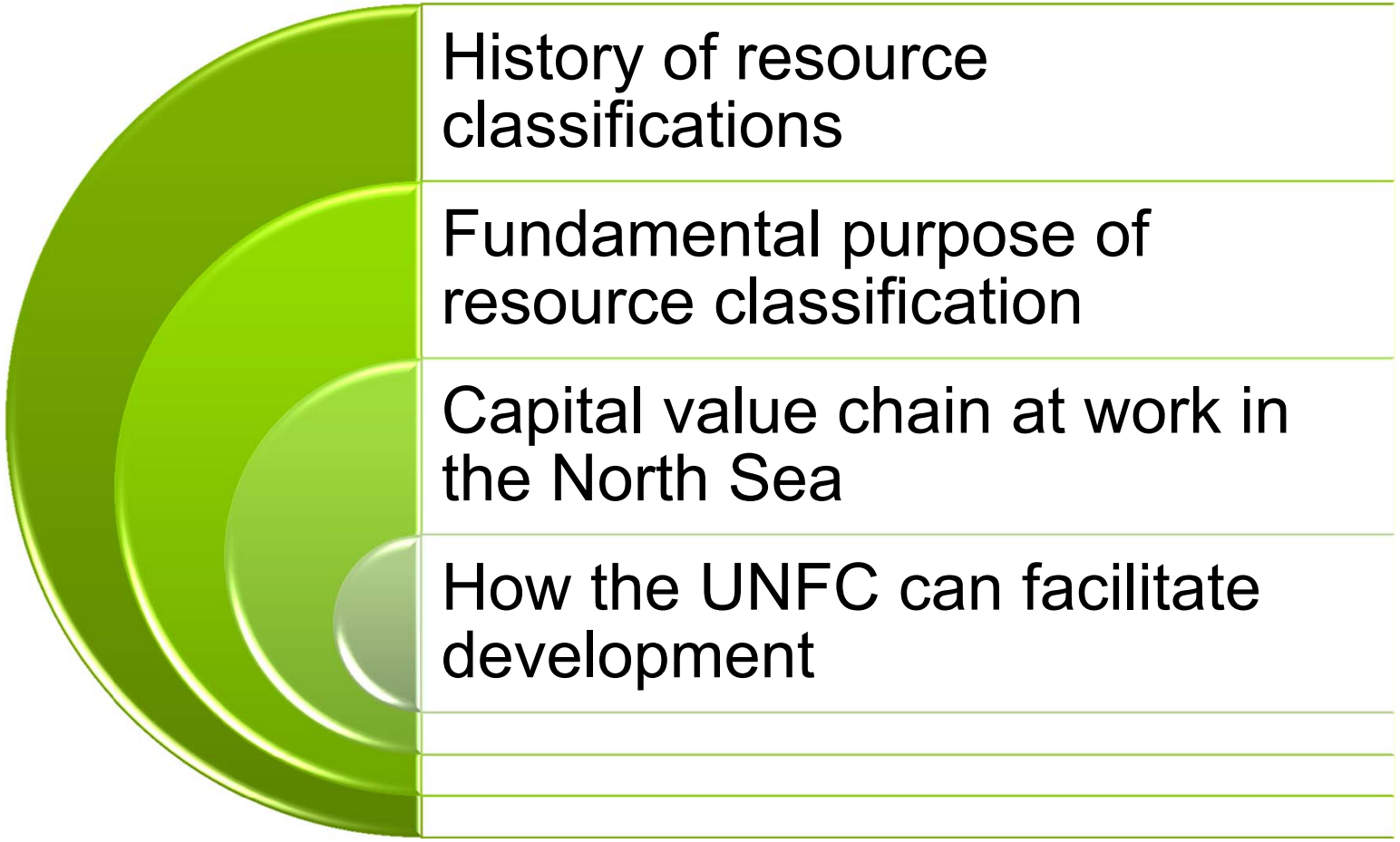
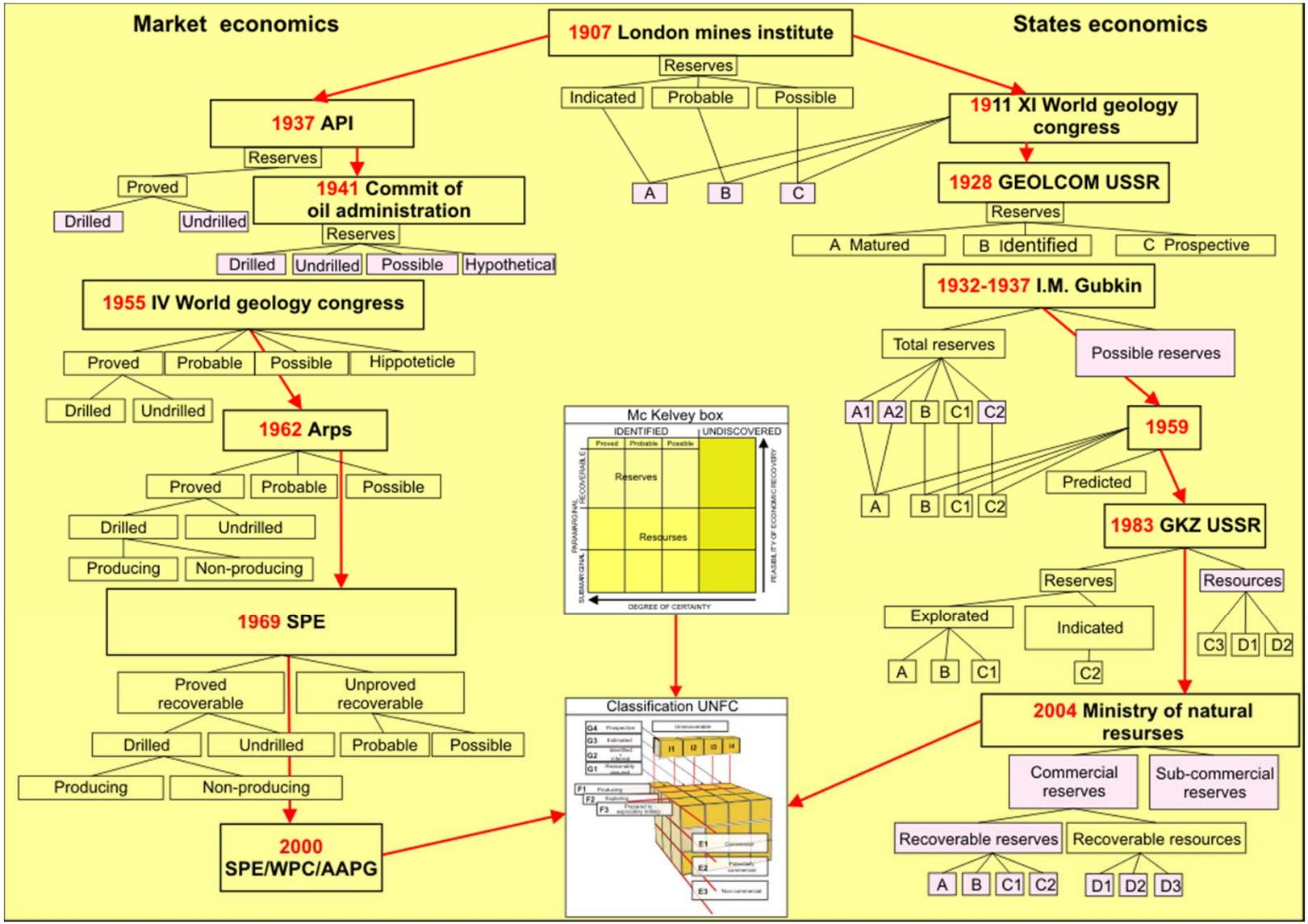
Introducing the UNFC
Why classify our resources?

David MacDonald, Vice President Segment Reserves

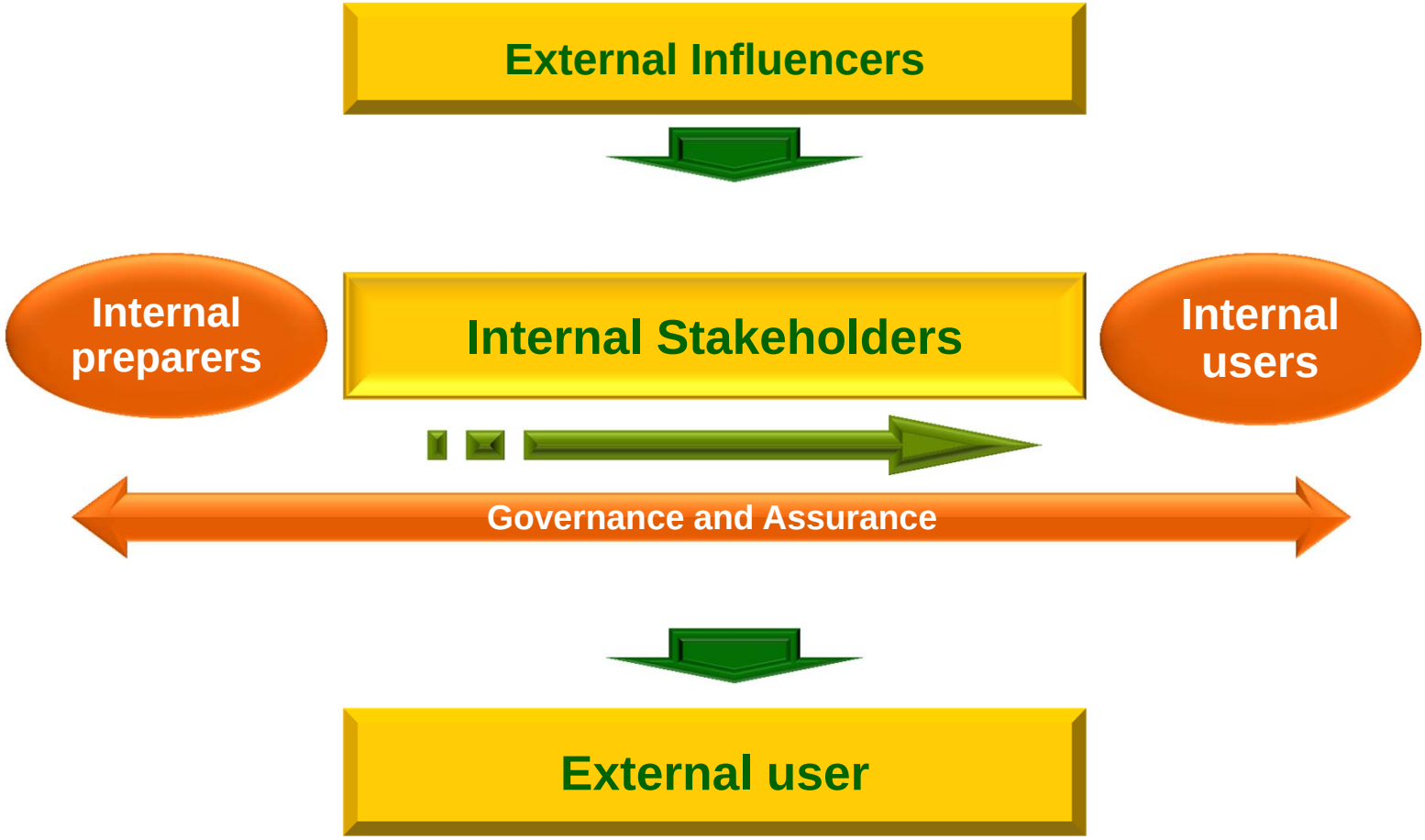
Outline


History of resource classifications
Fundamental purpose of resource classification
Capital value chain at work in the North Sea
How the UNFC can facilitate development

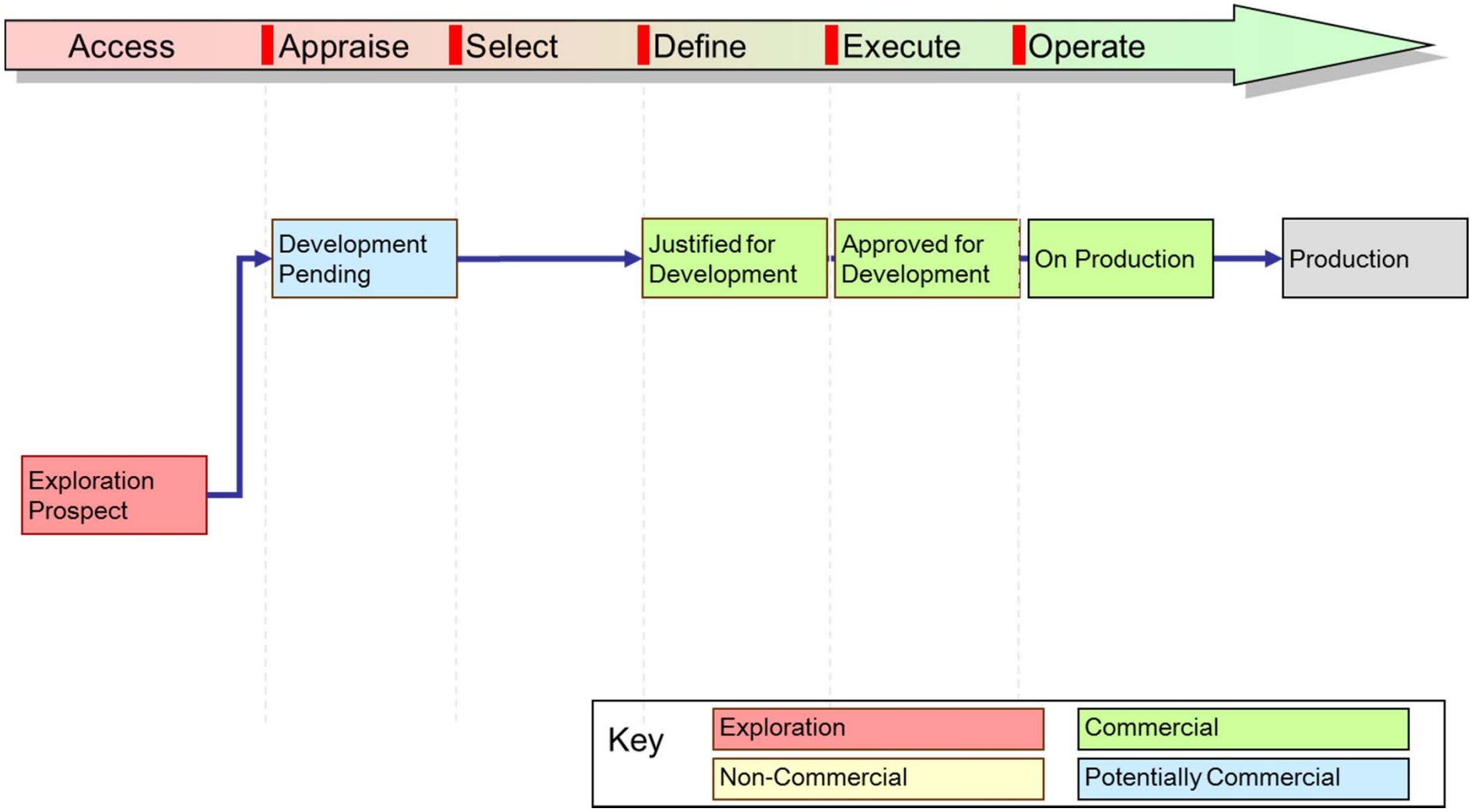
Resource Classification is not a new Problem!



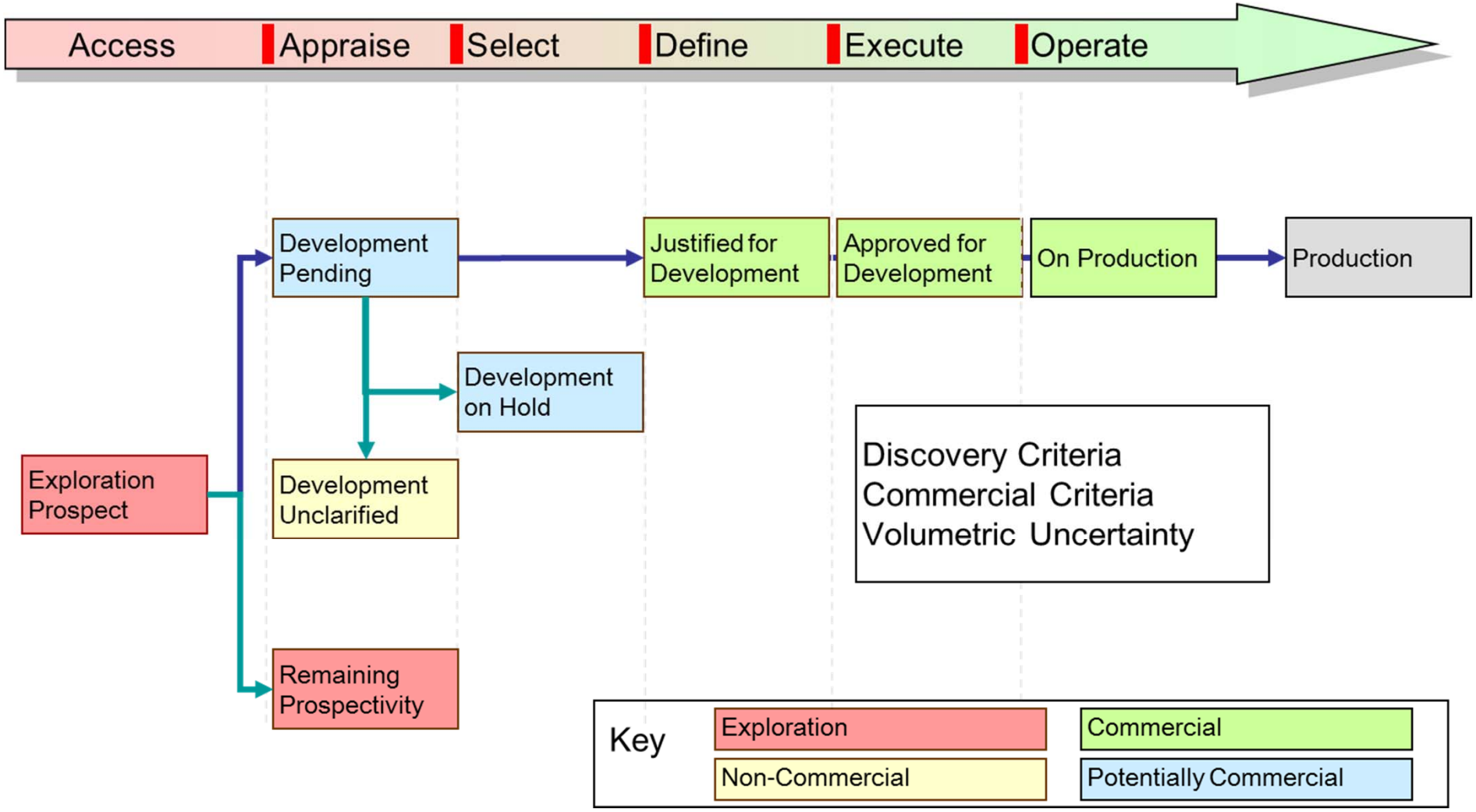
Purpose of Resource Classification



Capital Value Chain

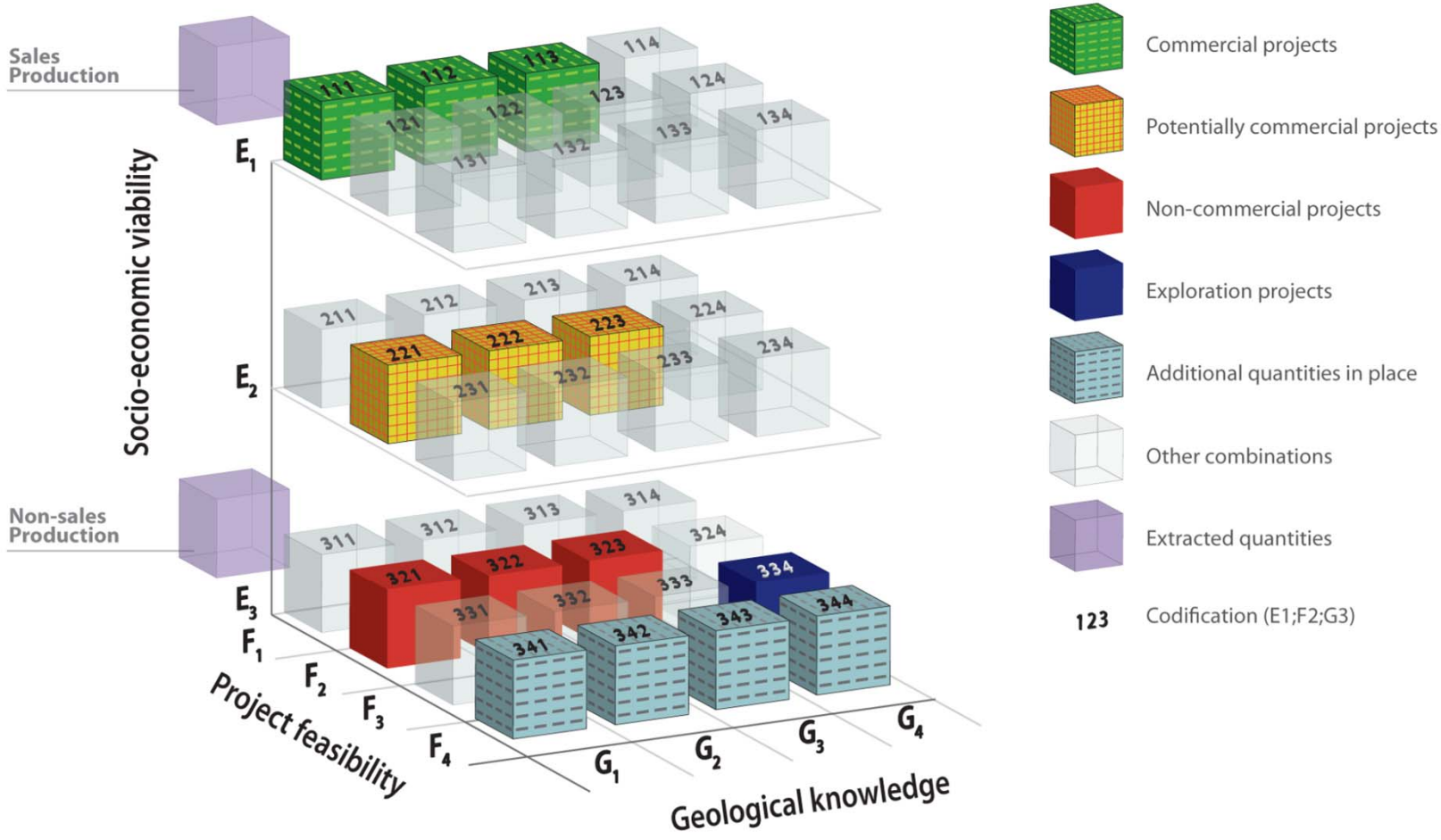


Adding Value



Development needs a Plan

The UNFC can help to define that development plan



BP North Sea Region

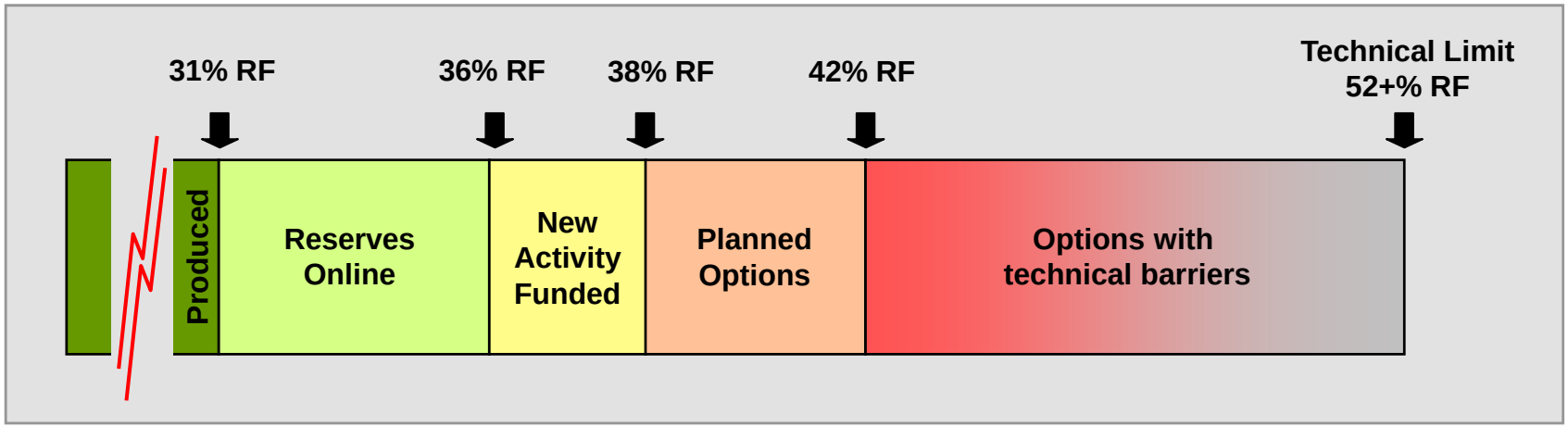
May 2011, SIS 112928530

bp

Improving recovery factors in the North Sea

Resource progression

BP North Sea portfolio – Resource 'tube'



- Optimising base production
- New infill drilling
- Enhanced oil recovery
- Extending facility life

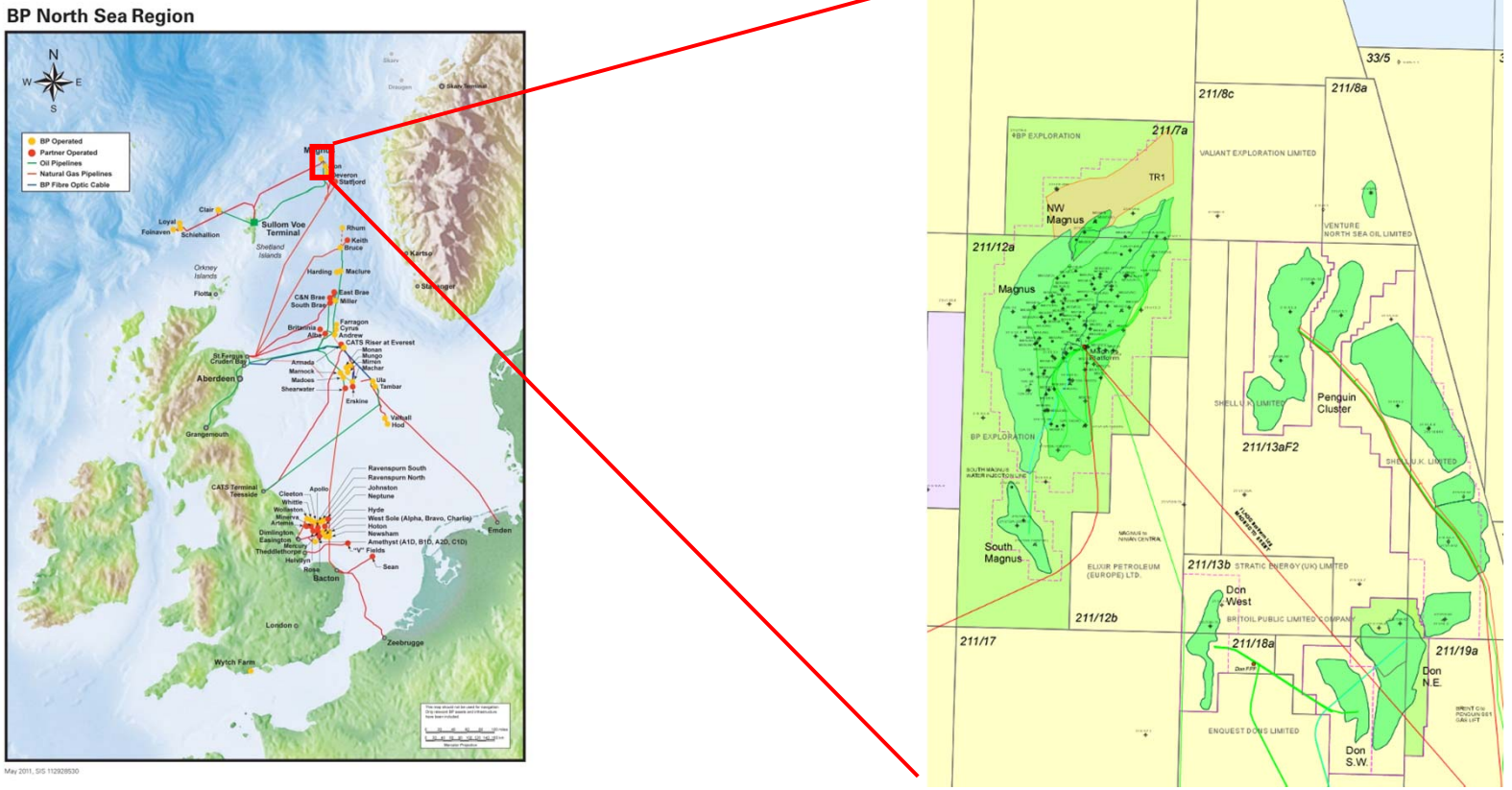
Life of Field Depletion Plan

Integrating subsurface description with operational activity – ***depletion planning***

- Describing the habitat of the remaining hydrocarbon
  - Technical limit seismic imaging
  - Forensic reservoir description
  - Accurate description of historical drainage & sweep
- Appropriate recovery mechanisms for later field life
  - Modifying pore-scale process through EOR e.g. WAG, polymer
  - Depressurisation (blow-down)
- Ensuring the facilities are fit-for-purpose and have appropriate life
  - Increased water & gas handling; changing fluid chemistries (H_2S)

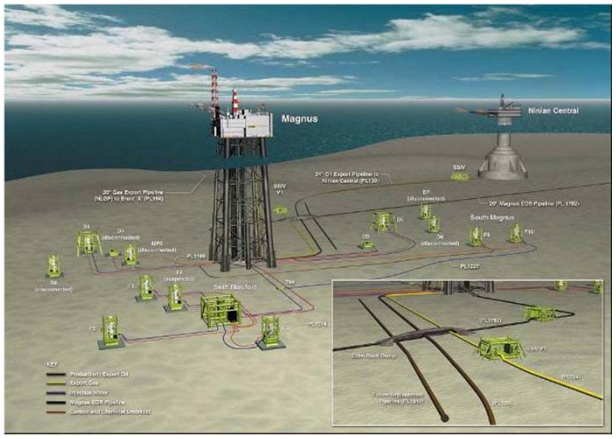
- An integrated depletion plan to optimise infill drilling, wellwork & effective reservoir management

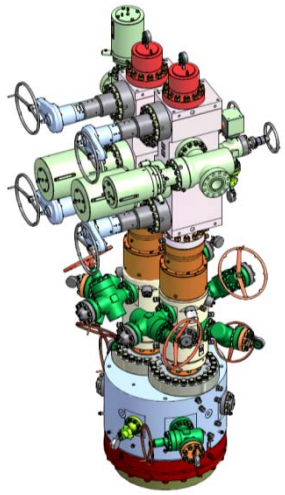
Magnus ongoing redevelopment to maximise recovery factor



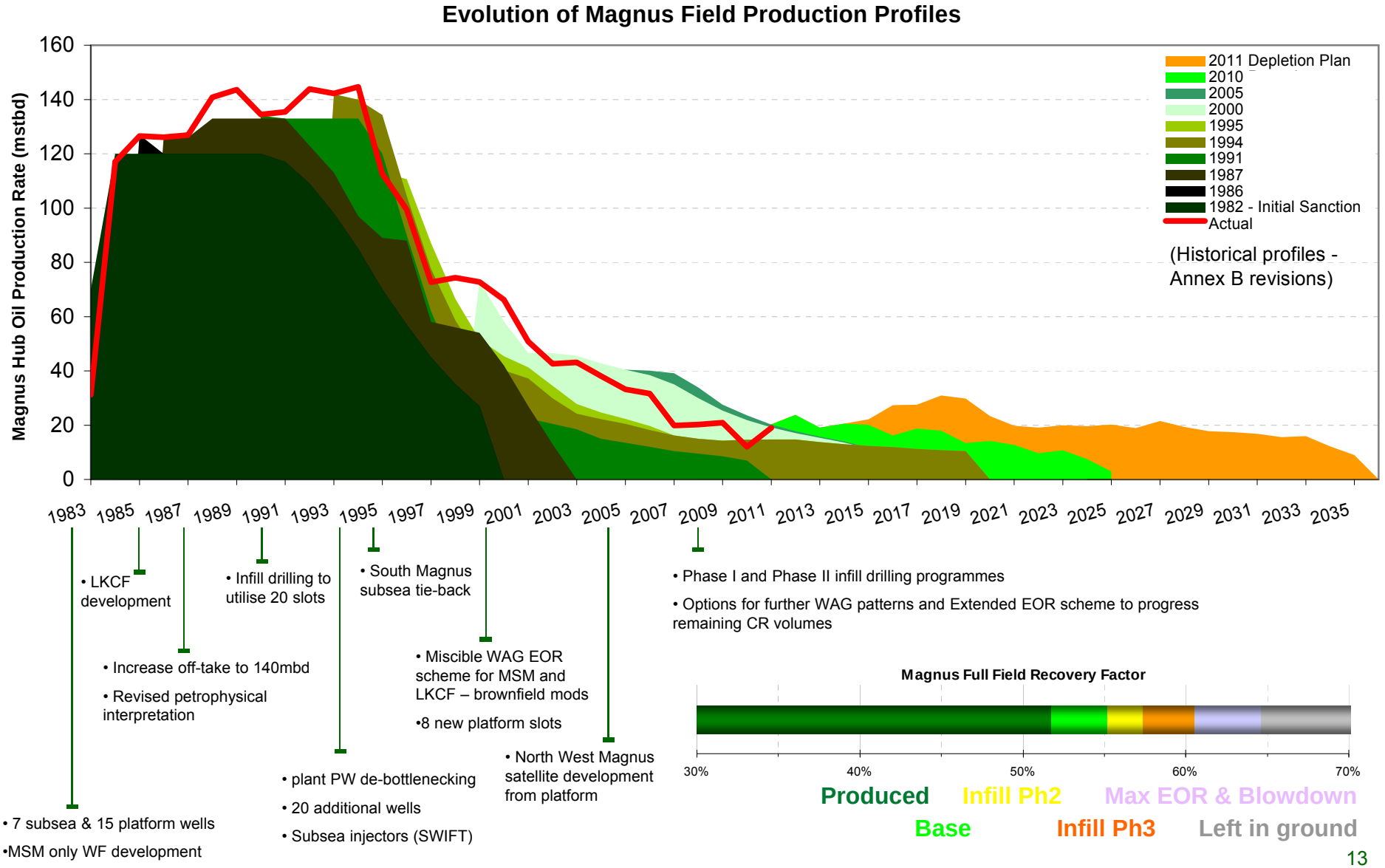
Magnus pushes recovery factor 60%+

- Very successful initial waterflood development recovered initial sanction volumes
- Subsequent phases of development will increase recovery to 50-65%
  - Subsea water injection added to debottleneck water injection well constraint
  - WAG EOR scheme using stranded gas from WoS fields involved new import gas pipeline, additional compressor and recompletion of injection wells
  - Platform slot constraint reduced by adding 4 new slots with splitter technology to side of platform providing 8 new wells
  - Field life extension from 2008 to 2030 through ongoing CAPEX on facilities upgrades
- Enabled by substantial jacket & platform drilling package to reach field extents
- Full field seismic OBC coverage just been acquired (August 2011); 4D seismic for WAG surveillance





Magnus Development phases



Improving recovery factors in the North Sea

- Describing the habitat of the remaining hydrocarbon
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Sustainable and Efficient Development

- Securing affordable and sustainable energy requires a common standard for developing:
  - Long sighted policies for the global markets
  - Government resources management for security and efficiency
  - Industry processes to develop new technologies and efficient project management
  - Cost effective allocation of financial resources