ERCB Tools for Improving Economics of Flare and Vent Reduction

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Overview

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- Brief introduction to Alberta
- History of flaring in Alberta
- Recent trend
- Economic feasibility test
  - Key factors
- Tools for improving economics

Introduction to Alberta

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- Landlocked, no offshore production
- Open access to gas sales market
- Open access to electrical power sales market
- 1/3 of Alberta's electricity generated with natural gas

- Understanding Canadians…
  - "Solution gas" = Associated gas
  - "Conservation" = Utilization

History of flaring in Alberta

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- Turner Valley, 1930
- Gas Production = 537 million cubic feet per day
- Gas Flaring = 486 million cubic feet per day
- 90% flared!
- One company had monopoly on sales to gas purchaser. Other producers could not sell gas
- Producers wanted natural gas liquids
- Sent gas through separator, and flared gas

History of flaring in Alberta

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- Reduced pressure in reservoir and reduced amount of recoverable oil
- Market forces were not enough to control the issue, needed to be more far-sighted
- Independent arbitrator was needed
- ERCB was formed
- ERCB has achieved results using economic approaches, with tools that do more than market alone
- Currently at 96% associated gas utilization rate

Recent flaring trend in Alberta

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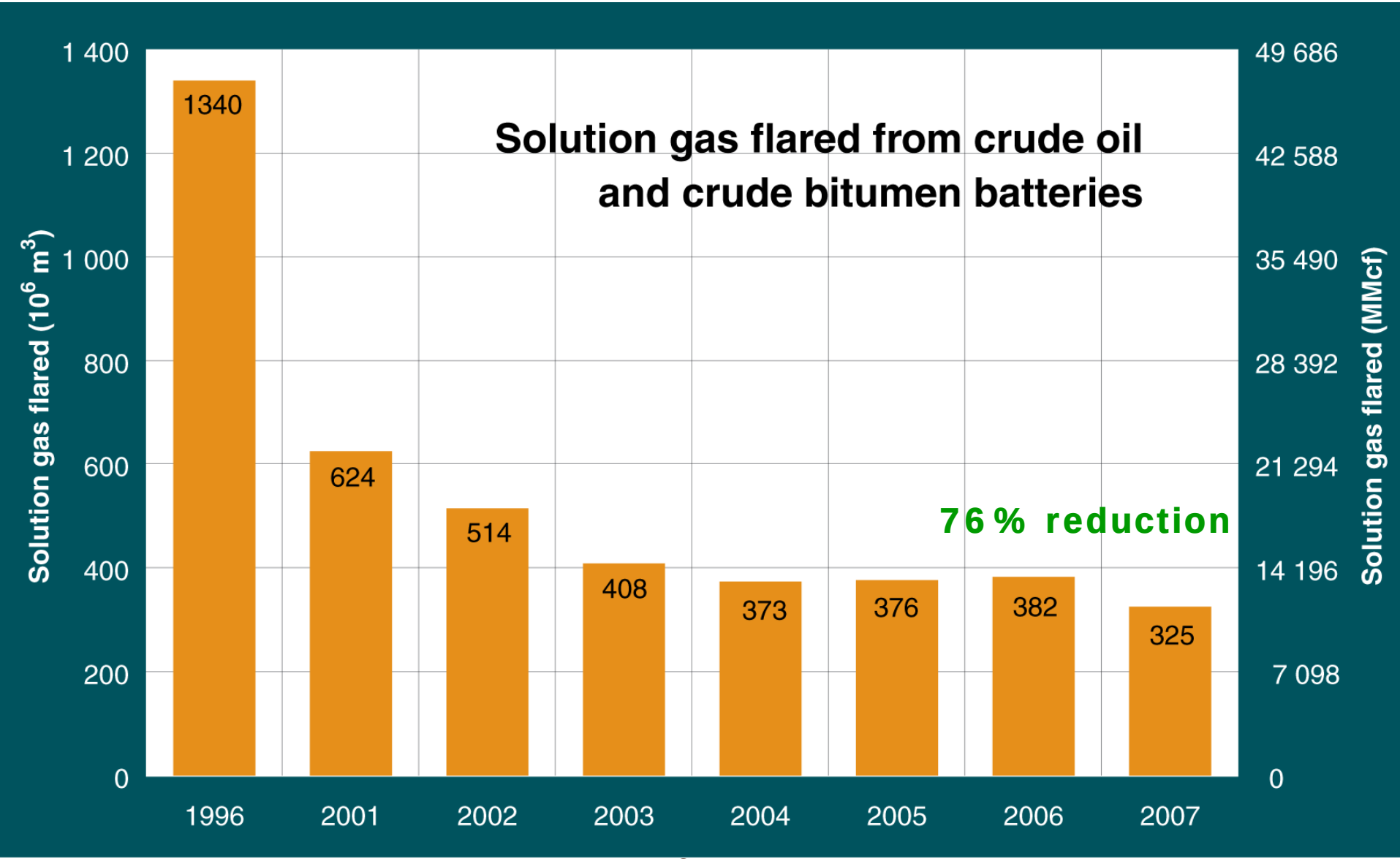

Economic feasibility test

- ERCB requires operators to evaluate feasibility of utilizing associated gas, based on economic test
  - Note: rights to associated gas are part of oil rights
- If utilization project is economic, utilization must be in place before well can produce
- Incremental economics – gas only
- ERCB provides a standardized calculation methodology

Economic feasibility test

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- Must evaluate options such as:
  - Pipeline to sales
  - Fuel
  - Electrical power generation
  - Reinjection for pressure maintenance
- Note:
  - Regulations provide for open access to pipelines
  - Regulatory boards control prices for service charged by pipeline owner
  - Ensures capacity is made available to all producers on equal fair basis
  - Electrical power generation market is open and competitive

Economic feasibility test

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- Standardized calculation methodology includes:
  - Commodity price forecasts to be used
  - Power price forecasts to be used for electrical power generation projects
  - Rules regarding estimation of capital and operating costs of the possible gas utilization project
  - Long-term inflation rate to be used
  - Discount rate to be used

Tools within feasibility test

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- Definition of economic = NPV > -$50,000
- Discount rate = Prime + 3%
  - "social rate of return" vs. corporate rate
- Must include value of other products (liquids)
- Must consider any cost savings as a result of utilization
  - Equipment (flare stack, etc.)
  - Reduced trucking
  - Reduced operator costs
- Annual reassessment
- Future: integrated economics, oil revenue

Additional Tools: Common carrier / processor

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- Common carrier or Common processor order
  - Places obligation on carrier or processor to transport or process product without discrimination
  - Allows for a well owner to share in existing capacity of a pipeline or processing plant
    - Can be used when producer has not been able to negotiate satisfactory arrangement to use the pipeline or plant
  - Provides a methodology for determining fair price for transport or processing
  - Balances economic interests of gas producers versus gas processors
  - Recognizes the value of infrastructure and investment risk
  - Deals with “natural monopolies”

Additional tools

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- Royalty waiver
  - Royalty is not charged on flared gas. If gas is utilized, royalty is charged. Potential disincentive.
  - Where producer utilizes gas that can be shown to be uneconomic (based on incremental economics), the Crown will waive royalty on gas that would have been flared and associated by-products.
  - Removed a potential barrier in marginal cases
- Public reporting
  - ERCB makes all flaring and production data publicly available on an annual and monthly basis. Operators with good or poor utilization rates are clearly visible on an annual ranking list.

Additional tools

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- Data available to third parties
  - ERCB will make data available to third parties who may be interested in projects to utilize gas

- Cooperating with third parties
  - In ERCB regulations, we recommend that where a third party proposes a project to utilize gas that is deemed uneconomic by the producer, the producer make that gas available at no charge in an “as is” condition.

Additional tools - Clustering

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- ERCB requires that where gas utilization is deemed uneconomic, the producer consider combining with any other associated gas production within a 3 kilometer radius and re-evaluate.
- Example:
  - ERCB field inspectors identified area of large flaring
  - Requested that 7 facilities in area be considered for clustering. Producer with most flaring in area leads.
  - 3 producers worked together and decided to include 21 facilities.
  - Project had a positive NPV of $1.5 million
  - Producers also collaborating on waterflood and emulsion gathering. Result: profit, no flaring, better mgmt of pool

Additional tools – Power Generation

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- ERCB requires that producer investigate multiple options for gas utilization
- Example:
  - Facility 12 km from pipeline infrastructure
  - Tie-in not economic
  - Burning gas in turbine to generate electricity was economic. Agreement made with third party.
  - Third party designs and provides all equipment (turbine, piping) and connection to electrical grid.
  - Third party takes care of marketing power and obtaining power permits
  - Producer provides gas on “as is, as available” basis

Additional tools – Power Generation

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- Producer receives 4% of gross revenue from power generated
- After payout, producer receives 7.5% of gross revenue from power generated
- Paid on monthly basis
- Consumer and producer each own 50% of all greenhouse gas credits for life of power generation facility

- Before: flaring associated gas
- After: no flaring, getting revenue, getting GHG credits

Summary

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- Used economic tools but needed to push harder than market alone
- Flaring reduced 76% since 1996
- Standardized economic feasibility test
- Multiple options: sales, fuel, power, reinjection
- Tools:
  - Royalty Waiver
  - Public reporting
  - Sharing data with third parties
  - Clustering
- Results: reduced flaring, extra revenue

Thank you

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