



PETRONAS

Malaysia's Efforts to Increase Recovery Factor

OTC Asia 2014 – Panel Session 5

27th March 2014

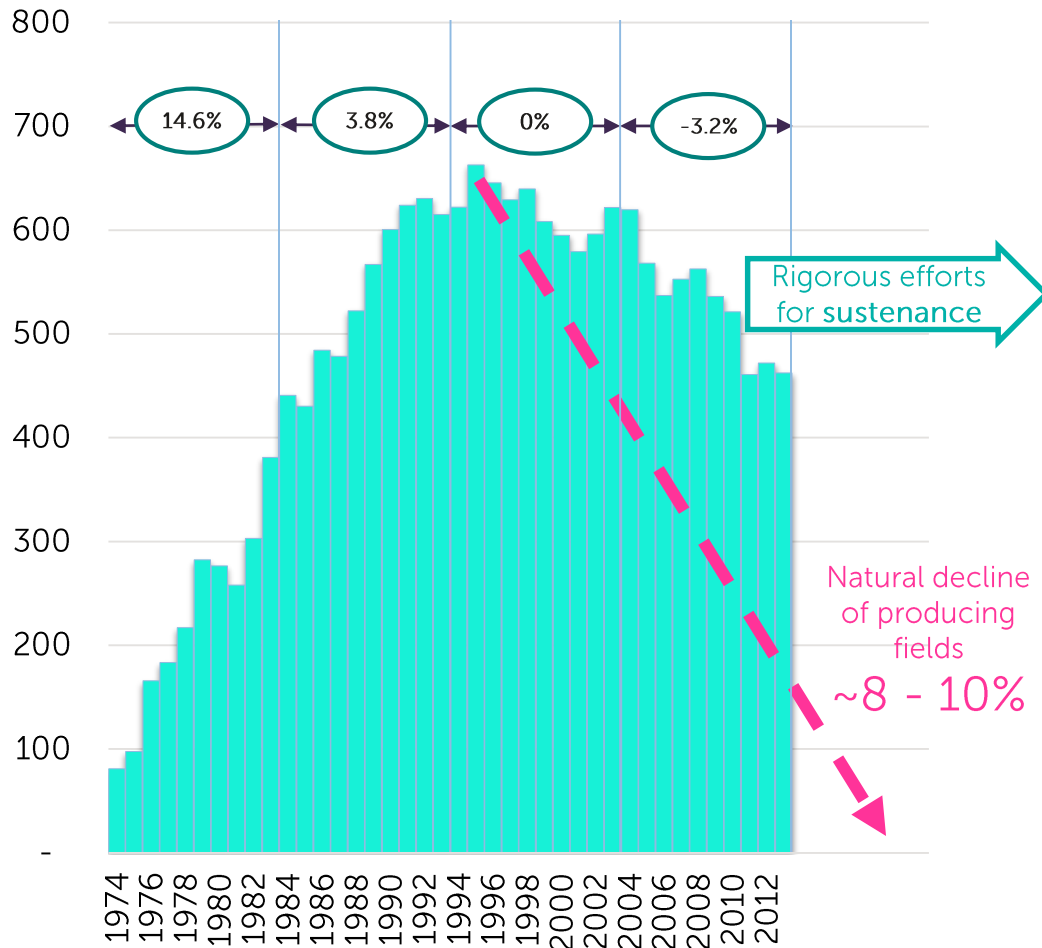
© 2014 PETROLIAM NASIONAL BERHAD (PETRONAS)

All rights reserved. No part of this document may be reproduced, stored in a retrieval system or transmitted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without the permission of the copyright owner.

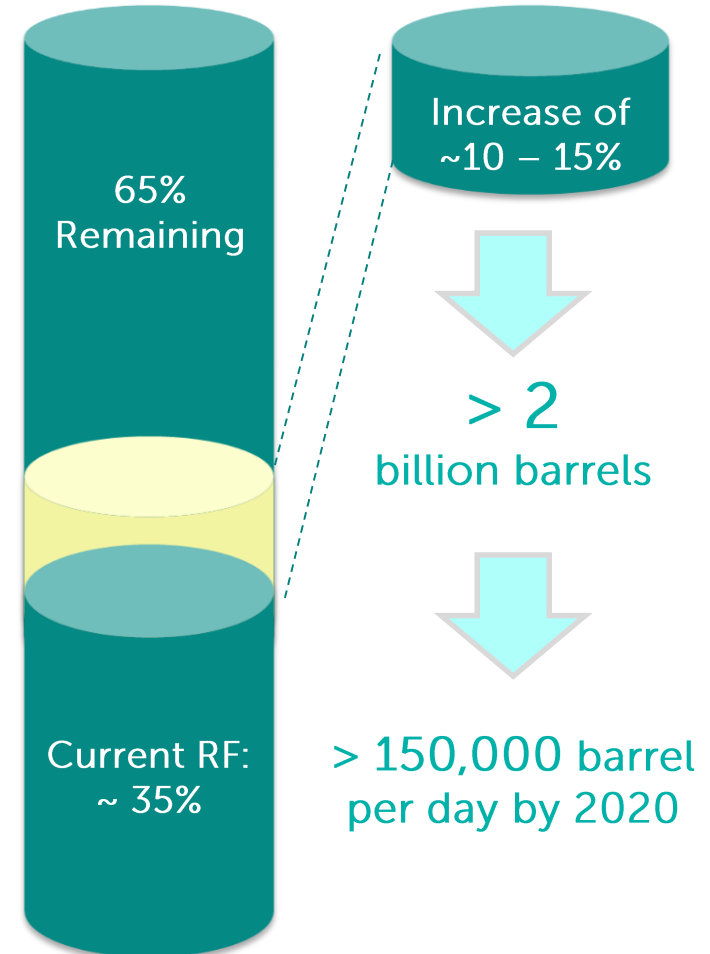
Increasing RF is the key to sustain Malaysia's oil production



Malaysia oil production ('000 b/d)



Producing Oil Fields



PETRONAS takes proactive actions to drive EOR activities in Malaysia



Technical Challenges

- Offshore environment
- Technology maturity
- EOR is not designed from the beginning

Commercial Challenges

- Requirement of new facilities or extensive facilities refurbishment
- High UTC
- EOR project goes beyond the existing PSC contract duration

3-Pronged Strategies under ETP

1

Innovative Solutions

Ensure that the most innovative methods and technologies are being disseminated and deployed to reduce capital and operating costs

2

Attract Capable Players

Ensure that companies with specialised EOR expertise are aware of the opportunities and are attracted to operate in Malaysia

3

Fiscal Enhancement

Enhance fiscal terms and design incentives to incentivize investors to undertake EOR projects

Some achievements made; but efforts continue to increase recovery factor



PETRONAS

Achievements to Date

> 900
mmbbl

Reserve addition from IOR projects in the past decade

>10

EOR projects sanctioned

USD14
billion

in estimated total investment for EOR

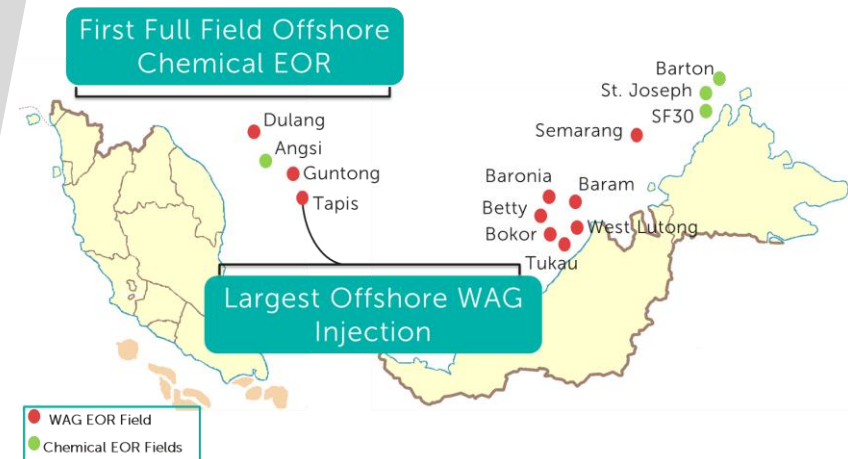
~800
mmbbl

total volume sanctioned from EOR projects

Successes of EOR projects in the pipeline will position Malaysia to be amongst the leaders in the industry

First Full Field Offshore Chemical EOR

Largest Offshore WAG Injection





PETRONAS

Thank You