Offshore Block B on Methane Reduction activities : Belida Flaring Reduction

Presented To :
International Gas STAR Workshop
By Rismal Adriansyah & Krishna Ismaputra

Table of Content

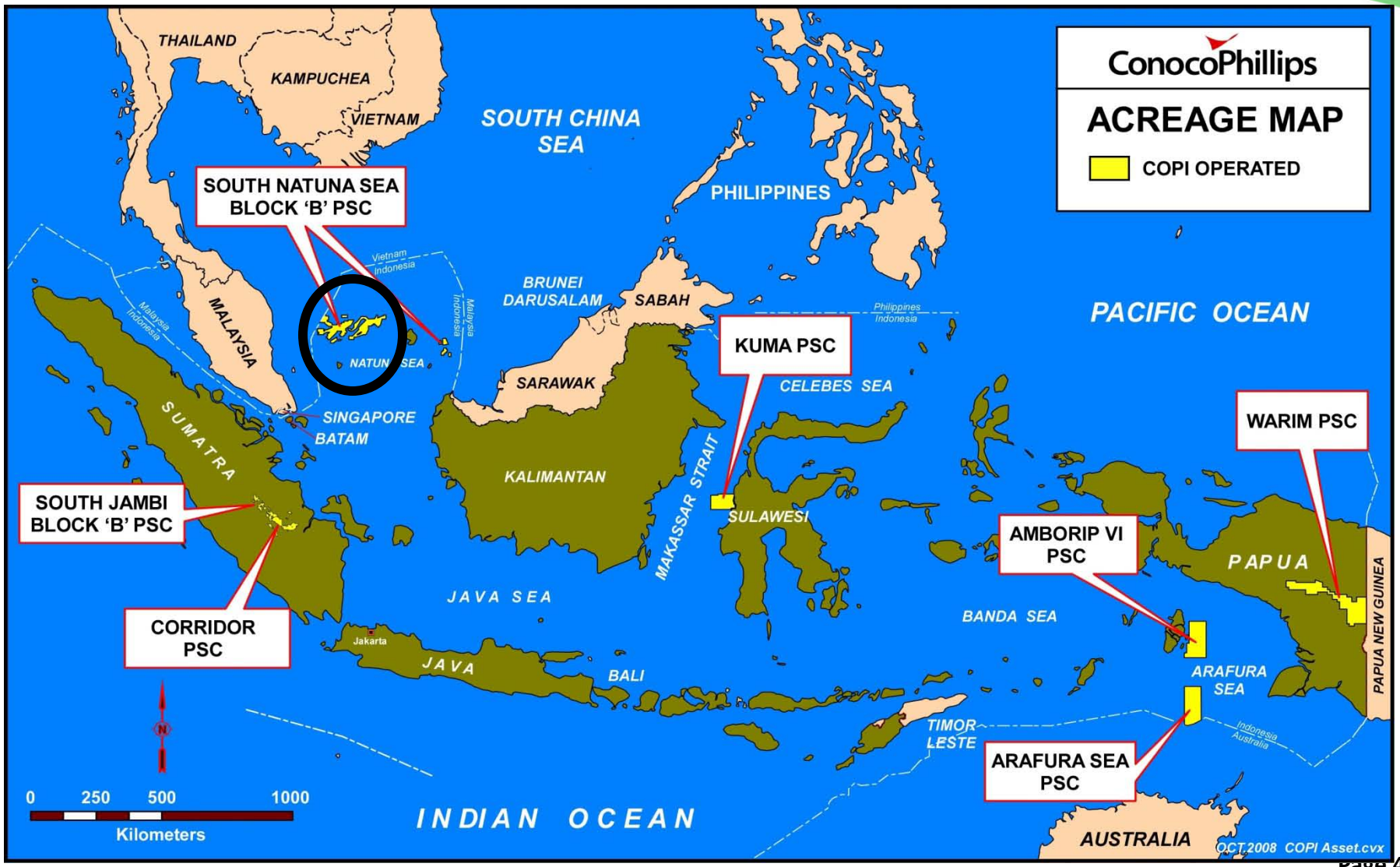
- Belida Facility Overview
- Background and Flare Reduction Drivers
- Flaring Reduction Implementation Efforts
- Results
- Challenges
- Operation Benefit - conclusion

Table of Content

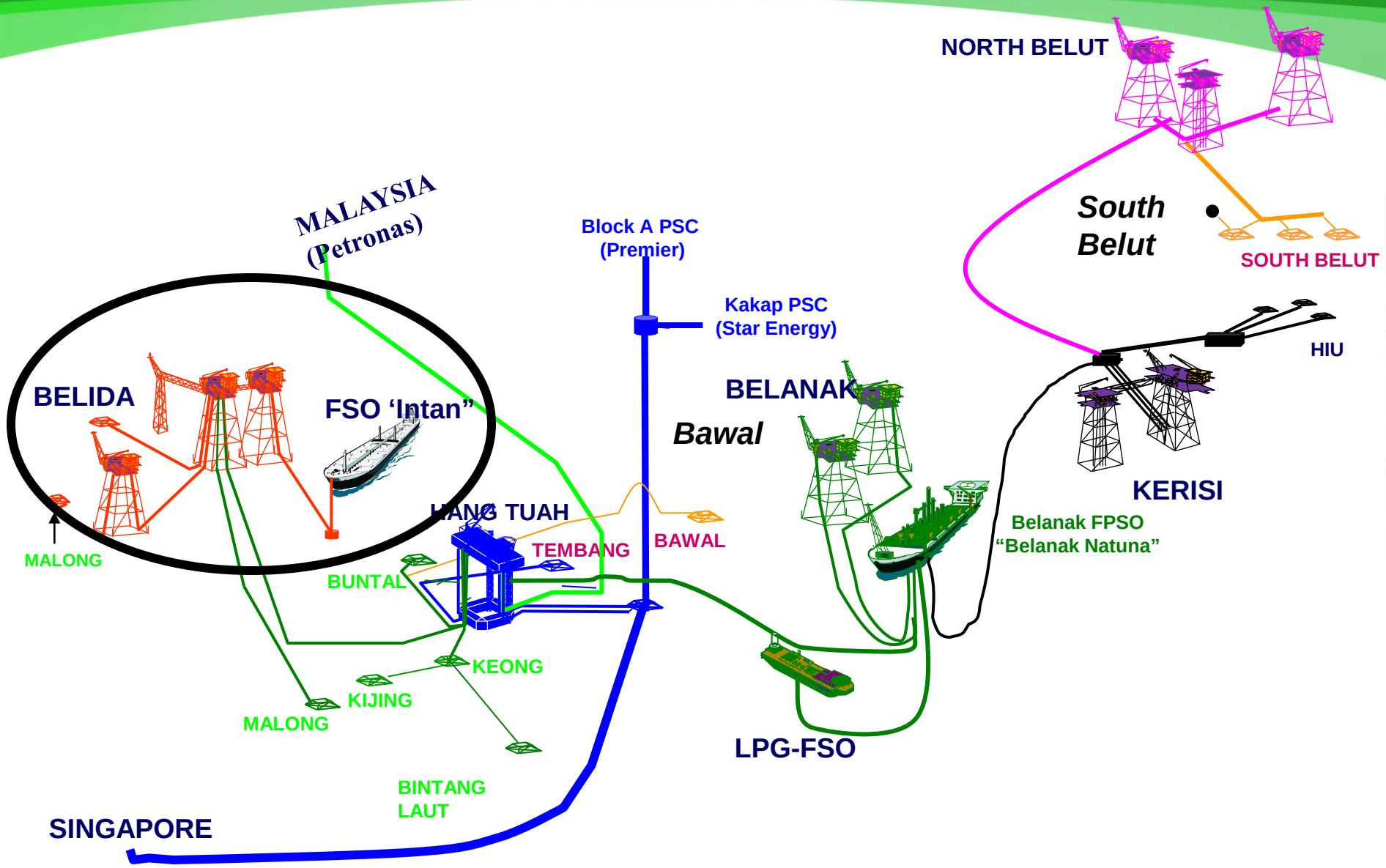
- Belida Facility Overview
- Background and Flare Reduction Drivers
- Flaring Reduction Implementation Efforts
- Results
- Challenges
- Operation Benefit - conclusion

Belida Facility Overview

Belida Field Locations

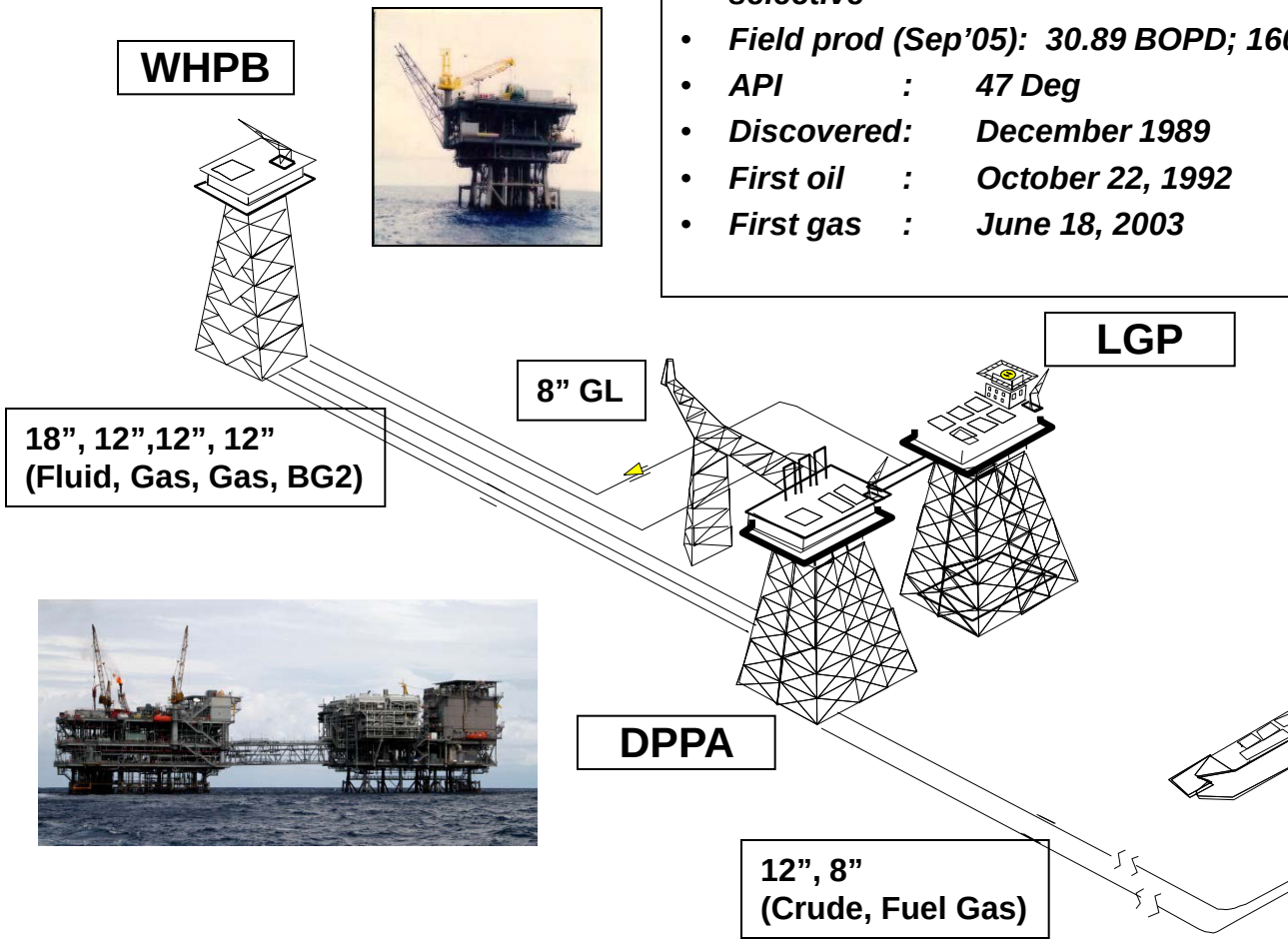


Offshore Block B Development



Belida Field

- *Formation : Delta (gas), Lower Arang (oil), Udang (oil)*
- *Compl type : Single string, Single/Two zone, Single selective*
- *Field prod (Sep'05): 30.89 BOPD; 160 MBWPD, 108 MMSCFPD*
- *API : 47 Deg*
- *Discovered: December 1989*
- *First oil : October 22, 1992*
- *First gas : June 18, 2003*



Belida Facility Overview

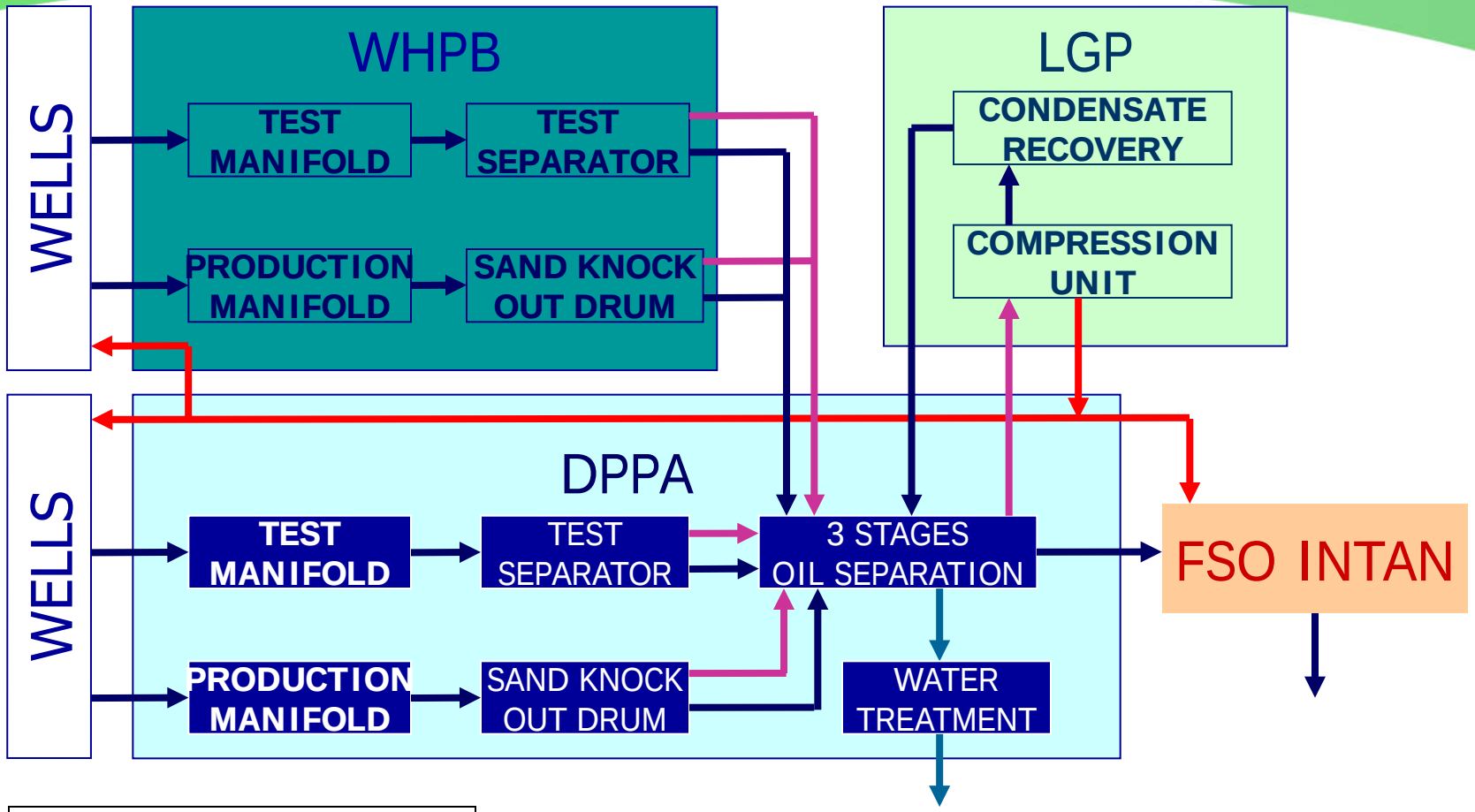


Table of Content

- Belida Facility Overview
- Background and Flare Reduction Drivers
- Flaring Reduction Implementation Efforts
- Results
- Challenges
- Operation Benefit - conclusion

Background and Flare Reduction Drivers

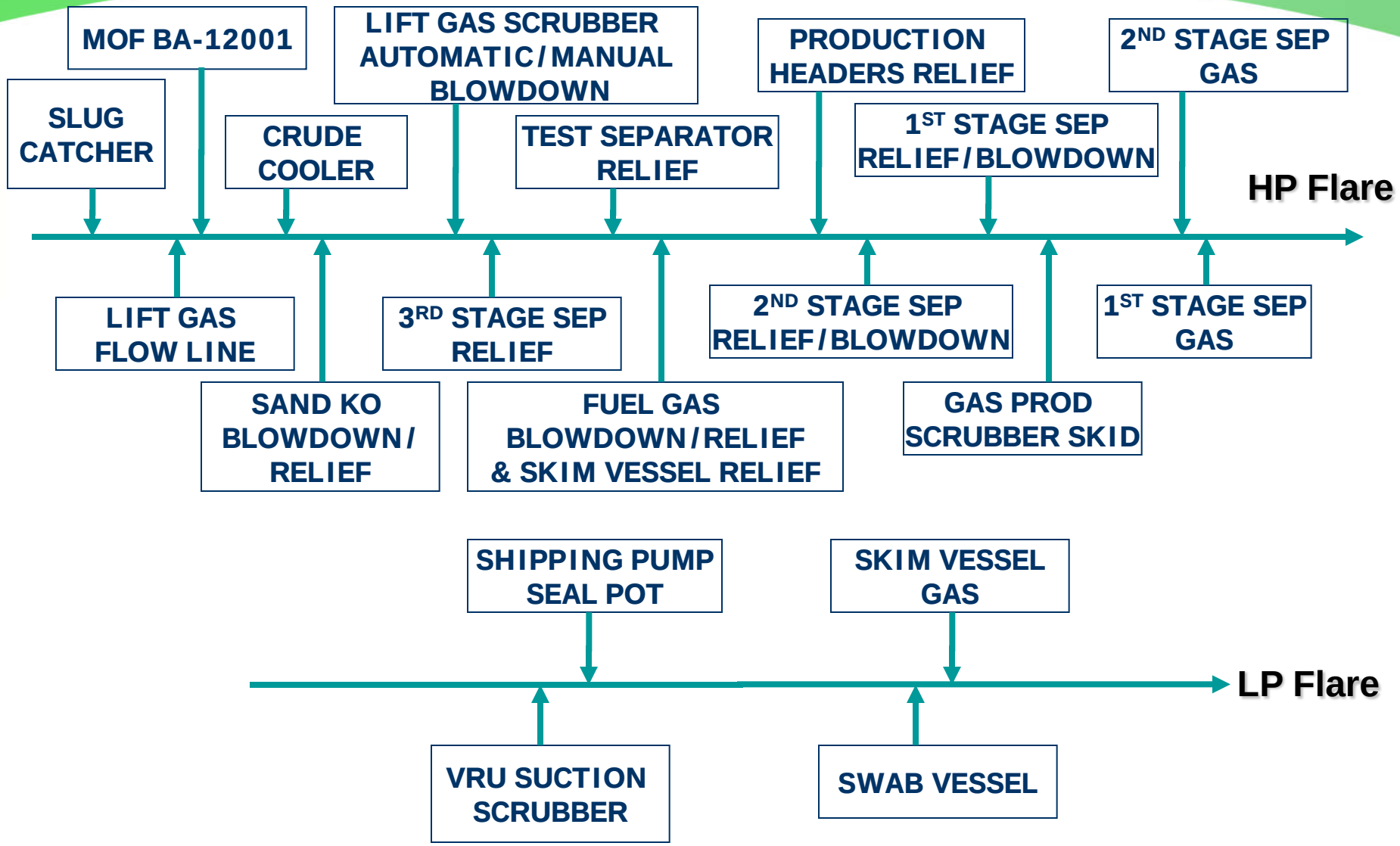
Drivers

- Belida facilities performance improvement including operation optimization
- Potential economic values from recovery of flared gas to be used as fuel or sales gas
- Increase focus on environment in terms of CO2 emission from flare emission
- Alignment with COP Position on Climate Change as part of COP Sustainable Development Policy

Table of Content

- Belida Facility Overview
- Background and Flare Reduction Drivers
- Flaring Reduction Implementation Efforts
- Results
- Challenges
- Operation Benefit - conclusion

Overall Belida Flare System Sources

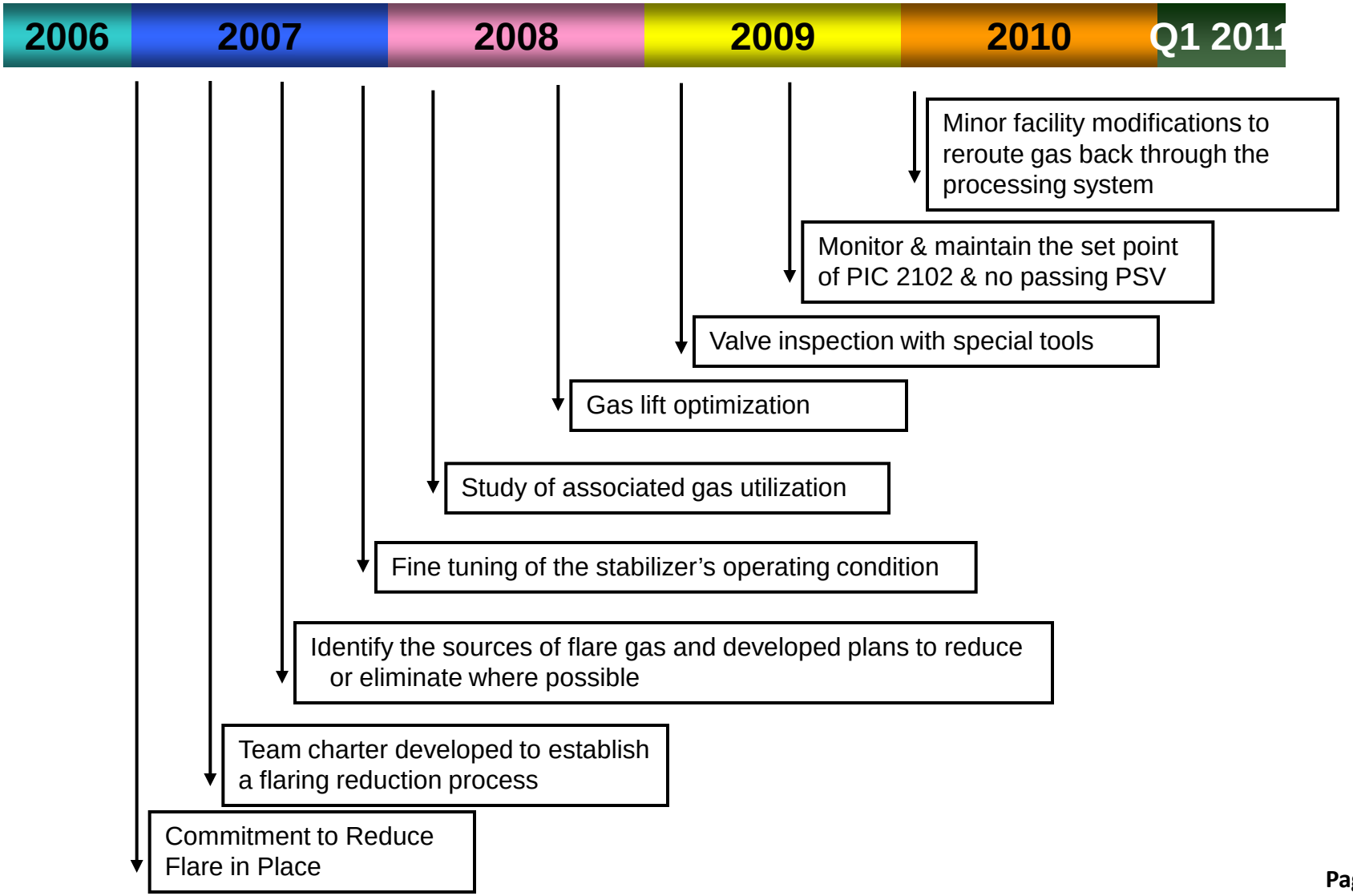


Flaring Reduction Implementation Efforts

Identified sources of Belida HP and LP flaring:

- Associated gas.
- Make up gas to gas lift requirement from the gas export.
- Controller Tuning.
- Lift Gas Compressor capacity.

Progression Effort – A Summary



Flaring Reduction Implementation : Efforts Continues…

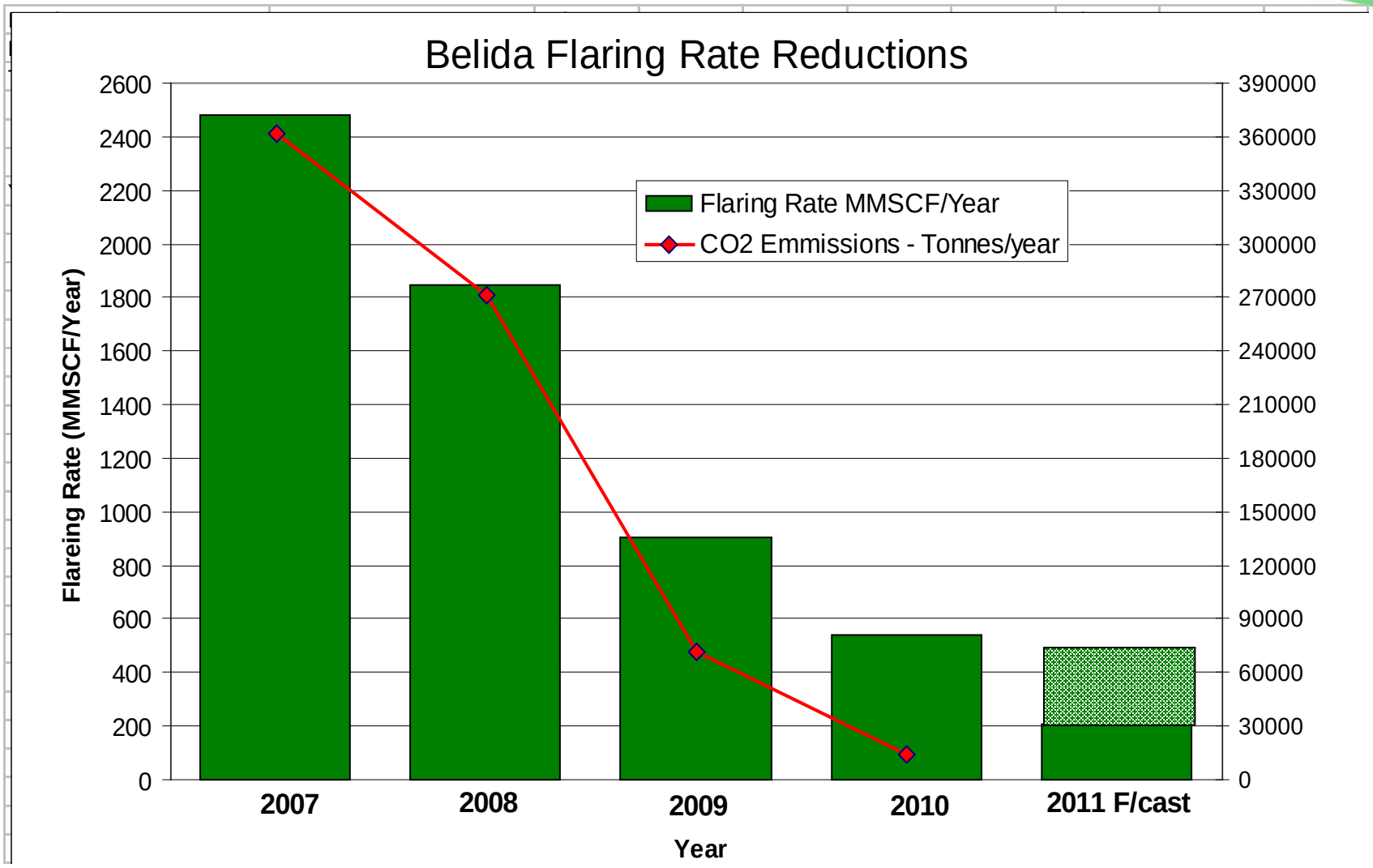
Program	Purpose	Result
● Process optimization (PIC setting)	● To maintain and making sure all PCVs are mostly in closed position thus limited gas was flared to these PCVs.	● Reduced flare around 1 mmscfd
● Replace LGC engine become Avon-200	● Higher HP, increase the gas lift injection rate to increase production, Increase capability taking gas from 1st stage separator	● Reduced flare from 1st separator
● Managing planned S/D and reduced unplanned shut down by improving reliability	● To start up well normally GEC gas used for lifting oil. The gas produced then directly to be flared.	● Will avoid flaring from re-start-up activities
● Used GEC as LGC during LGC Power Turbine (PT) replacement	● When LGC out of services, normally GEC gas used for lifting oil. The gas produced then directly to be flared.	● Reduced planned flare and LPO
● Re-route skim vessel off gas to VRU suction scrubber	● LP Flare opacity reduction	● Resulted in better Opacity

Table of Content

- Belida Facility Overview
- Background and Flare Reduction Drivers
- Flaring Reduction Implementation Efforts
- Results
- Challenges
- Operation Benefit - conclusion

Results Summary

The remarkable success from those efforts shown in the below chart :



Results Summary

Year	Flare Rate (mmscf/yr)	Reduction (mmscf)
2007	2,483	380
2008	1,847	636
2009	904	943
2010	541	363
Total		2,322

*) 2006 flare level of 2,863 mmscf – baseline.

Effort from 2007 – 2010 has successfully saved gas flaring about 2.3 BCF (equivalent to 2,392 BBTU) giving benefit of additional revenue in term of gas to sale and environmental benefits.

Table of Content

- Belida Facility Overview
- Background and Flare Reduction Drivers
- Flaring Reduction Implementation Efforts
- Results
- Challenges
- Operation Benefit - conclusion

Challenges

- Maintain flare when associated gas decreasing over time and increasing gas lift make up.
- Maintain unplanned shutdown and dealing with process anomaly
- Looking for ways to further reduce flaring

Table of Content

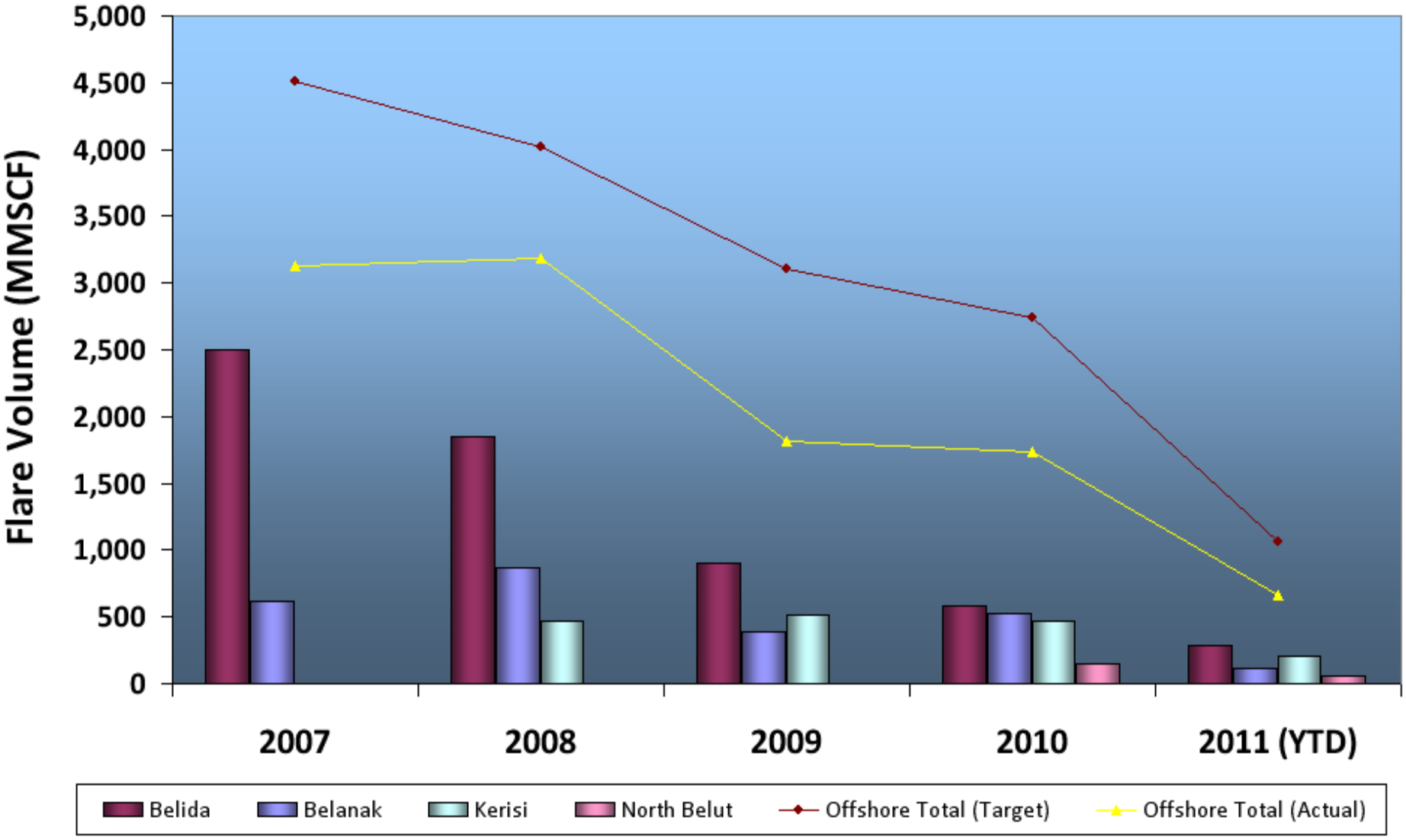
- Belida Facility Overview
- Background and Flare Reduction Drivers
- Flaring Reduction Implementation Efforts
- Results
- Challenges
- Operation Benefit - conclusion

Conclusion

Continuous Flaring Reduction Program carried out in Belida Facility from 2007-2010 has significantly reduced Flaring rates and given significant business and environmental benefits:

- Reduce CO_2 emissions from 361,000 tones CO_2 on 2007 to 14,000 tones CO_2 on 2010
- 2.3 BCF additional gas sales
- Safe and steady operating conditions will lead to lower flaring volumes
- Continue to optimize and tune all our system to reduce the volumes of gas being flared
- Flaring level can be monitored continuously to provide feedback for review and follow up actions to any anomaly in order for these reductions to be sustainable

Offshore Flaring Reduction 2007 – 2011 YTD



Thank You

Biographies

Name : **Rismal Adriansyah**
Title : **Manager Block B Western Hub Field / Offshore Operation**
BU : **ConocoPhillips Indonesia**
Education : **1991 BEng Mechanical Engineering – University of Indonesia**
Certificate : **Profession Engineer (PE) from PII – Indonesia**
Vice Technical Head from MIGAS - Indonesia
Service Yr : **19 year**

Key Experience:

- 19 years professional experience
- Mechanical design & construction, Project Management, Business Development, Operations, Asset Management

Work History :

- Offshore Operation : Manager Block B Western Hub Field
- Asset Management : Coordinator Onshore Asset
- Onshore Operation : Manager Sumatra Field Manager
- Onshore Operation : Superintendent Operation
- Onshore Operation : Superintendent Project

Work History (cont..) :

- EPCI – Tripatra : Various position from Business Development, Project Management, Project Engineer, Senior Mechanical Engineer.

Interests

- Field development, process safety, A&OI, P & S, System and Structure, management
- Travelling, book reading and culinary

Others

- Married with three children's
- Living at Bogor,40 km from Jakarta. Nice weather