AERH2S (released November 2025)
What We Heard – And Our Response

We would like to thank all those who provided comments. We reviewed the feedback and consolidated comments concerning similar issues. What follows is a summary of the issues raised and our responses.

A list of the respondents is provided at the end of this document.

Stakeholder Feedback – Issue	AER Response
1. **Model Impact**	
Some Albertans may suddenly find themselves within an emergency planning zone (EPZ) without prior notification or consultation. Municipalities are already voicing concerns about constrained resources and may experience increased demands due to additional EPZ and emergency response plan (ERP) consultation work. Operators will see a permanent increase in operating costs related to compliance with *Directive 071* and *Directive 056*. AERH2S calculates EPZ sizes that are 1.5 to 2 times larger than those calculated using ERCBH2S. Significant impacts on licensing timelines and additional complexity from a *Directive 056* perspective are expected.	As of January 1, 2026, all new *Directive 056* applications, and any subsequent amendments, are required to use AERH2S for any necessary EPZ modelling. Licensees with existing infrastructure with *Directive 056* approvals issued before January 1, 2026, may use either ERCBH2S or AERH2S for amendment applications that require re-modelling the EPZ. The change from using an average to a reasonable worst-case methodology means that AERH2S will calculate larger EPZs in many cases. However, most users are running ERCBH2S without mitigation (i.e., unmitigated), which also results in large EPZs. The mitigation measures in AERH2S reflect the use of emergency shutdown valves, which are expected as part of sound emergency planning. The inclusion of such measures will result in reduced EPZ sizes accordingly. The resulting EPZ sizes from using AERH2S with mitigation will also address concerns about inclusion in an EPZ and the burden on municipalities. We will monitor *Directive 056* licensing timelines and complexity as part of an audit of the implementation of AERH2S.

Stakeholder Feedback – Issue	AER Response
2. **Benchmarking and Peer Review**	
Respondents requested benchmarking and peer review of AERH2S. AERH2S may be compounding layers of conservatism, resulting in EPZs that are larger than are reasonable or intended. This raises the question of whether the outcome represents a credible "reasonable worst case"? Government of Alberta (GoA) and Alberta Energy Regulator (AER) decision makers should be informed of upcoming changes to EPZ sizes and the subsequent impacts.	AERH2S is a revised version of ERCBH2S. As such, many of the modelling principles are updated and not changed. The modelling methodology for ERCBH2S was externally peer reviewed. AERH2S was internally peer reviewed. The reasonable worst-case methodology aligns with international hazard assessment methods. In addition, the ability to estimate the EPZ based on typical operations—by accounting for the benefits of mitigation to reduce release volumes—allows for the modelling of realistic scenarios. GoA and AER decision makers are informed through regular business and project approval processes.
3. **Clarification on Applicability**	
Respondents requested clarification whether AERH2S applies to new infrastructure or retroactively to all infrastructure.	As of January 1, 2026, all new *Directive 056* applications, and any subsequent amendments, are required to use AERH2S for any necessary EPZ modelling. Licensees with existing infrastructure with *Directive 056* approvals issued before January 1, 2026, may use either ERCBH2S or AERH2S for amendment applications that require re-modelling the EPZ.
4. **Communication to Stakeholders**	
Respondents recommended that the AER provide standardized documentation to industry—that they can then provide to landowners—that outlines the AER's rationale and the benefits of proposed model changes. A clear explanation of the problem definition that has triggered the proposed modelling and mitigation changes, given that the outcomes associated with the current regulations and ways of working among operators has resulted in good outcomes to date.	Information regarding AERH2S, including model history, is available on the AER website. The AER maintains and updates hydrogen sulphide (H_2S) dispersion modelling tools as per the Public Safety and Sour Gas Report (2007). Updating AERH2S to reflect the use of mitigation measures is in line with modern and sound dispersion modelling practices.

Stakeholder Feedback – Issue	AER Response
5. **Operational Feasibility of Proposed Mitigation Measures**	
The suggested mitigations could increase production interruptions and downtime.	There is a trade-off between achieving the fastest system response and maintaining operability. Operators can fine-tune this balance. Improved coordination between staff running the model and those operating the facilities could help optimize opportunities to improve system response while allowing acceptable operability.
6. **Technical Questions and Concerns**	
Model users had specific questions regarding the program's operation and the expected results.	Model users may direct questions related to EPZ modelling to aerepzmodel.questions@aer.ca.

Stakeholders Who Submitted Feedback (in alphabetical order)

Canadian Association of Petroleum Producers

Explorers and Producers Association of Canada

Model users