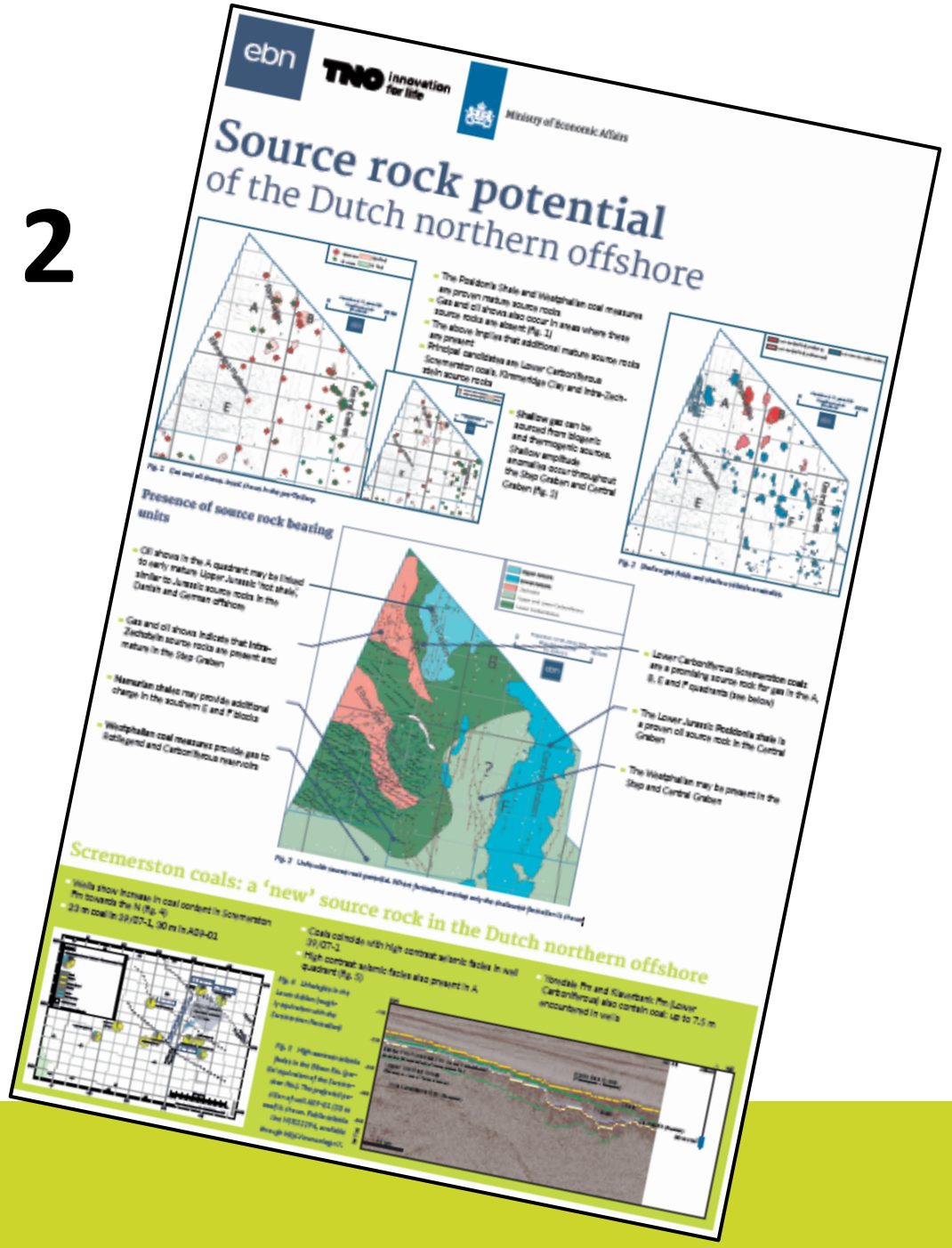
Poster 2

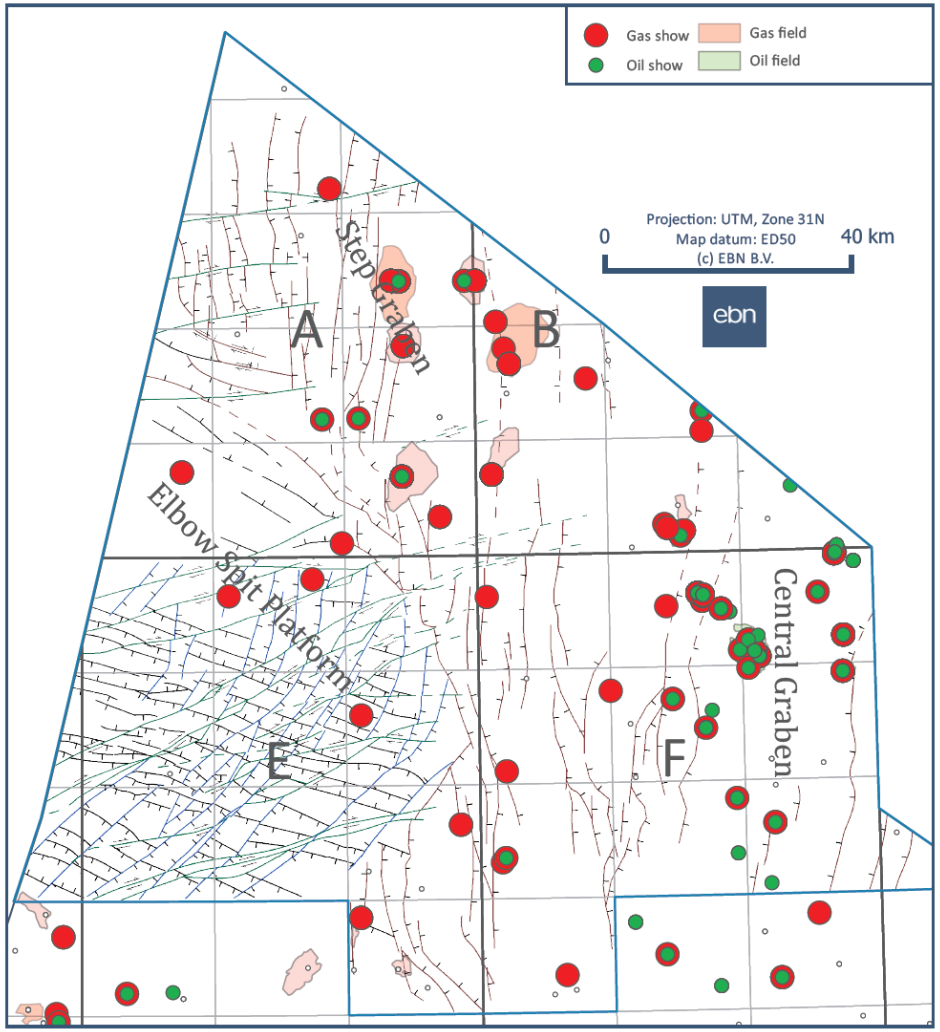


Presentation DE-day

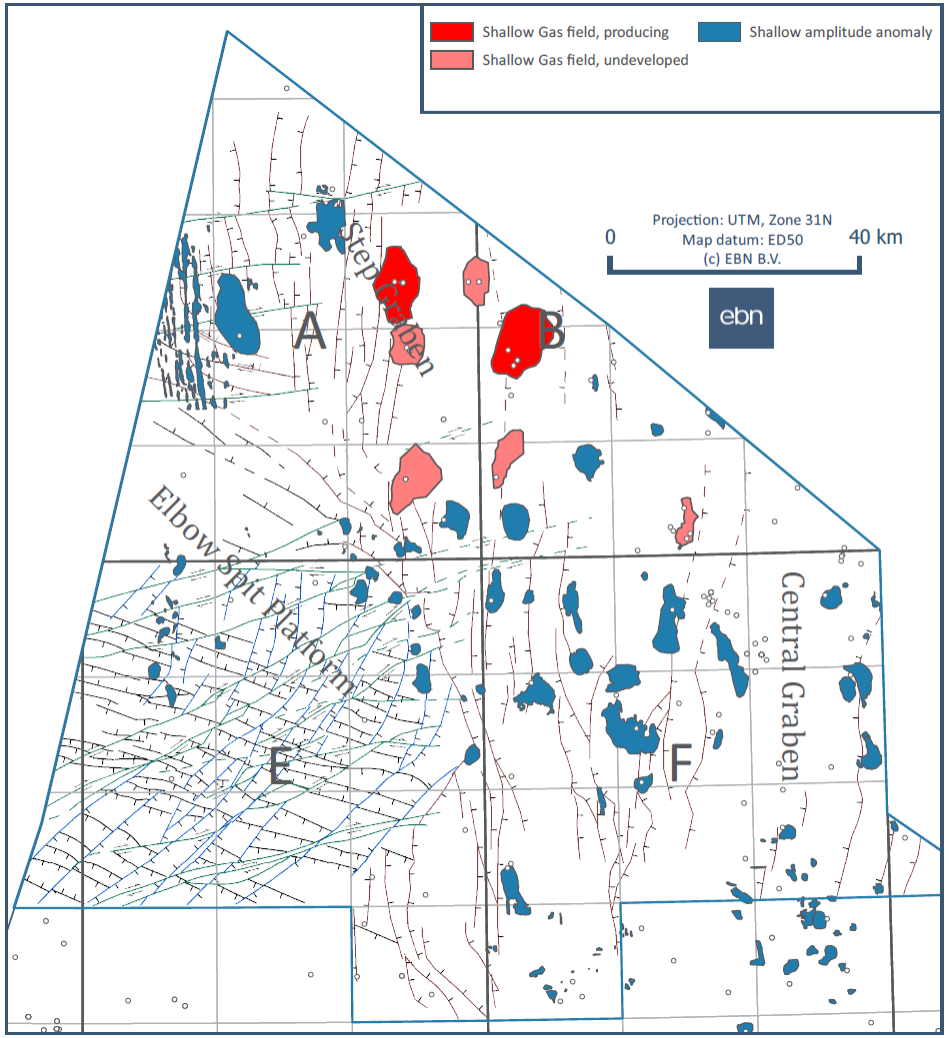
May 23, 2016

Source rock potential & maturity of the Dutch northern offshore

Positive indications for source rocks in northern offshore

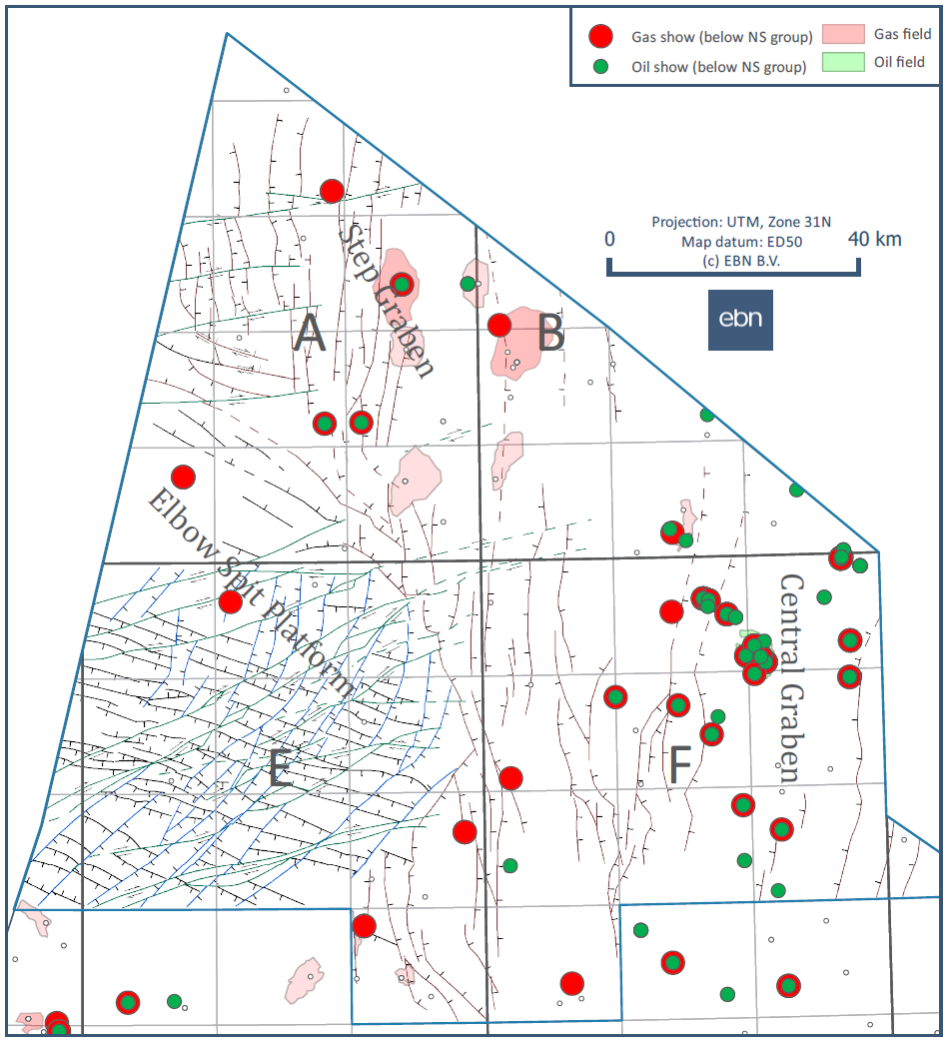


Oil and gas shows in the Dutch northern offshore



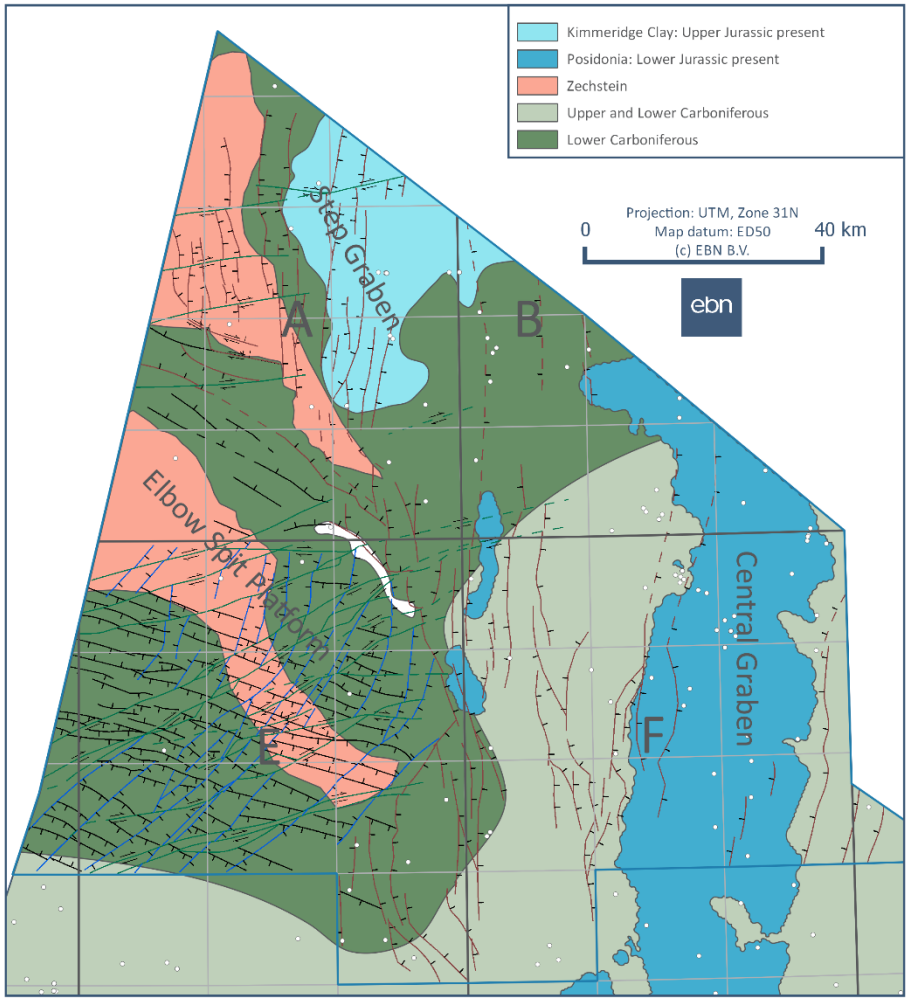
Shallow gas fields and amplitude anomalies

Positive indications for Palaeozoic source rocks



Shows, below North Sea Group

- Hydrocarbon shows also occur <u>below</u> the Posidonia & Kimmeridge Clay Fm.
- Shows also occur outside the extent of these source rocks.



Inventory of formations with source rock potential. Where formations overlap only the shallowest formation is shown.

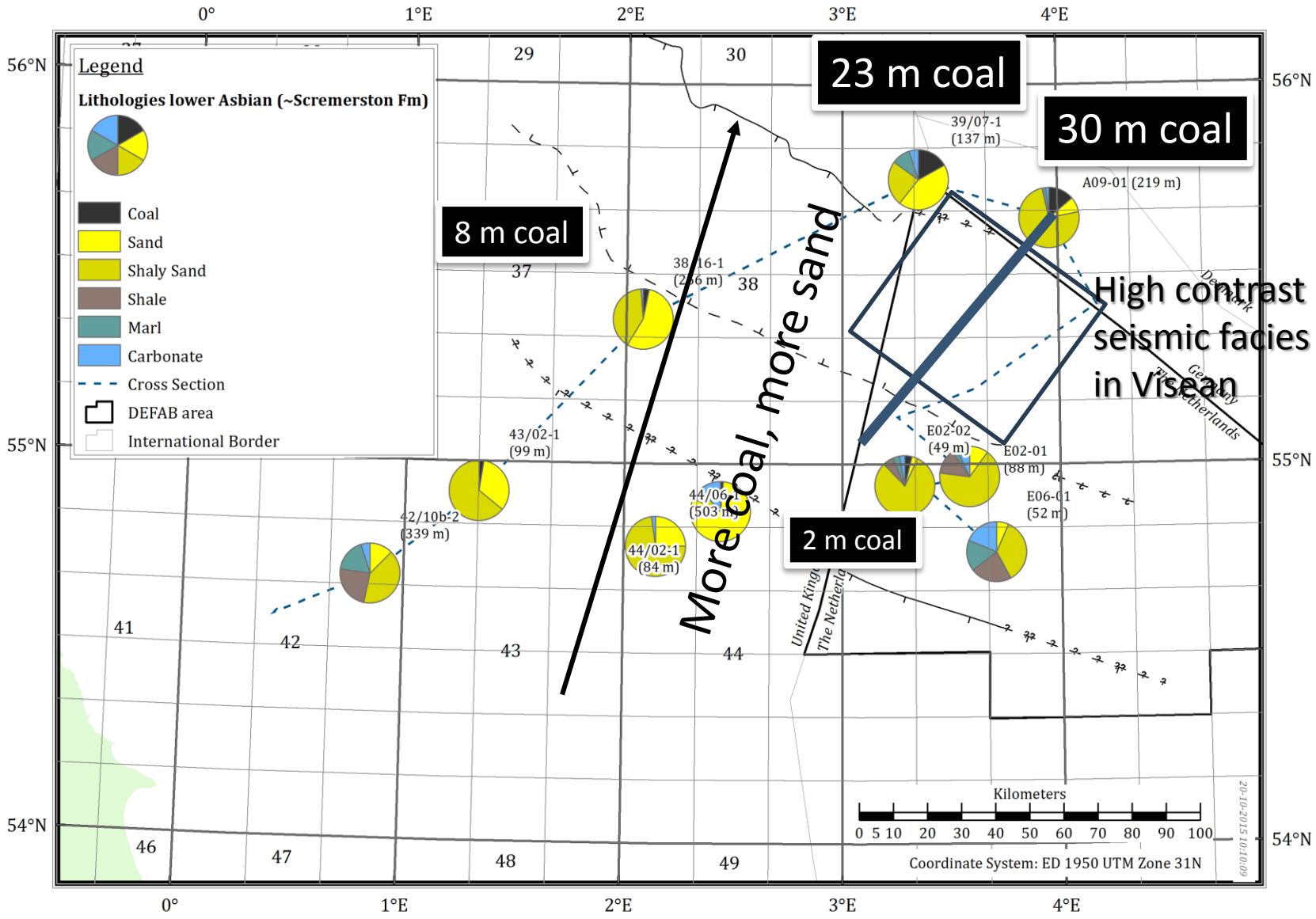
Source rock potential – coals in Scremerston Fm

Coals

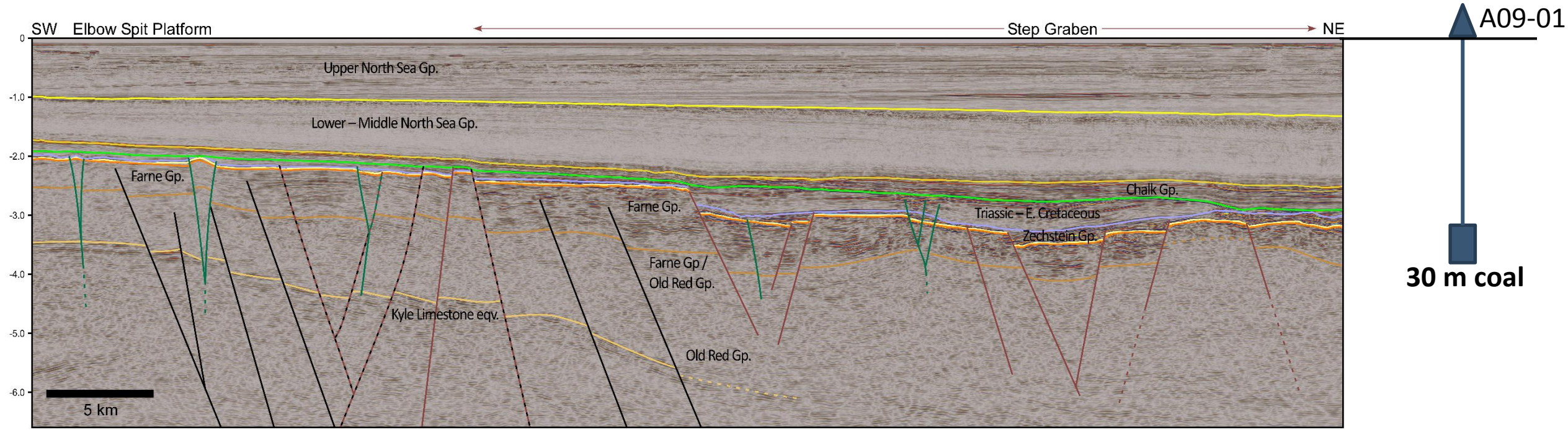
- Increasing coal content in Scremerston Fm towards the N.
- Yoredale Fm and Namurian also contain coal: up to 7.5 m encountered in wells.

Marine shales

- Potential in the south

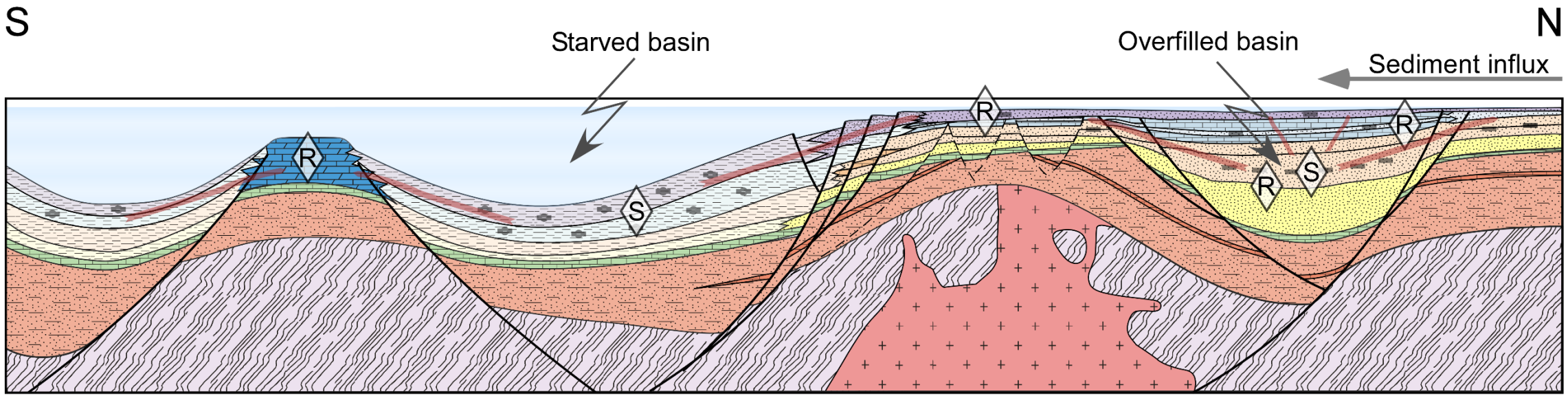


Coals in Carboniferous north of the Elbow Spit Platform



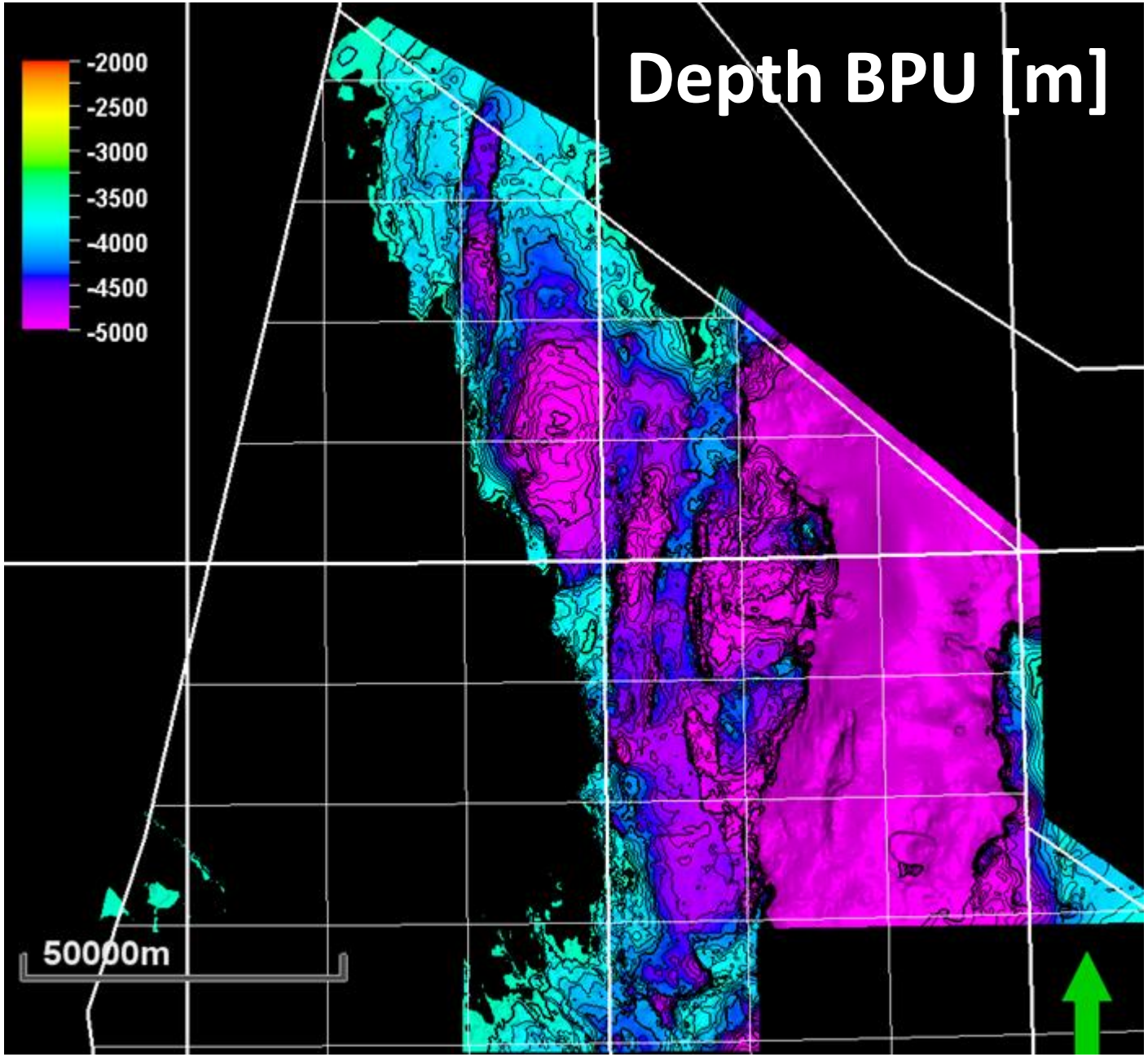
Regional public seismic line showing high amplitude seismic facies in the Lower Carboniferous

Coals in the north, marine shales in the south



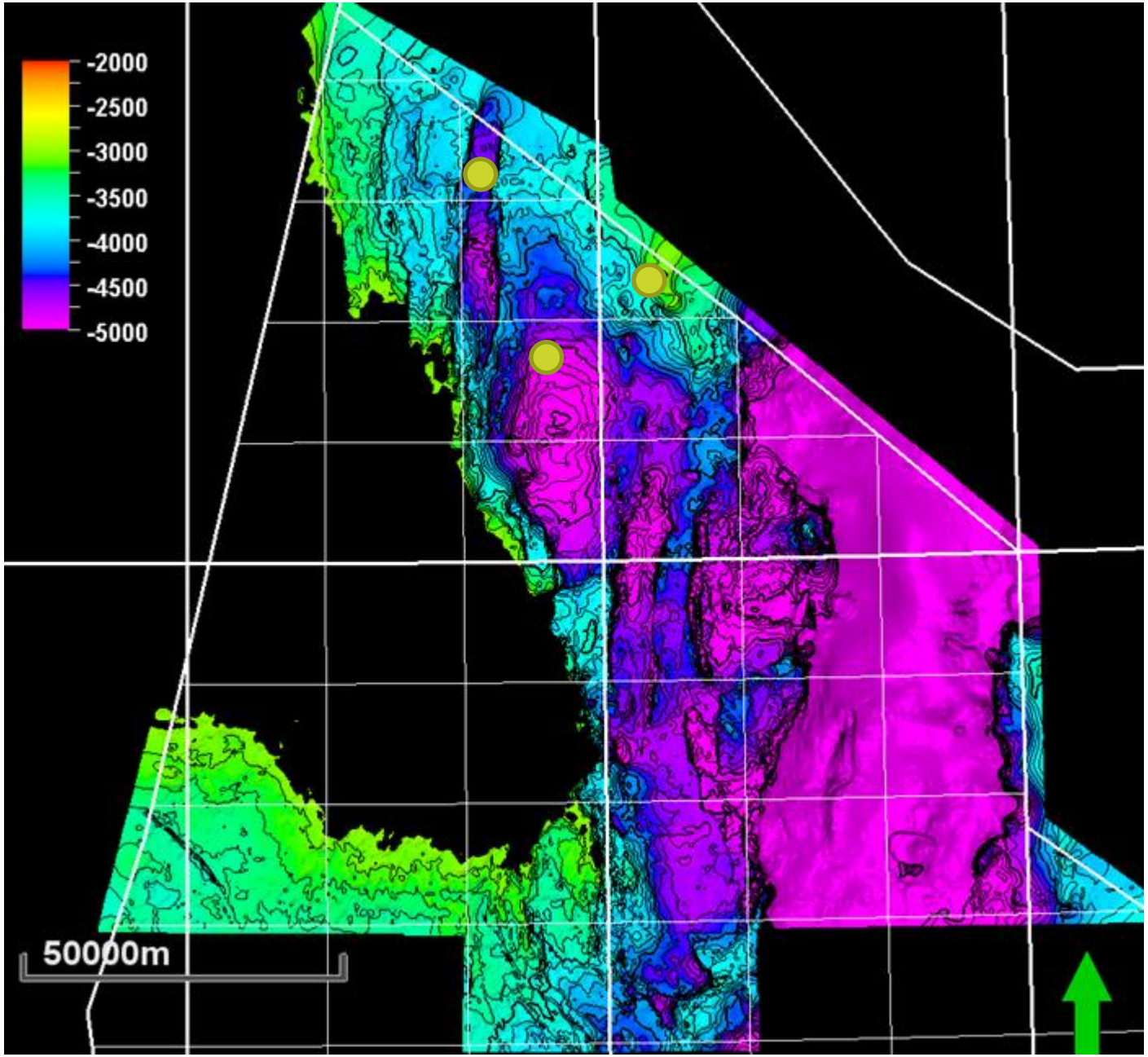
Maturity - BPU below 3.5 km

Depth BPU is minimum burial depth of Carboniferous formations



Maturity - BPU below 3.0 km

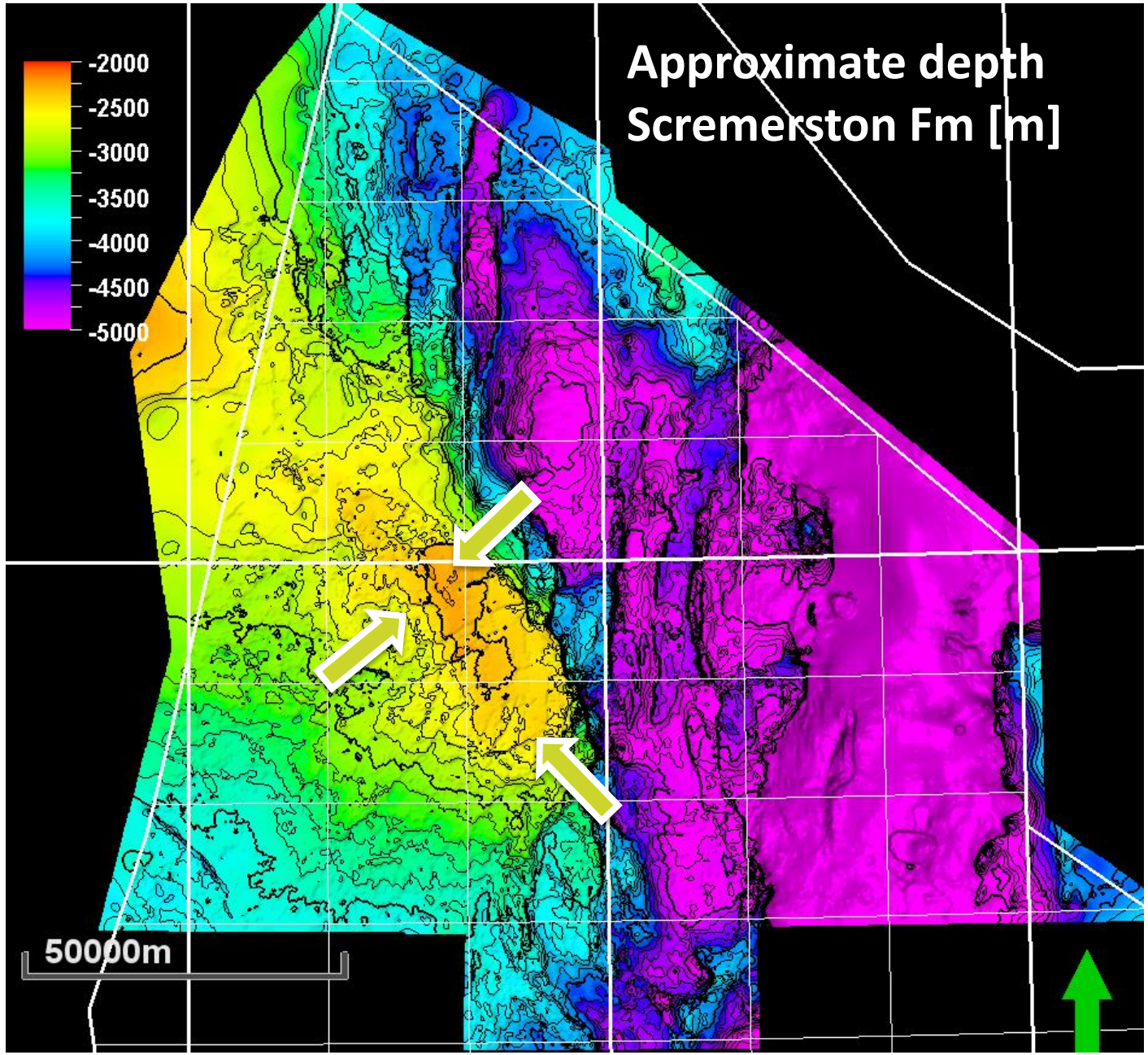
Basin modelling by TNO shows that Scremerston coals become mature at 3 km burial depth



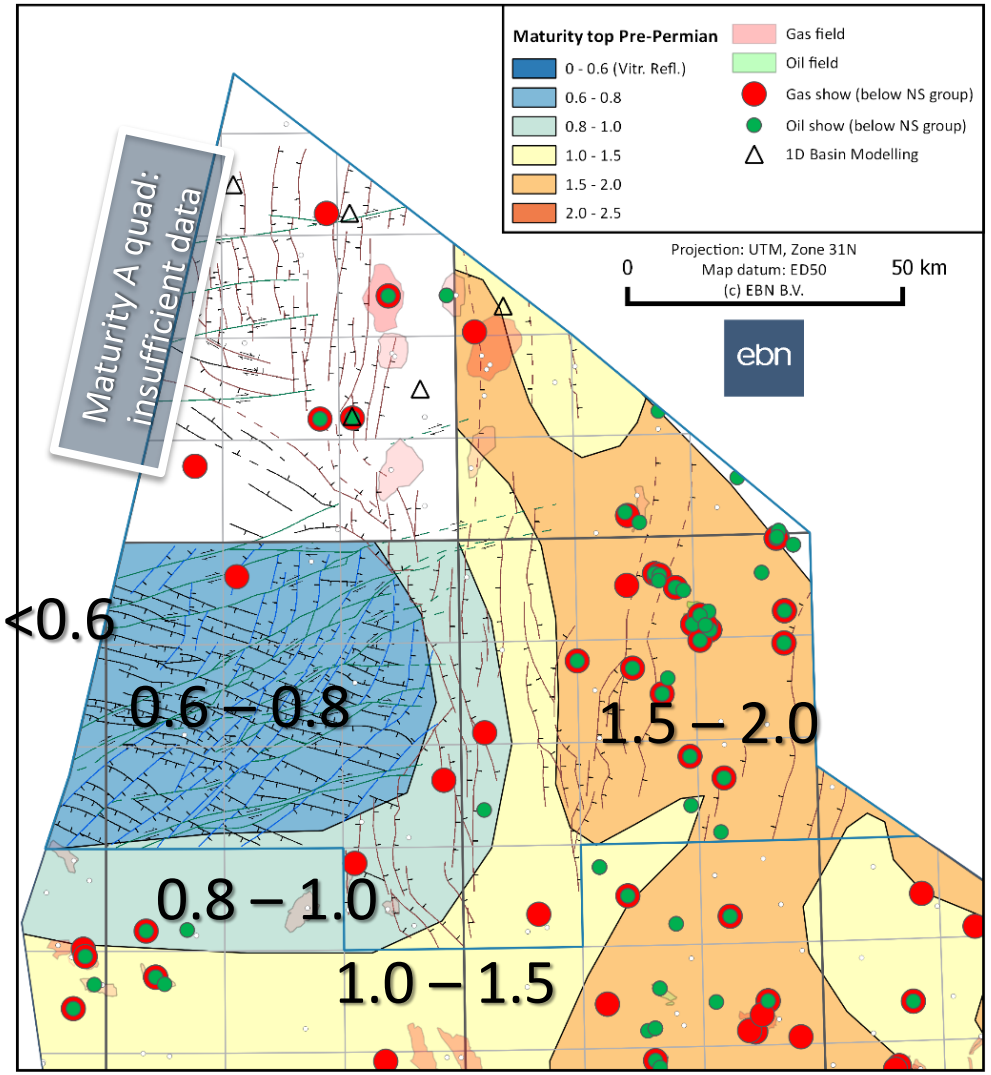
Synthetic well location for basin modelling

Maturity - BPU depth plus 300 m

In almost the entire Dutch Northern offshore the Lower Carboniferous is buried deep enough for to be mature



Positive indications for Palaeozoic source rocks



Maturities: Gerling et al., 1999

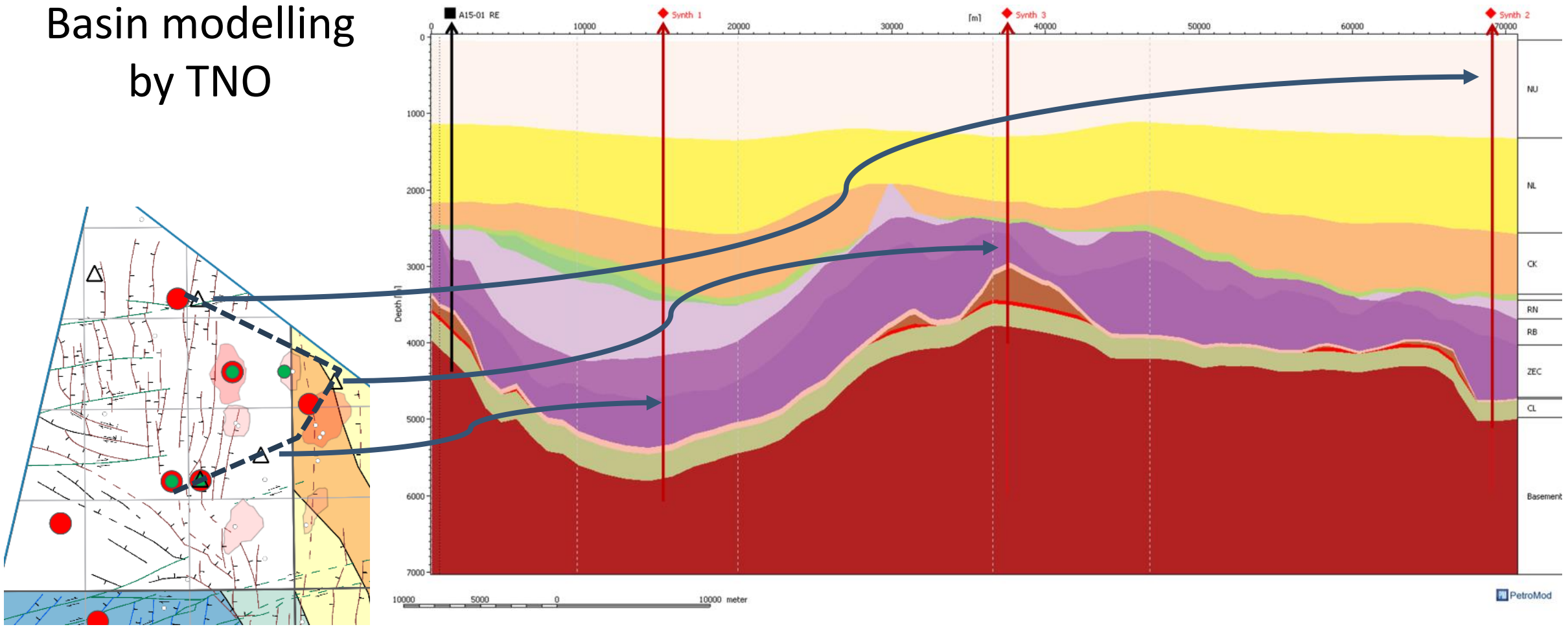
Measured maturity at top Pre-Permian (Vitrinite reflectance)

Note: maturity at top Pre-Permian; will be higher deeper in the sequence!

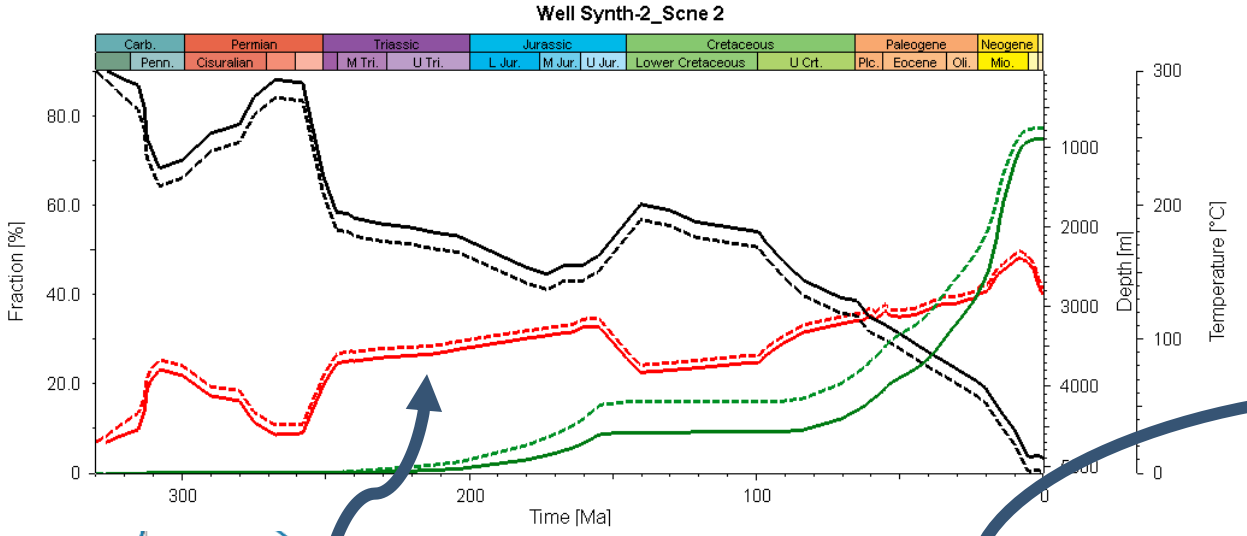
Note: maturity at top Pre-Permian; will be higher deeper in the sequence!
Note: intrusions may have caused higher maturities locally!

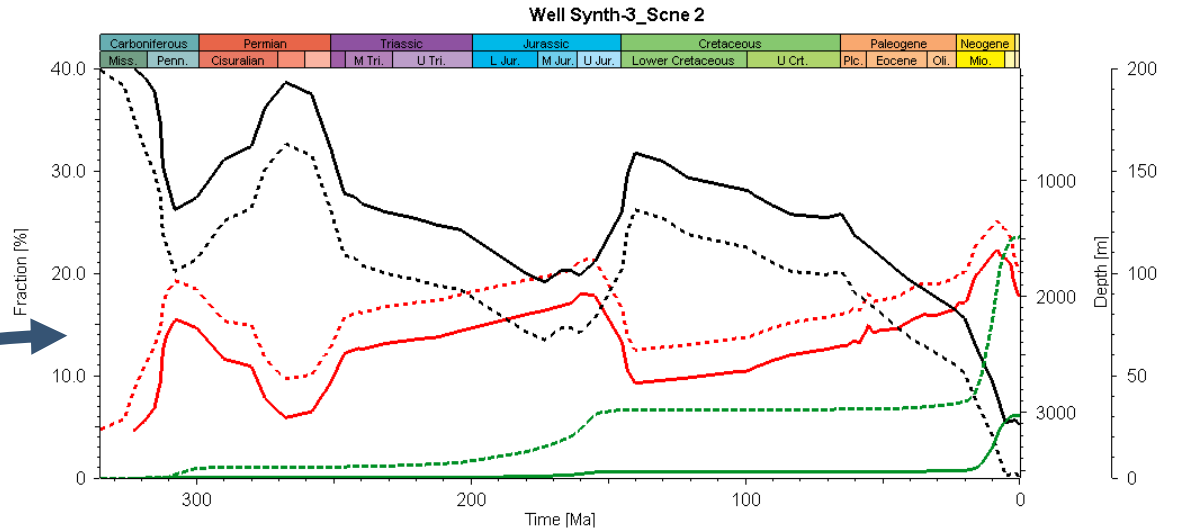
Basin modelling locations

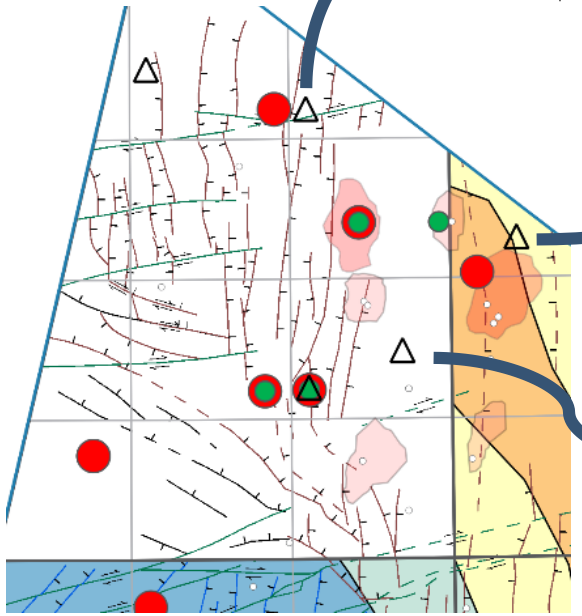
Basin modelling by TNO

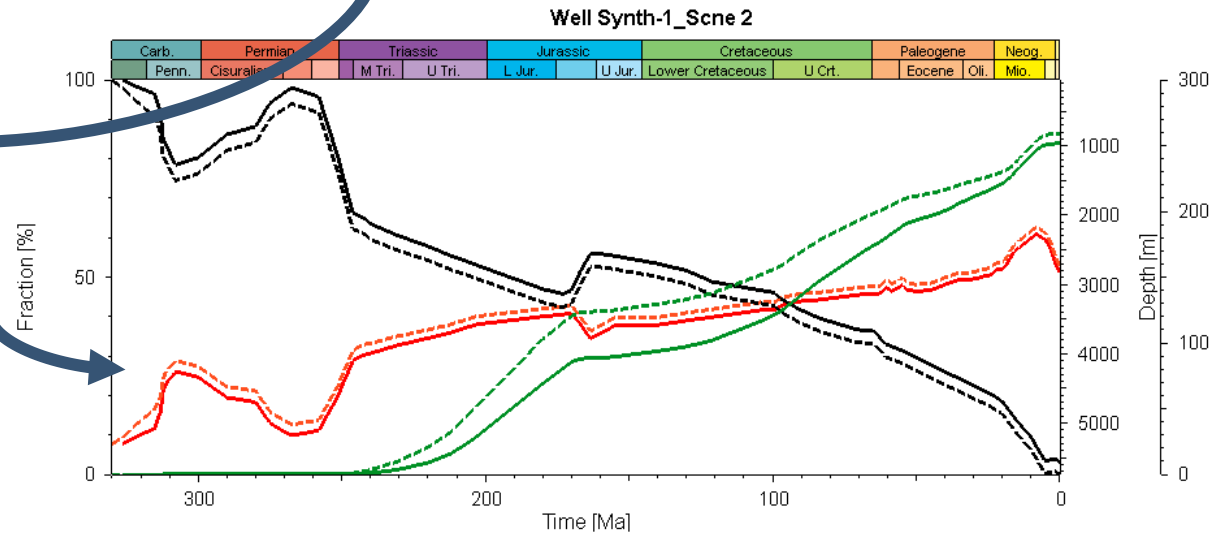


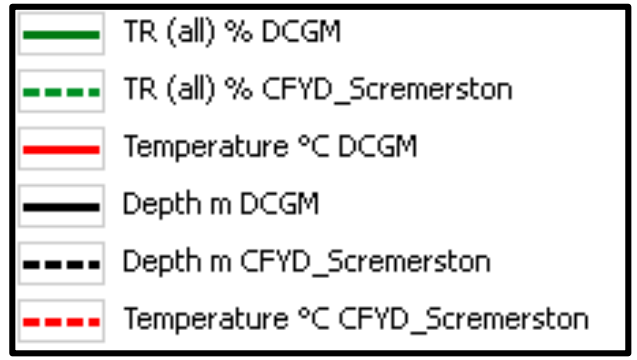
Basin modelling results

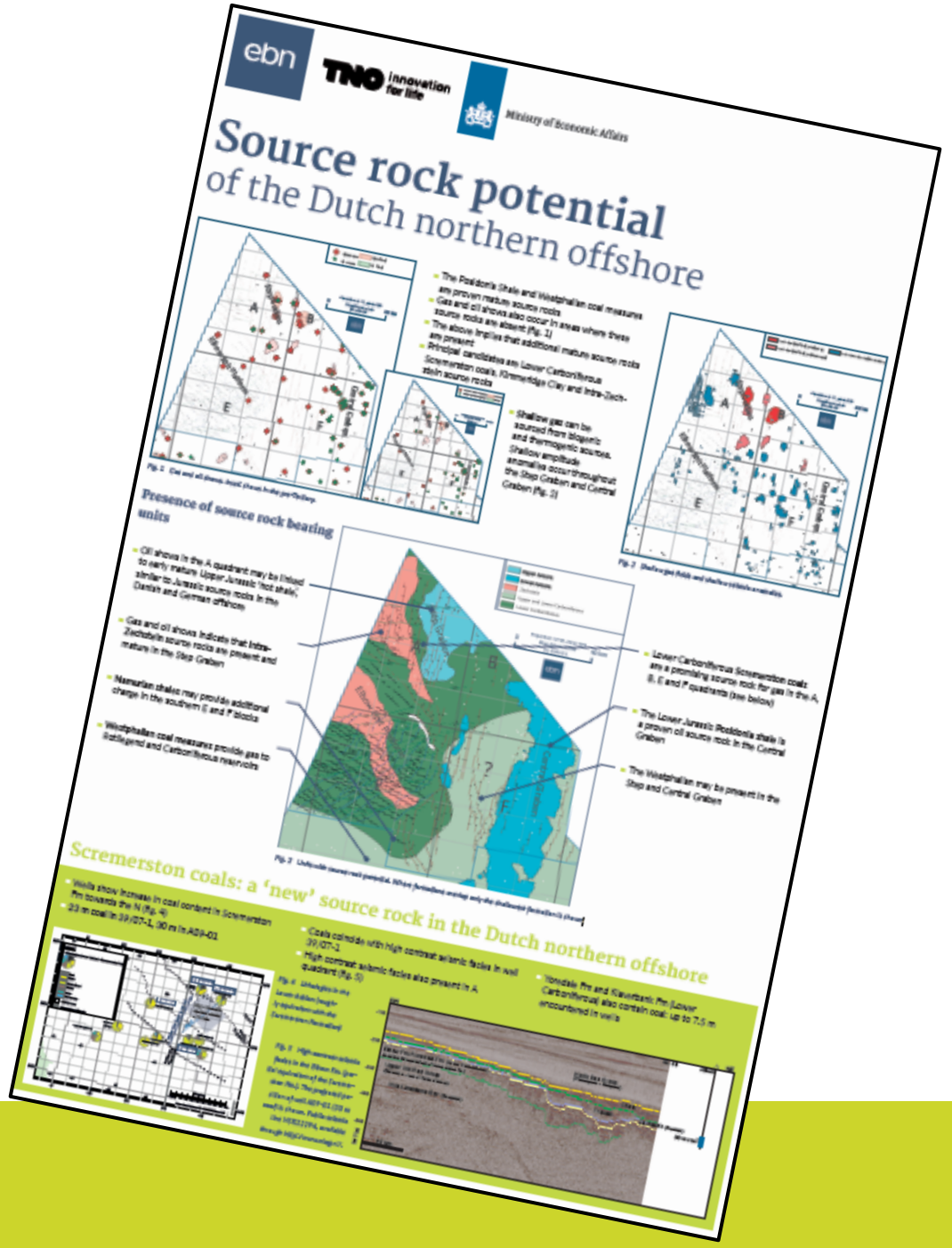












Questions? Poster 2!