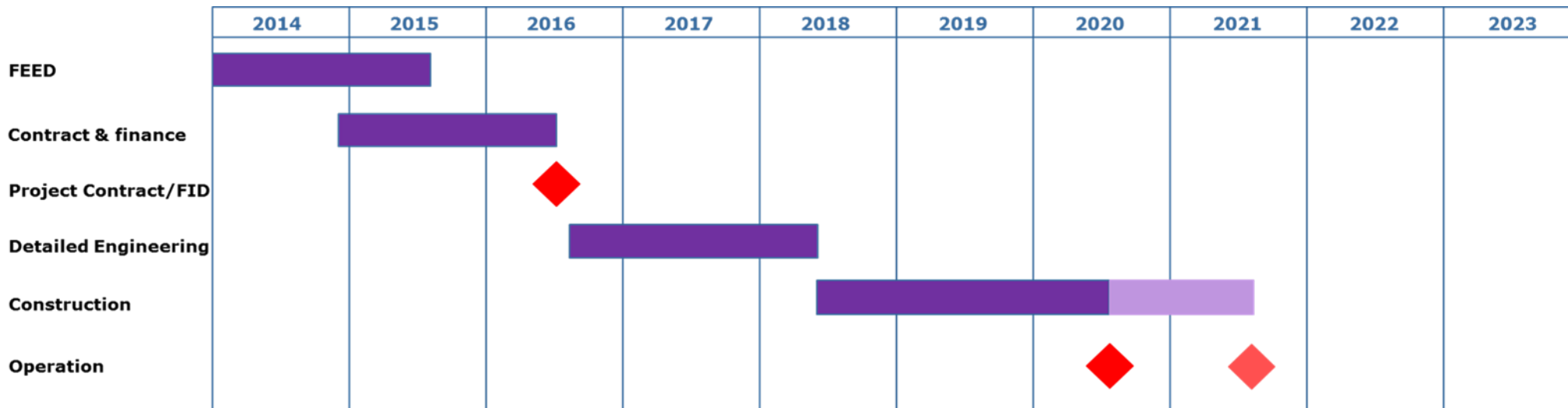


- Storage in proven offshore saline formation 2km under ground
- High security: subsea development (no platform)
- EOR Ready: Independent of Oil Company decision
- Emitter Cluster and Sink Cluster
- Development of St Fergus as a CO2 Hub

Captain Clean Energy Project – Nov 2014 Status

| Event | Date |
|---|-------------|
| Notified as a Reserve Bidder in Competition "Ministerial support to progress the project" | March 2013 |
| FIDE discussions commence; requesting pathway to CfD outside the Competition | May 2013 |
| Project released from Competition process | Feb 2014 |
| DECC Policy Scoping Document issued "Phase 2 projects later in the decade" "enabling architecture to be in place by 2016" | August 2014 |
| Forward aspiration | Date |
| Pre-FEED | Q1 2015 |
| FEED | Q1 2016 |
| FID | 2017 |
| Operational | 2021 |

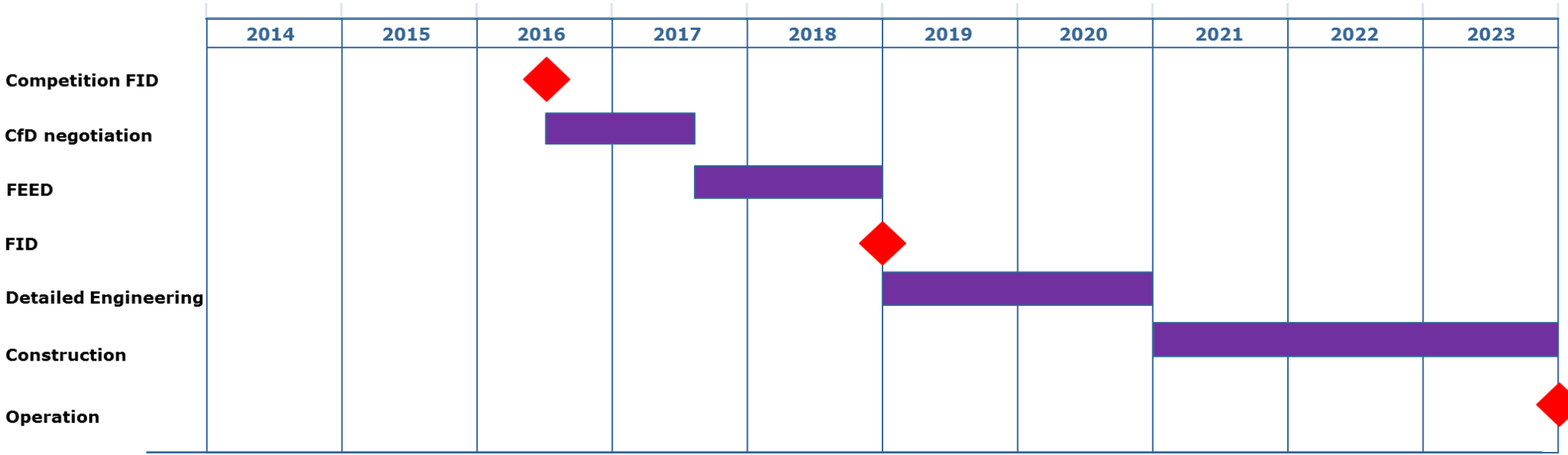
Notional Competition projects schedule



- Potential hurdles to Competition projects getting beyond FID
 - FEED illuminates show stopper issues (technical or commercial)
 - Contractual arrangements within the projects cannot be resolved
 - Project contract/risk allocation with DECC cannot be resolved
 - Project funding (project or internal finance) cannot be developed
 - Loss of Political commitment post election
 - Corporate appetite at the time of FID

Notional Phase 2 projects schedule

- Future hurdles for Phase 2 projects
 - All of the above
 - Projects halt due to lack of CfD visibility before 2016
 - Process for funding FEED (vs CfD commitment)
 - Phase 1 failure undermines developer / investor confidence
 - DECC process for project selection
 - Delay while waiting for Phase 1 learnings to arrive



Implications



There is a risk of having no Phase 2 projects

UK CCS Landscape - 2014

Plus

- The UK has completed four CCS FEED programmes, but has not reached FID on any of them.
- Two further CCS FEED programmes are now underway making a total of six.
- UK has a capable commercial mechanism for driving CCS for power generation through the EMR
- UK has a well funded excellent CCS R&D programme

Deltas

- Government procurement process have all but killed off investor interest in UK CCS
- Oil companies (with exception of Shell) have not stepped up to play in CCS
- All major power utilities have stepped back from CCS
- From a CCS project perspective the UK is back where it was in 2010
- Significant risk remains
- There is currently no back up plan

Summary

- There remains considerable risk to Competition projects
 - It is uncertain if 0, 1 or 2 Competition projects will be built
 - This is likely to remain unclear until 2016
 - There is even more uncertainty about Phase 2 projects
 - Which projects
 - How and when they will be progressed

 - UK CCS prospects remain in the balance
 - There is no back up to the Competition
 - CCS cost reduction depends on;
 - 'learning by doing' and 'building a critical mass'
 - Current policy will defer cost reduction potential

 - The UK needs much, much more CCS ambition
-

Mind the Gap



**..and 'Mind the Gap' may not be the issue,
there may be no train!**