

# Mixing and Matching: A Review of EM&V Frameworks in North America

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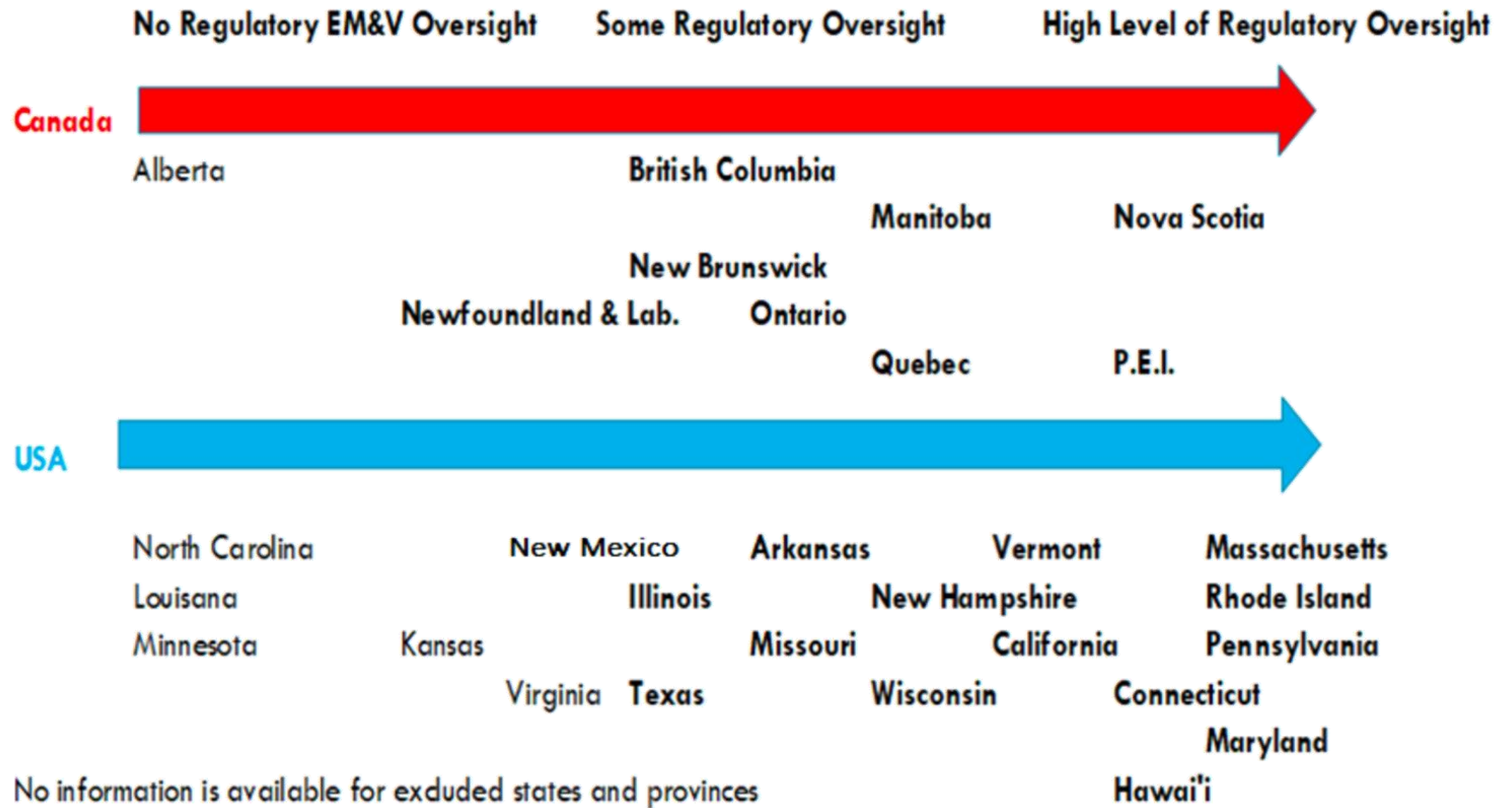


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# What Is the Only Constant in Program Evaluation?

*“Program evaluation is becoming more important than ever as utilities, and other program administrators face higher savings targets in conjunction with state climate goals, rising baselines, increased emphasis on the time and locational value of energy efficiency, and changes to the structure of goals. Accurate and credible evaluation (more broadly referred to as “evaluation, measurement, and verification” or EM&V), including the full valuation of energy efficiency’s multiple impacts, is critical to developing and sustaining energy efficiency portfolios capable of meeting ambitious targets and to avoid over-investment in traditional resources (York et al., 2020, p. 2).*

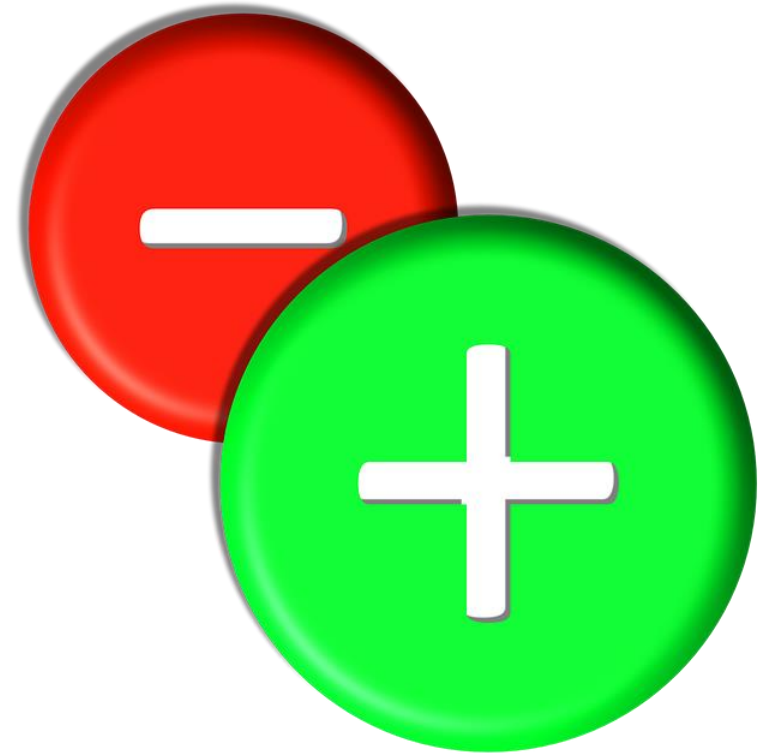




Source: *Expanded EM&V Framework Jan 2018, p. 21*  
Figure 1: Spectrum of EM&V Regulatory Oversight

# Which EM&V Model is Best?

- A review of EM&V frameworks across 13 jurisdictions:
  - Four in Canada
  - Nine in the US
- Conducted in-depth interviews with 13 subject matter experts working in these jurisdictions

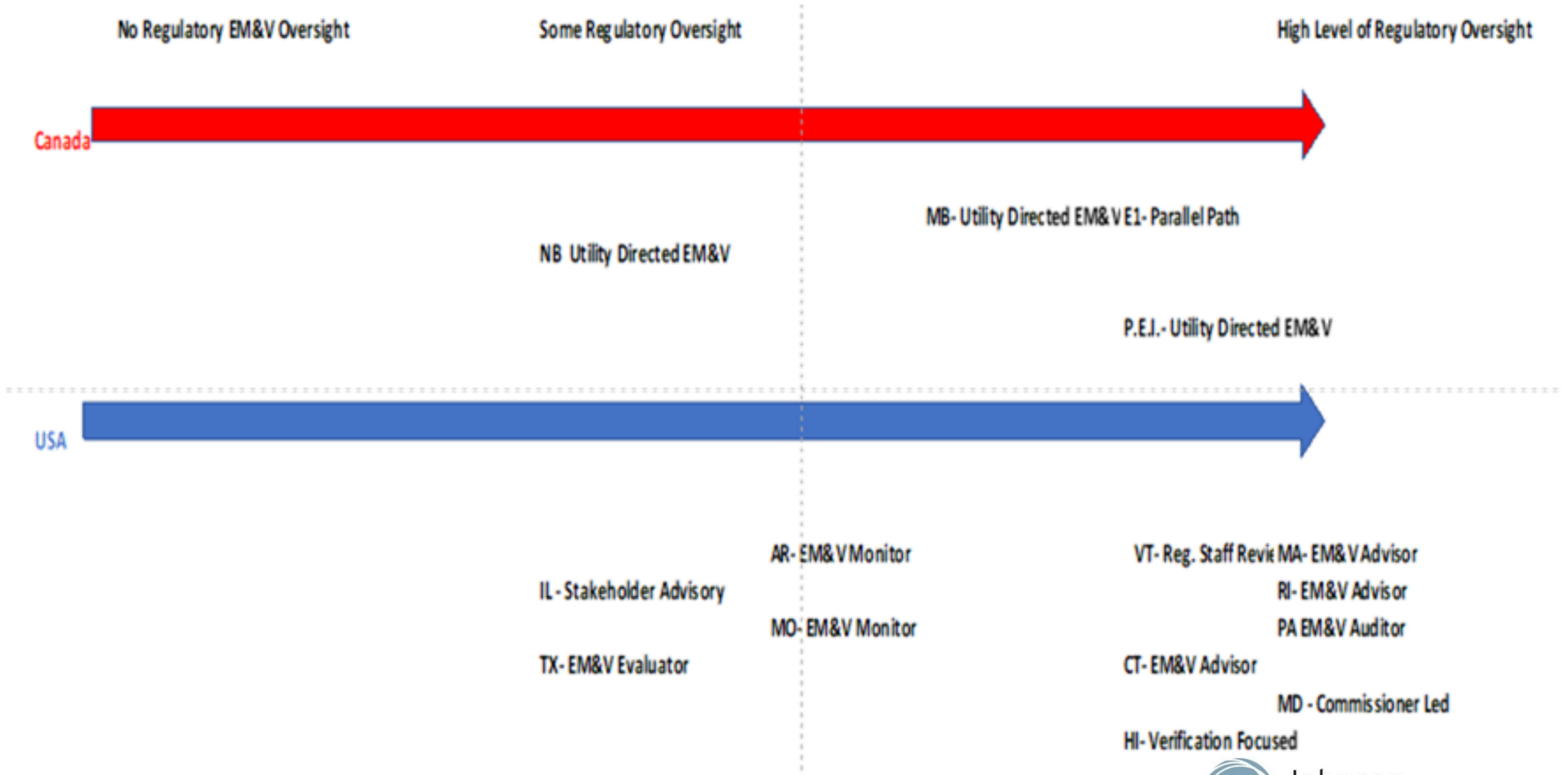


# Review Focused on Four Critical Components

- **EM&V Oversight Models:** The ways in which the regulatory authorities currently monitor, supervise, and/or enforce independent EM&V activities.
- **EM&V Frameworks:** Contain the EM&V “road map” or protocols used to conduct these evaluation tasks.
- **Stakeholder Engagement:** Interested parties and collaborative groups also play an important role in EM&V activities; however, their level of engagement differs by jurisdiction.
- **Roles and Responsibilities:** This section describes the specific functions conducted or directed by the designated EM&V authority and include EM&V Planning, EM&V Supervision, and EM&V Reporting.



# EM&V Oversight Models



# EM&V Frameworks

## Evaluator-Developed Guidelines

- **Most Canadian provinces rely on the frameworks developed by third-party evaluators.**
  - Based on national best practices, such as the UMP.
  - Focus only on impact-related EM&V activities and therefore do not include specific guidance for conducting process evaluations or market effects studies.
  - Do not address more advanced evaluation topics such as quantifying Non-Energy Benefits or conducting evaluations on pilot programs.

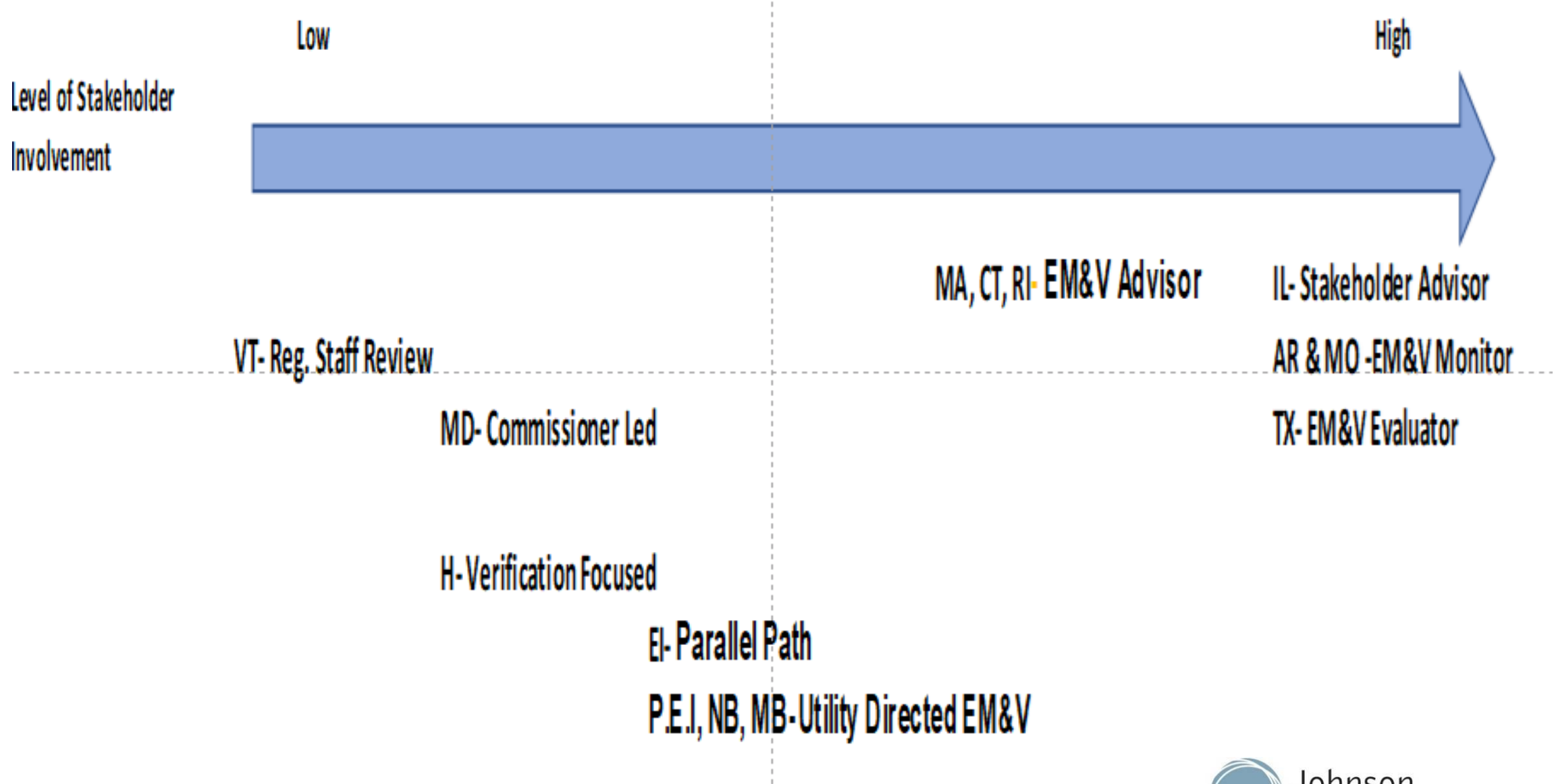
## Jurisdictional-Specific EM&V Frameworks

- **US relies on specific EM&V protocols that the third-party evaluators must follow.**
  - Guidance on establishing program databases,
  - Net-to-Gross analysis,
  - Evaluating behavior programs,
  - Frequency and scope for process evaluations, and
  - Specific statistical rigor required for impact studies.

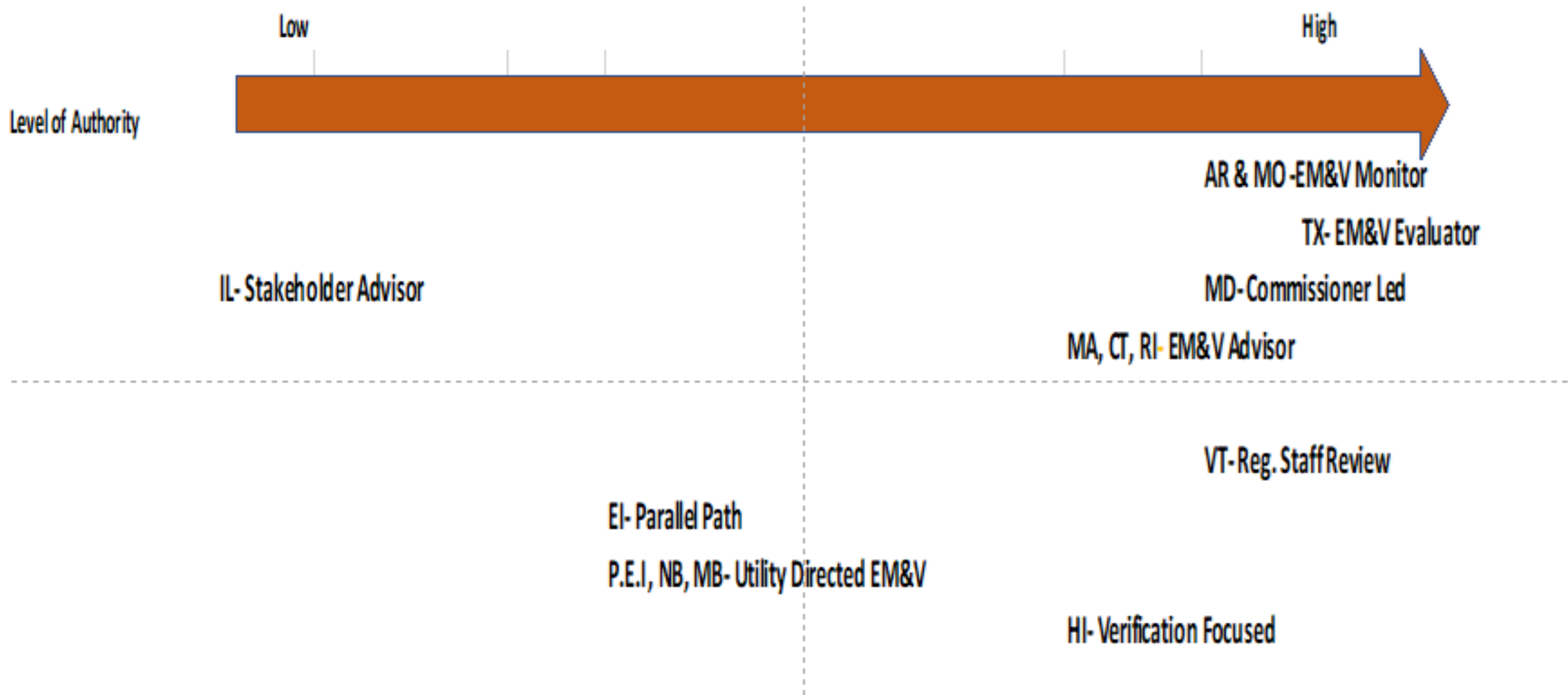
EM&V requirements have been codified in the state statutes in Missouri.

Other jurisdictions have developed their comprehensive EM&V frameworks, including Arkansas.

# EM&V Frameworks - Stakeholder Engagement



# EM&V Frameworks with the Most Authority



# EM&V Oversight Models

Country	Jurisdictions	EM&V Oversight Models	EM&V Frameworks	Stakeholder Engagement	Roles and Responsibilities		
					EM&V Planning	EM&V Supervision	EM&V Reporting
Canada	NS: E1 (Utility)	Parallel Path Model	<b>Evaluator-Developed Frameworks</b>	●	●	●	●
	NS E1-Verification Consultant			◐	○	○	◐
	PEI and Manitoba, New Brunswick	Utility-Directed EM&V Model		○	○	○	○
US	Pennsylvania	EM&V Auditor Model	<b>Jurisdictional Frameworks</b>	●	●	●	●
	Massachusetts	EM&V Technical Advisor Model		●	●	●	●
	Hawai'i	Verification-Focused Model		◐	●	●	●
	Maryland	Commissioner-Led Model		◐	●	●	●
	Arkansas and Missouri	EM&V Monitor		●	●	●	●
	Texas	EM&V Evaluator Model		●	●	○	●
	Vermont	Regulatory Staff Review Model		○	○	○	◐
	Illinois	Stakeholder-Advisory Model		●	○	○	◐

Source: Johnson et al. 2022, p. 8.

Legend	Level of Involvement
○	None
◐	Medium
●	High

# Key Takeaways

- Develop clear evaluation protocols that define the level of expectations for each evaluation activity.
- Establish ground rules for developing a truly collaborative approach that encourages input from all stakeholder groups and interested parties.
- Fund and support a neutral and independent evaluation team, such as those in Arkansas, Missouri, and Texas.



# Thanks to my co-authors

***Gary Ambach***

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# Questions?

