

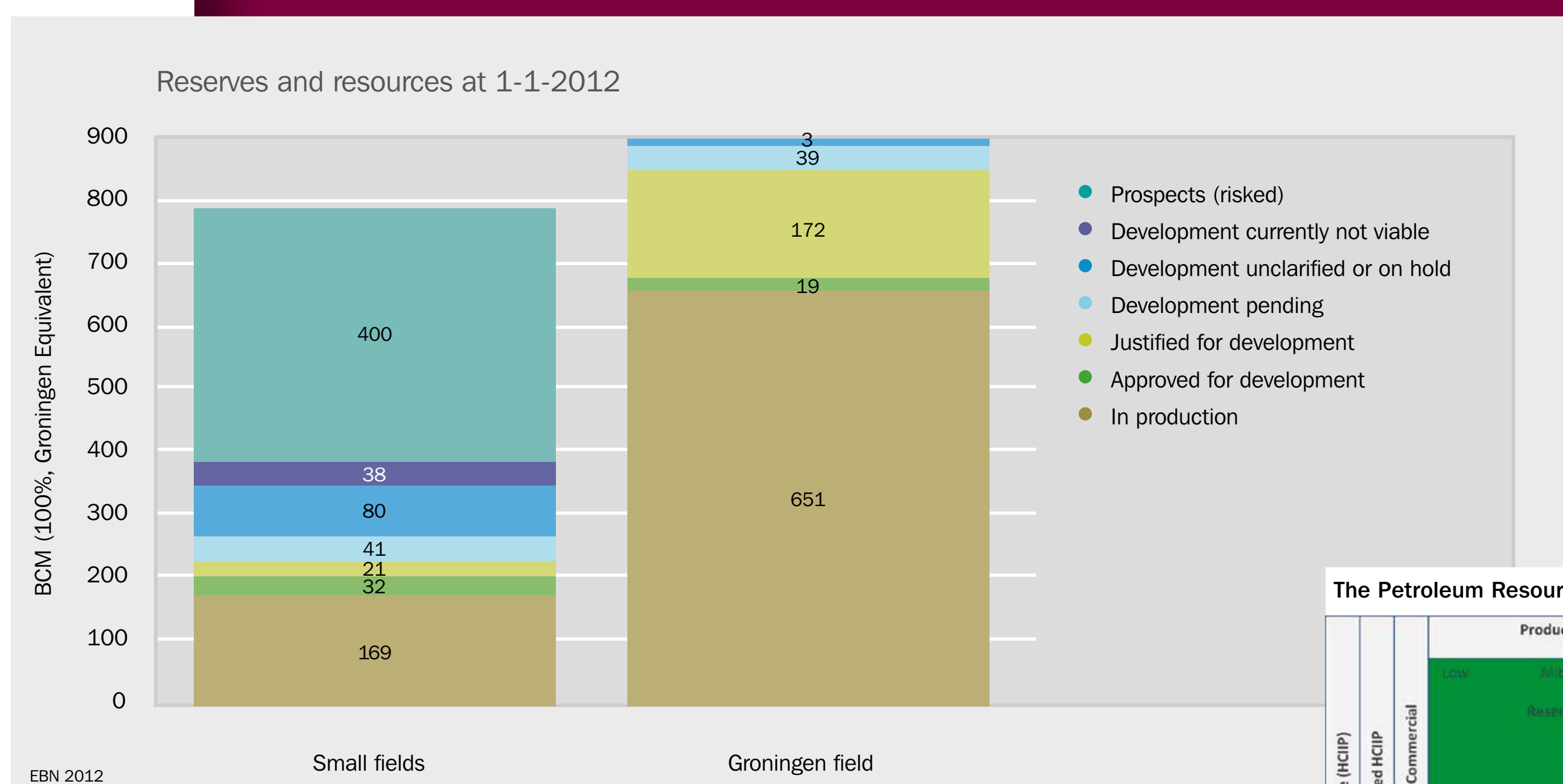
# Gas Reserves and Resources

## The reserves and resource base

EBN classifies its reserve and resource base according to the SPE PRMS system. As a result of continuous re-evaluation of historic finds and screening of opportunities within mature or tail-end fields, the volume of resources in the contingent category is increasing and now contains 159 BCM gas.

Most of the contingent resources are locked in discoveries that have not been developed for a variety of reasons. Of the 130 BCM of GIIP locked in stranded fields, 115 BCM is contained in tight fields.

There are several ways to estimate the volume in prospective resources. Considering the known prospect-portfolio, the risked volume would be in the order of 400 BCM, but this number is sensitive to the applied cutoff.



The Petroleum Resource Management System (from SPE)

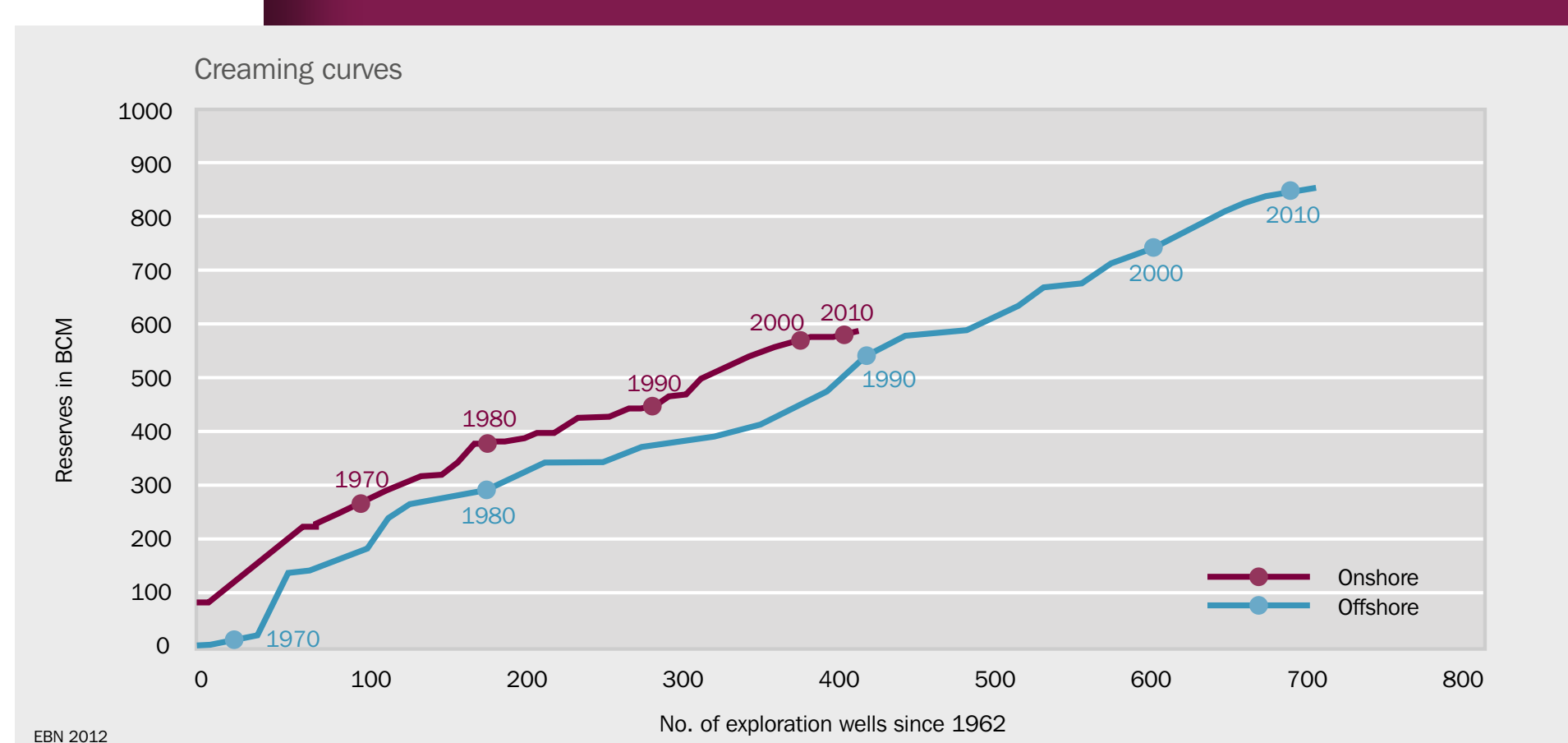
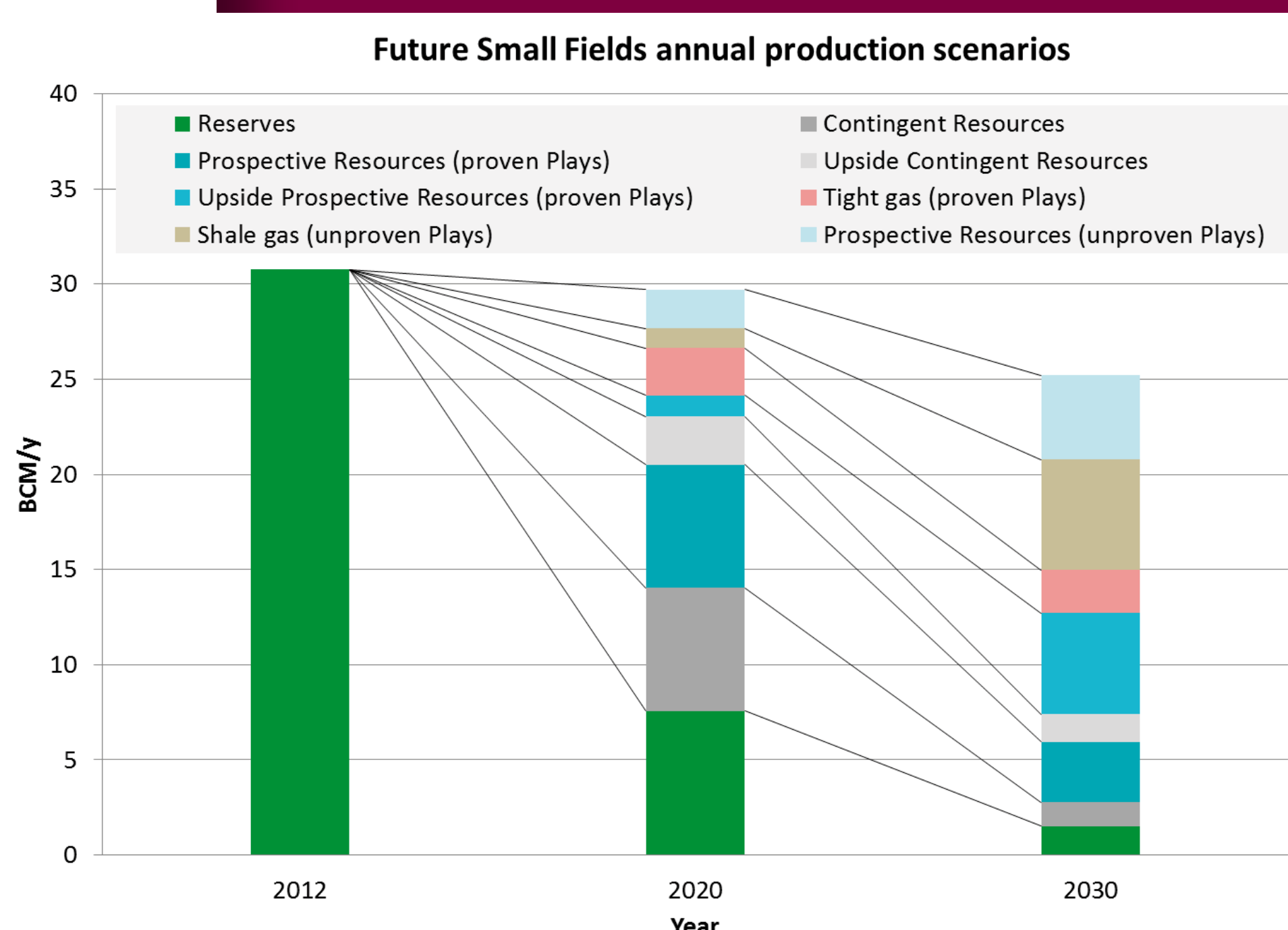
Production		
High	Development	Development
Medium	Development	Development
Low	Development	Development
Contingent Resources	Development Pending	Development Uncertain or on hold
Unrecoverable	Development not Viable	
Low	Medium	High
Prospective Resources	Stranded	Stranded
Unrecoverable	Play	Play

## Production forecast scenarios

In order to maintain current production levels from the Dutch gas fields (~30 BCM/y), continuous investment is needed. Production forecasts for the next 2 decades amount to 6 BCM/y in 2030 in the so called business as usual scenario. In this scenario, some of the contingent resources are matured and exploration success follows the historic trend.

When assuming dynamic prospect portfolio growth and increasing abilities to mature marginally economic contingent resources in the future, the production per year could increase to around 13 BCM/y.

Only when we include the tight gas opportunities and the (not yet proven) shale plays, the expected production levels in 2030 can rival those of today. Nonetheless, additional plays need to be identified and developed. Potential candidates are Lower Carboniferous clastics or limestones in the Dutch offshore.



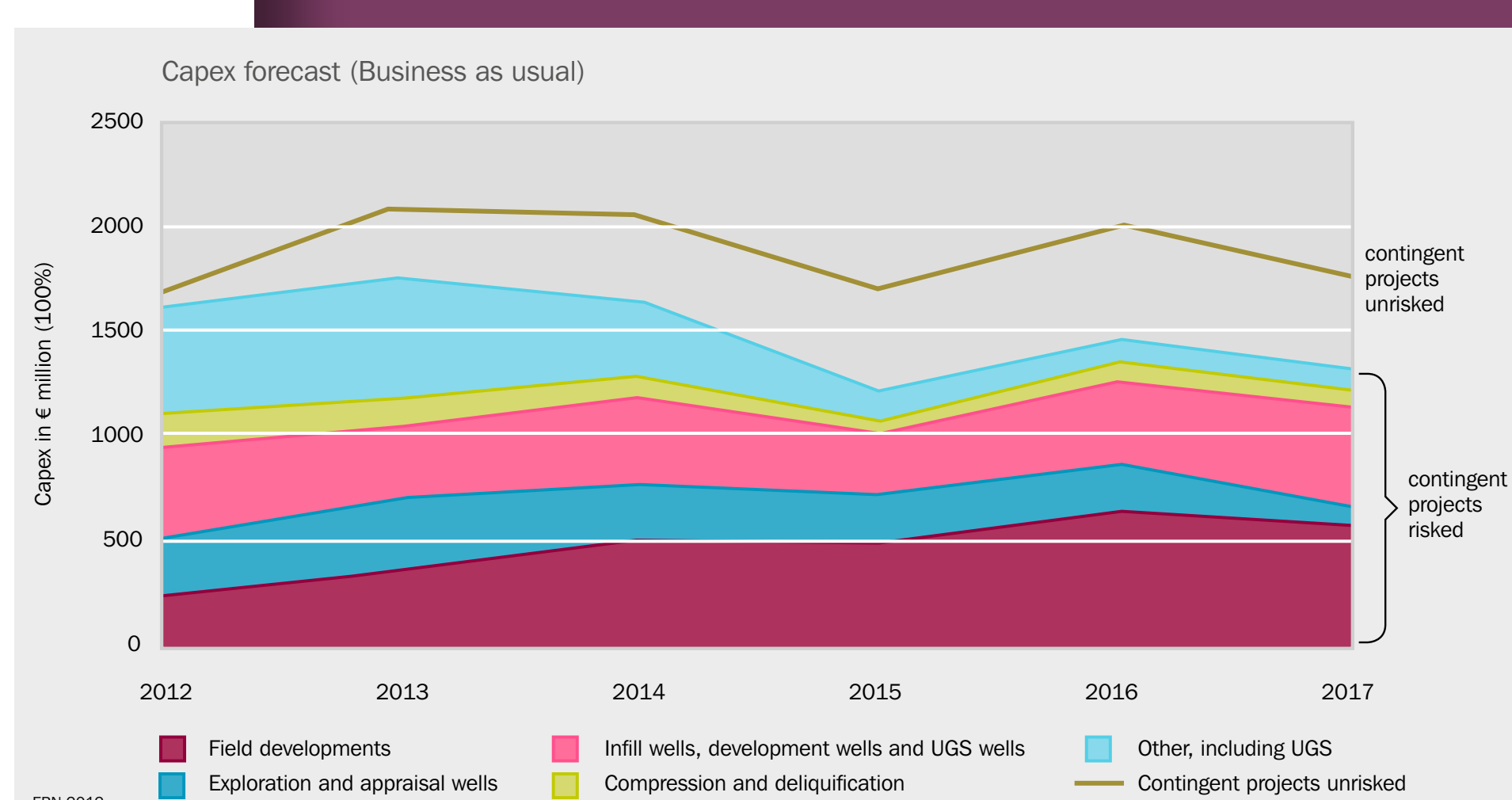
## Creaming

The Dutch creaming curves appears still relatively steady: there are no evident signs of creaming yet. A recent dip in onshore finds has been reverted but in contrast, some leveling off appears to occur for offshore wells. Historically, such leveling off events were always followed by upturns, sometimes associated with step-change technological advances such as the large scale acquisition of 3D seismic in the late 80's.

## Capital Expenditure

In terms of CAPEX, the activity level is expected to remain about 1.5 €billion per year (100%, Real Term). In this assumption, projects needed to develop contingent resources are risked with a probability of maturation (POM), where projects associated with PRMS cat 4, 5 and 6 are risked with 90%, 50% and 10% respectively.

If no risking is applied, investment levels will be around 2 €billion (100%, Real Term). It should be noted though that this forecast is based on the currently known project portfolio. To secure continuous high gas production levels in the future, even higher levels of investments are required to replace produced reserves.



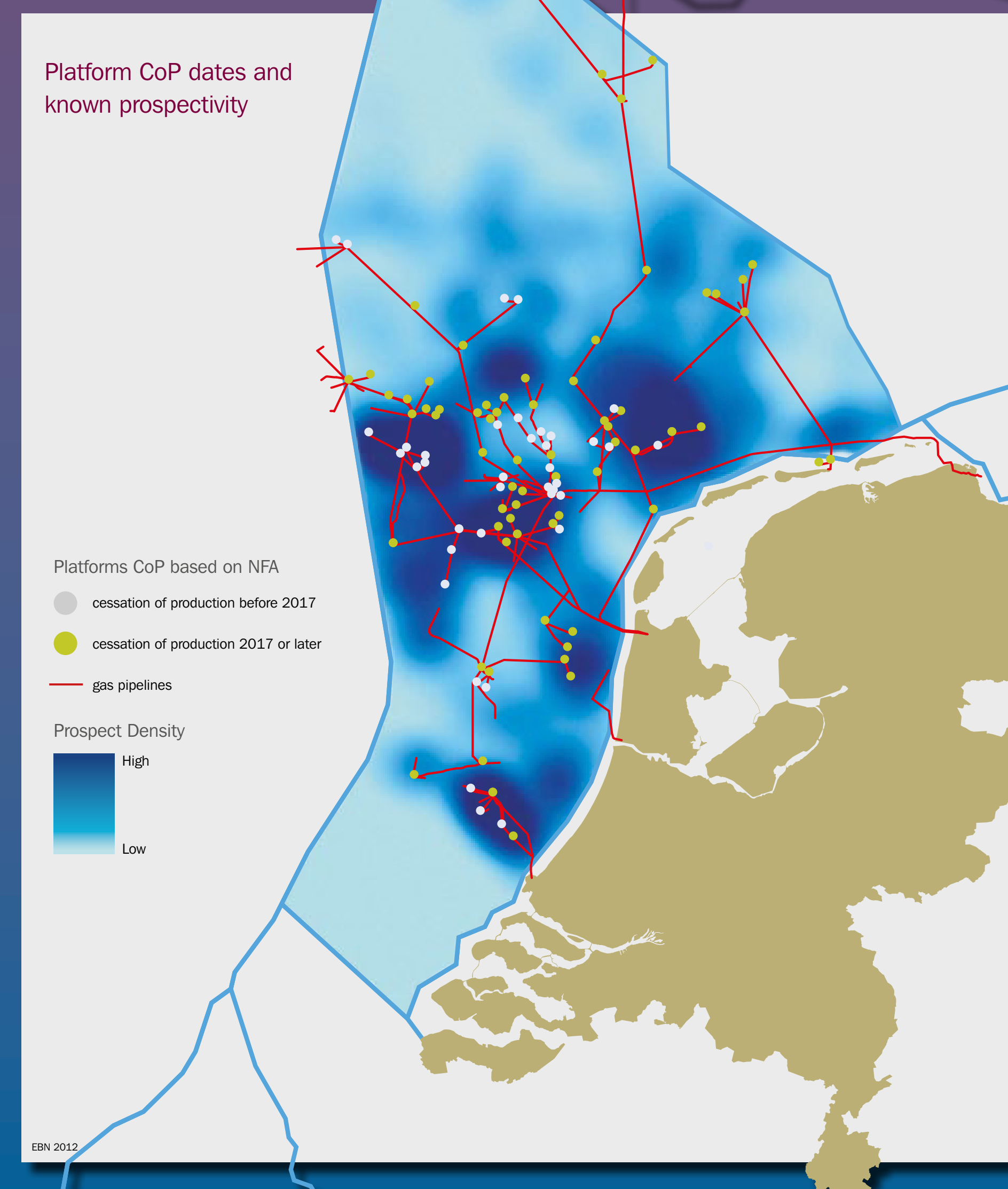
## Exploration and Infrastructure

The long and successful history of oil and gas exploration in the Netherlands has resulted in a very dense network of gas infrastructure. However, many offshore fields are in their tail-end production phase and rapidly approaching their expected Cessation of Production (CoP) date.

Extending field-life by applying deliquification methods and infill drilling has limited potential, the most effective means of extending platform life is continuous near field exploration. The map to the right shows the relative density of known prospects versus the expected CoP date of the offshore platforms, identifying areas where near field exploration may extend platform life.

### Note

The information date for these figures is jan-2012. Figures used are from the annual EBN publication Focus on Dutch Gas review. Note that EBN participates on most, but not all, E&P activities. Additional data on reserves and resources in all of the Netherlands are annually published by TNO. These reports and more can be downloaded from [www.ebn.nl](http://www.ebn.nl) and [www.nlog.nl](http://www.nlog.nl) (Netherlands oil & gas portal)



For all information and data on Exploration and Production in the Netherlands, see the Netherlands Oil and Gas Portal

[www.nlog.nl](http://www.nlog.nl) & [www.ebn.nl](http://www.ebn.nl)

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## References

