

Offshore Newfoundland and Labrador Gas Flaring Reduction

**Canada-Newfoundland and Labrador
Offshore Petroleum Board**

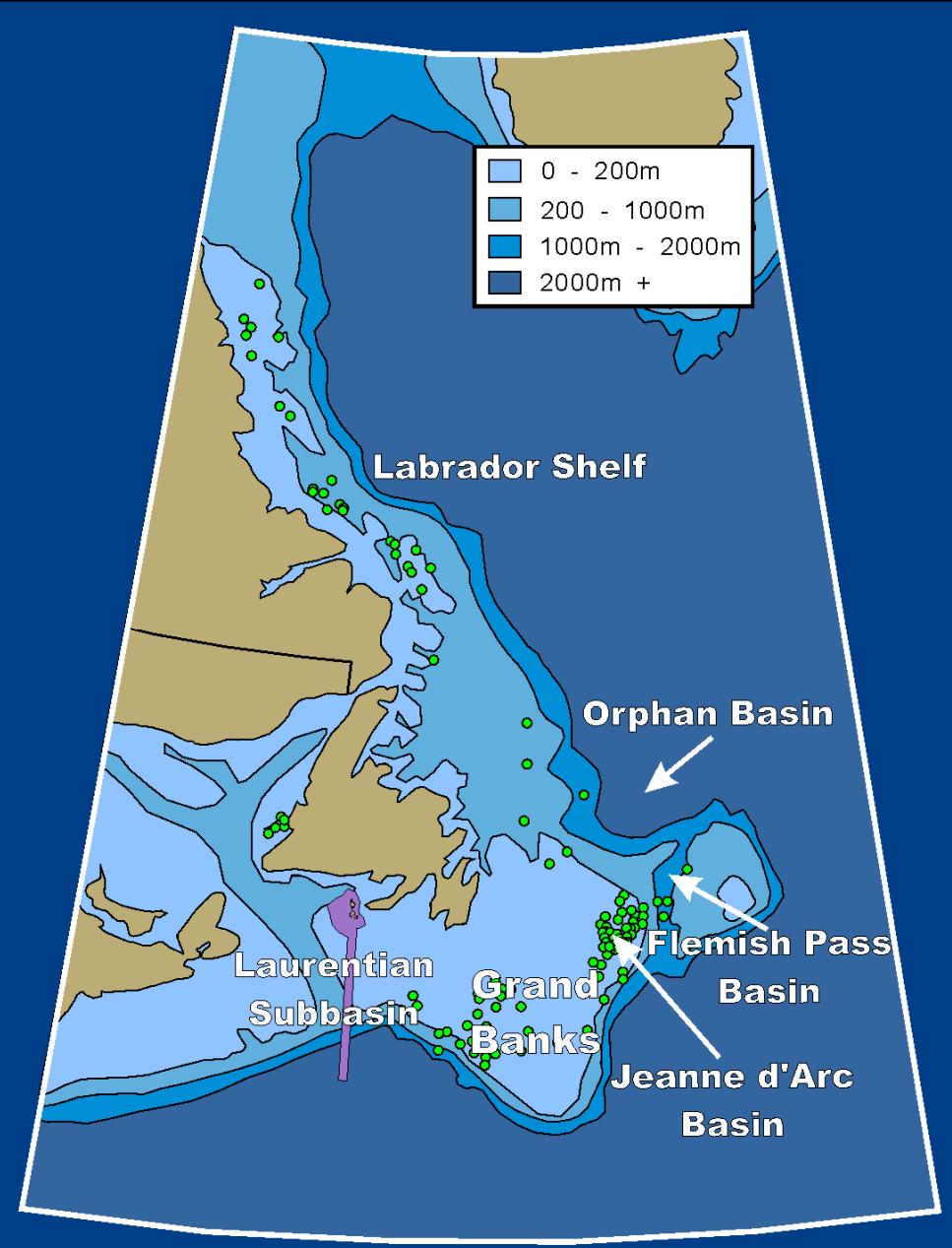
September 2007

Offshore Newfoundland and Labrador Gas Flaring Reduction

- Region and Production Overview
- Legislation
- Gas Conservation
- Gas Flaring Reduction Achievements
- Improvement Opportunities

Newfoundland and Labrador Offshore Area

- Relatively New Oil Producing region
- Potentially prospective area
>200,000 sq. miles
- Wells Drilled (July 2007): 288
 - Exploration 138
 - Delineation 44
 - Development 106
- 49 Significant Discoveries
- 6 Commercial Discoveries



Offshore Newfoundland and Labrador Production Review

- Currently concentrated on Oil production

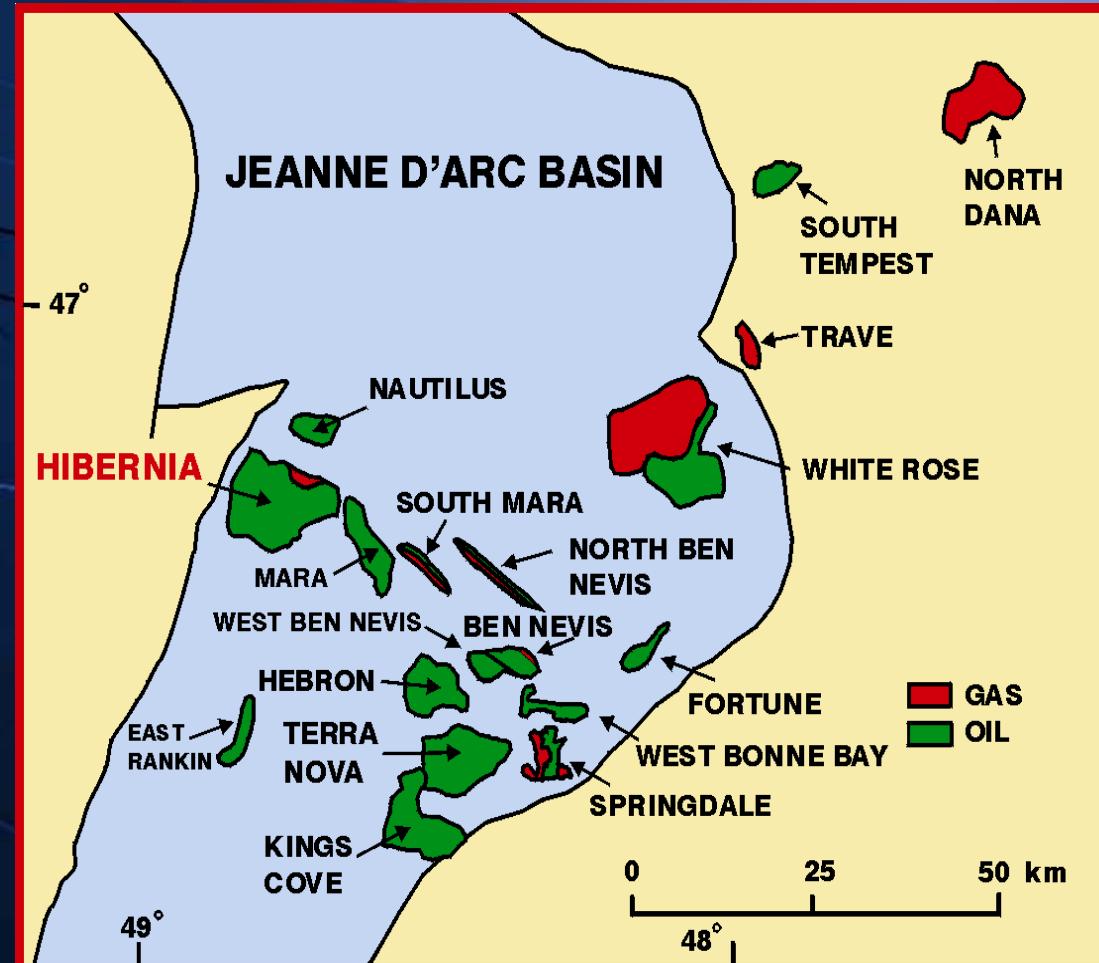
For Year 2006

- Oil
 $= 17,622 \ 10^3 \ m^3$

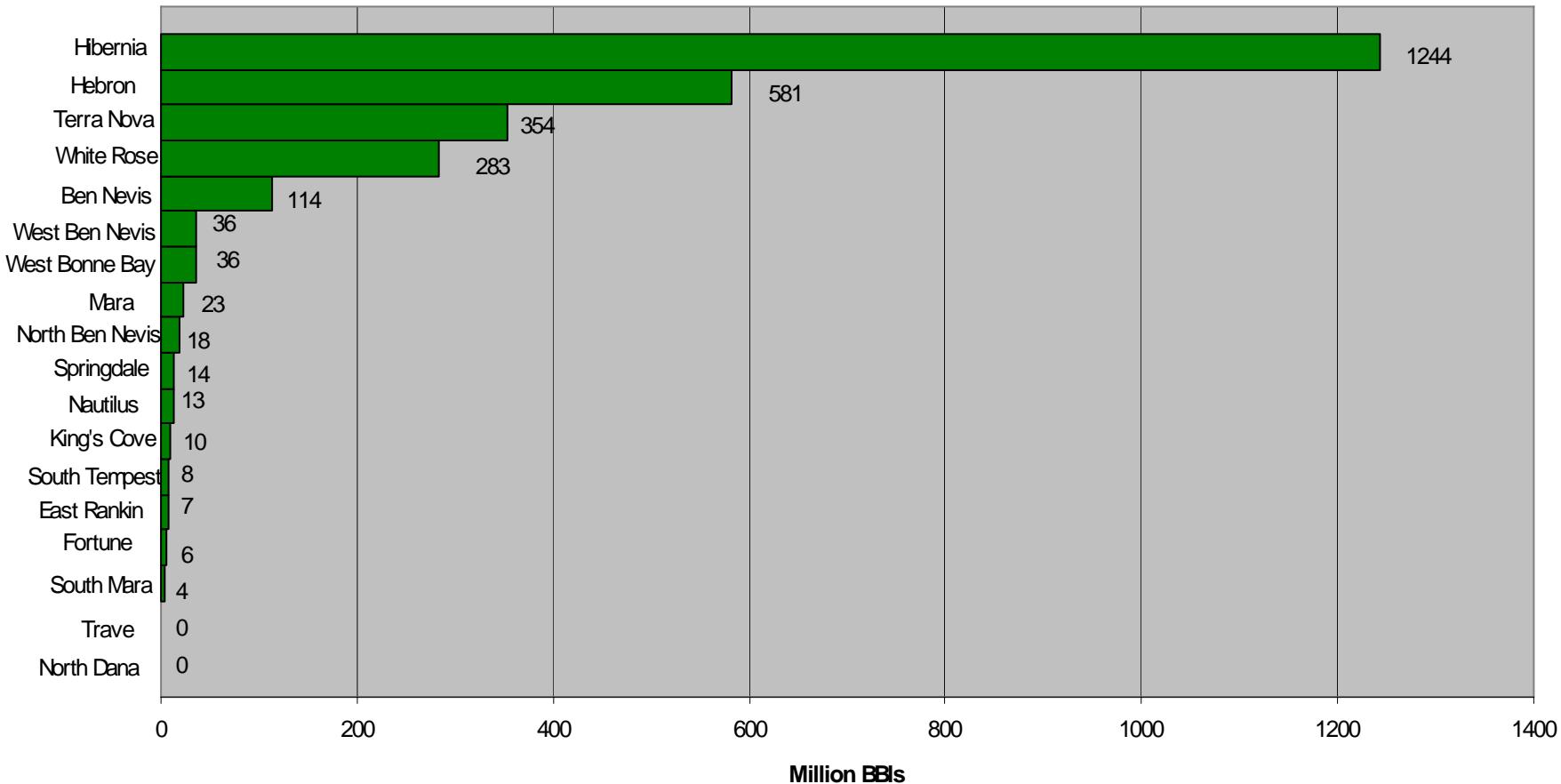
- Gas
 $= 3,568 \ 10^6 \ m^3$

- Over 800 million barrels of oil produced in 10 years

- Hebron Field

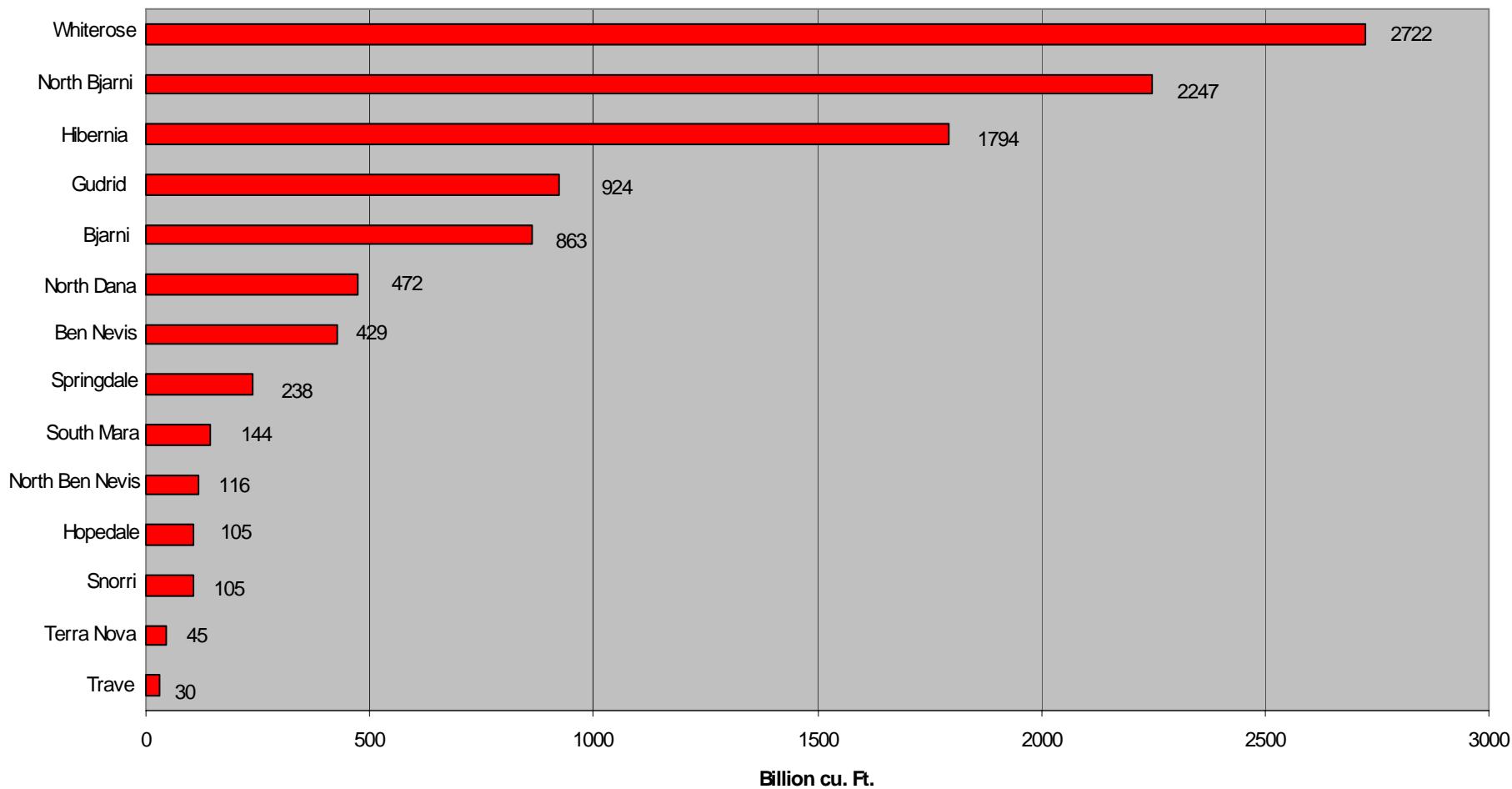


Newfoundland and Labrador Offshore Area Oil Reserves and Resources 2006



Source: CNLOPB Annual Report 2005

Newfoundland and Labrador Offshore Area Gas Resources 2006



Gas Conservation Legislation

- Accord Act Section 154 addresses “Waste” and Paragraph (f) deals with gas flaring specifically: *the escape or flaring of gas that could be economically recovered and processed or economically injected into an underground reservoir*
- Production and Conservation Regulations: *The Chiefs may approve the flaring or venting of gas during a production operation at a rate and volume and for the period set out in the approval where the flaring or venting does not constitute waste or an undue safety hazard.*
- Development Plan Approvals

GAS DISPOSITION: OIL FIELDS

- Gas Utilization in the Field
- Gas Utilization in other Fields
- Market Gas
- Gas Storage



Source: Petro-Canada

Gas Flaring Offshore Newfoundland and Labrador

- During production an operator is issued an approval
- During Start-up larger gas flaring volumes are permitted as oil production is stabilized

During Production

Once gas compression is initiated, gas flaring is monitored

Gas Flare Volumes are reduced based on expected operating efficiency of gas compression system and facilities

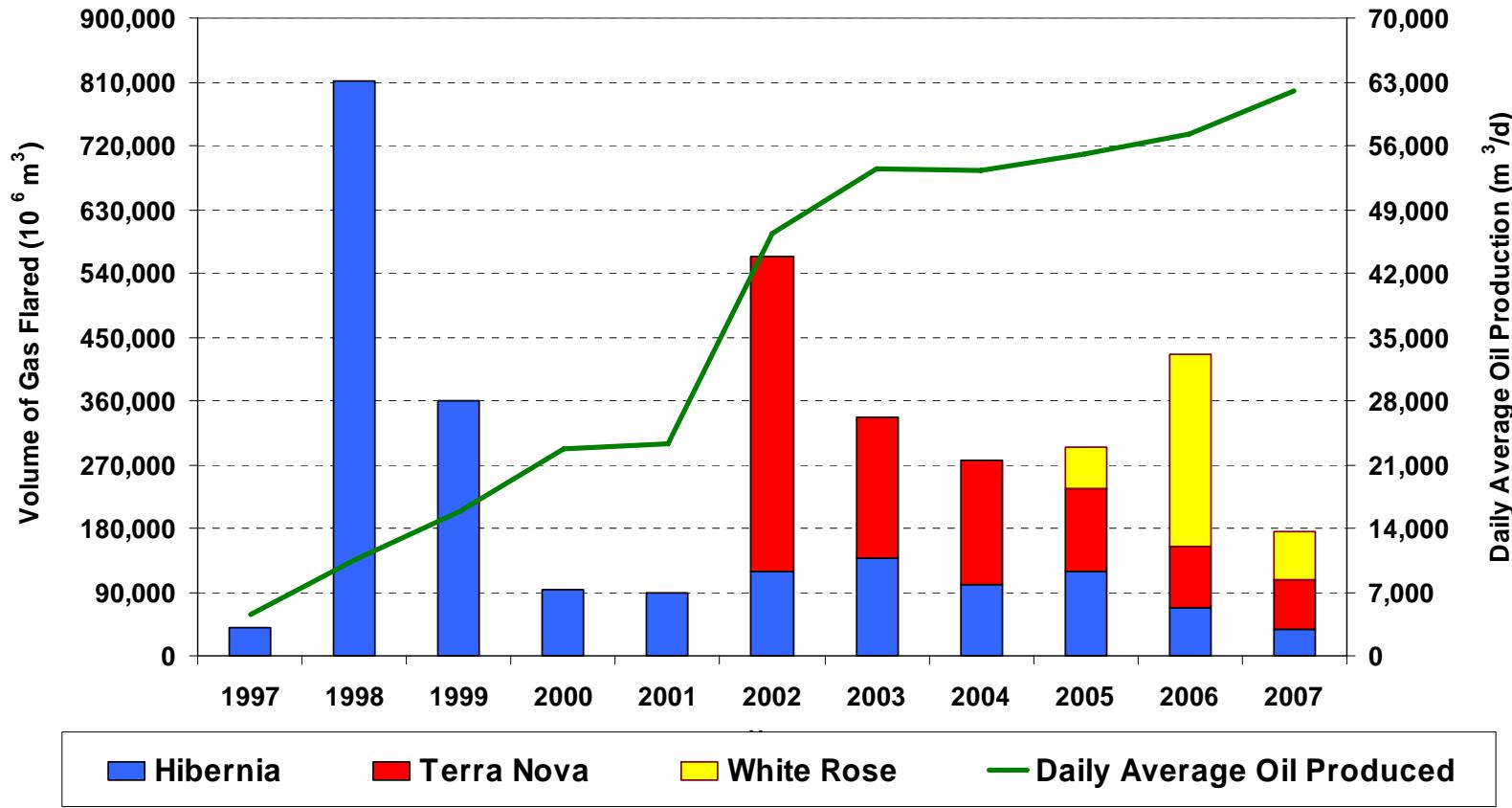
Gas Flaring Offshore Newfoundland and Labrador

- Gas Flaring Approval is issued for six month period (1 year later)
- Prior to issuing an approval
Examination of performance and meet with operators to discuss opportunities to reduce gas flaring
- If Gas compression is down for a period of time, the operator is expected to reduce oil production
- Each operator has put in place a gas flaring management system and is considered by operational personal
- As production from the field increases,
Gas flaring has not increased
the Board seeks further reduction

Offshore Newfoundland and Labrador Gas Flaring Reduction and Achievement



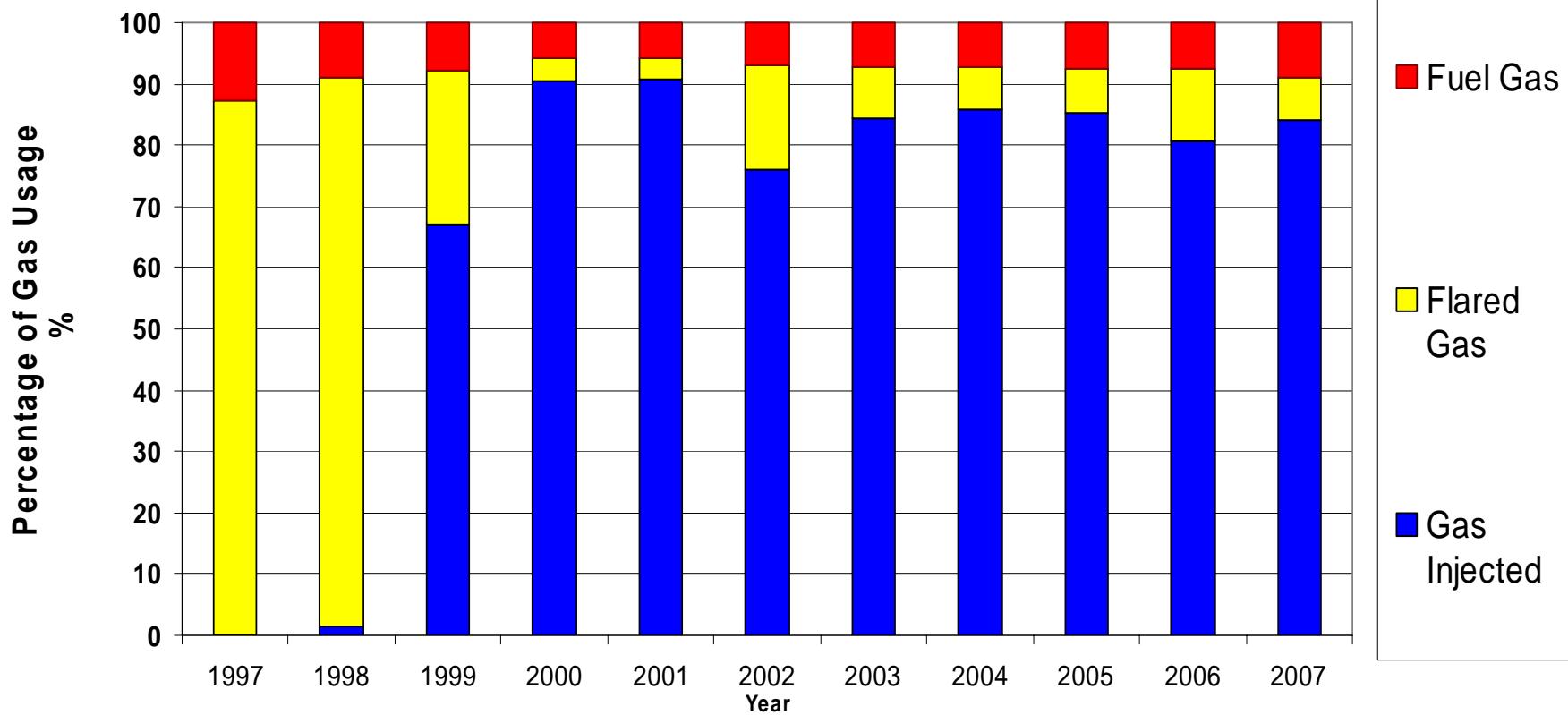
Flared Gas Yearly Cumulative Totals
And Daily Average Oil Produced



Offshore Newfoundland and Labrador Gas Flaring Reduction and Achievement



Total Gas Usage Breakdown



Improvement Opportunities for Gas Flaring Reduction

- **Commissioning**
lessons learned
- **Operations**
 - ✓ Maintenance/Spare Parts
 - ✓ Operating Procedures
 - ✓ Elimination of Background Flare
- **Working with Operators**
- **Tracking the gas flare amounts on a monthly basis**

Gas Flaring Reduction



Source: Government Newfoundland and Labrador