

Provincial, territorial and federal oil and gas methane regulations: emissions coverage and potential gaps

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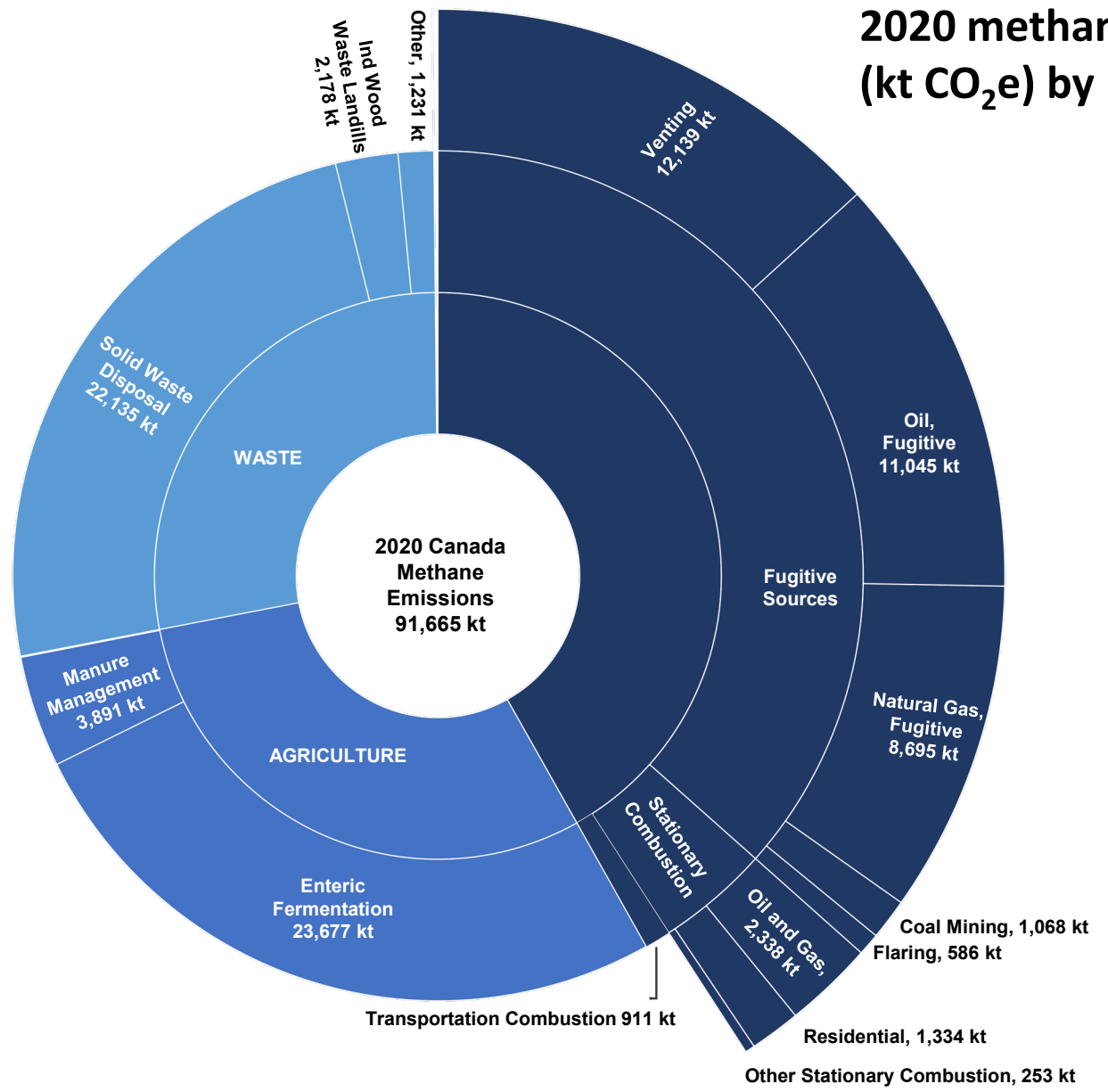
Environmental and Community Impacts of Inactive Oil and Gas Wells Workshop

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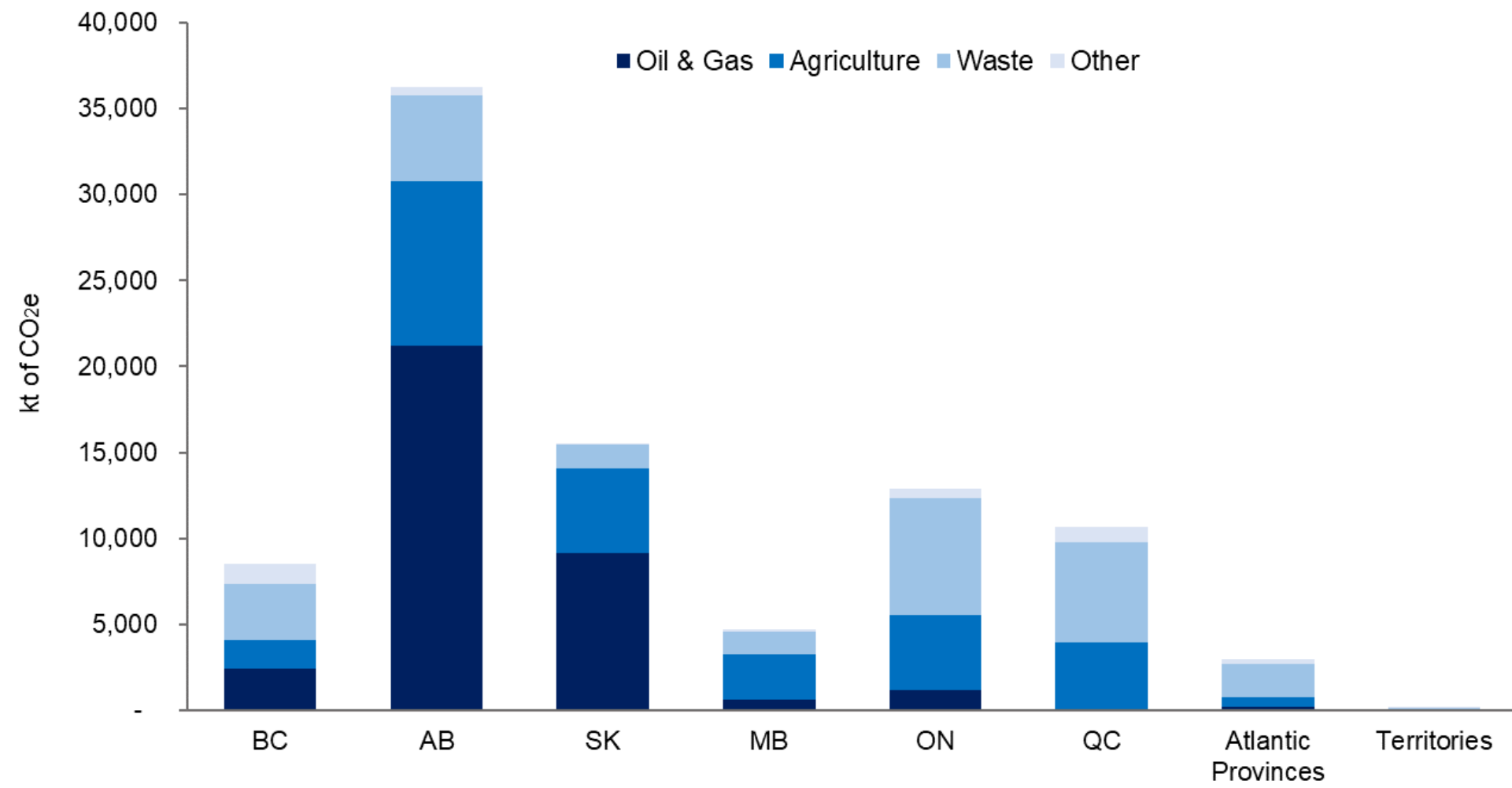
Policy context for methane

- Majority of Canadian emissions policy focuses on CO₂
 - Increasing attention to methane (CH₄) as one of the most effective options to limit near-term warming
- Multiple targets
 - Global Methane Pledge: at least 30% below 2020 levels by 2030
 - Canada's methane strategy: 35% reduction below 2020 levels is feasible
 - Oil and gas CH₄: 40–45% below 2012 levels by 2025 and 75% by 2030
- Currently, oil and gas is the only directly regulated sector
 - Federal and provincial methane-control regulations
 - FPT large-emitter systems (sometimes) price methane
- Other policy mechanisms
 - Offset markets
 - Clean fuel regulations

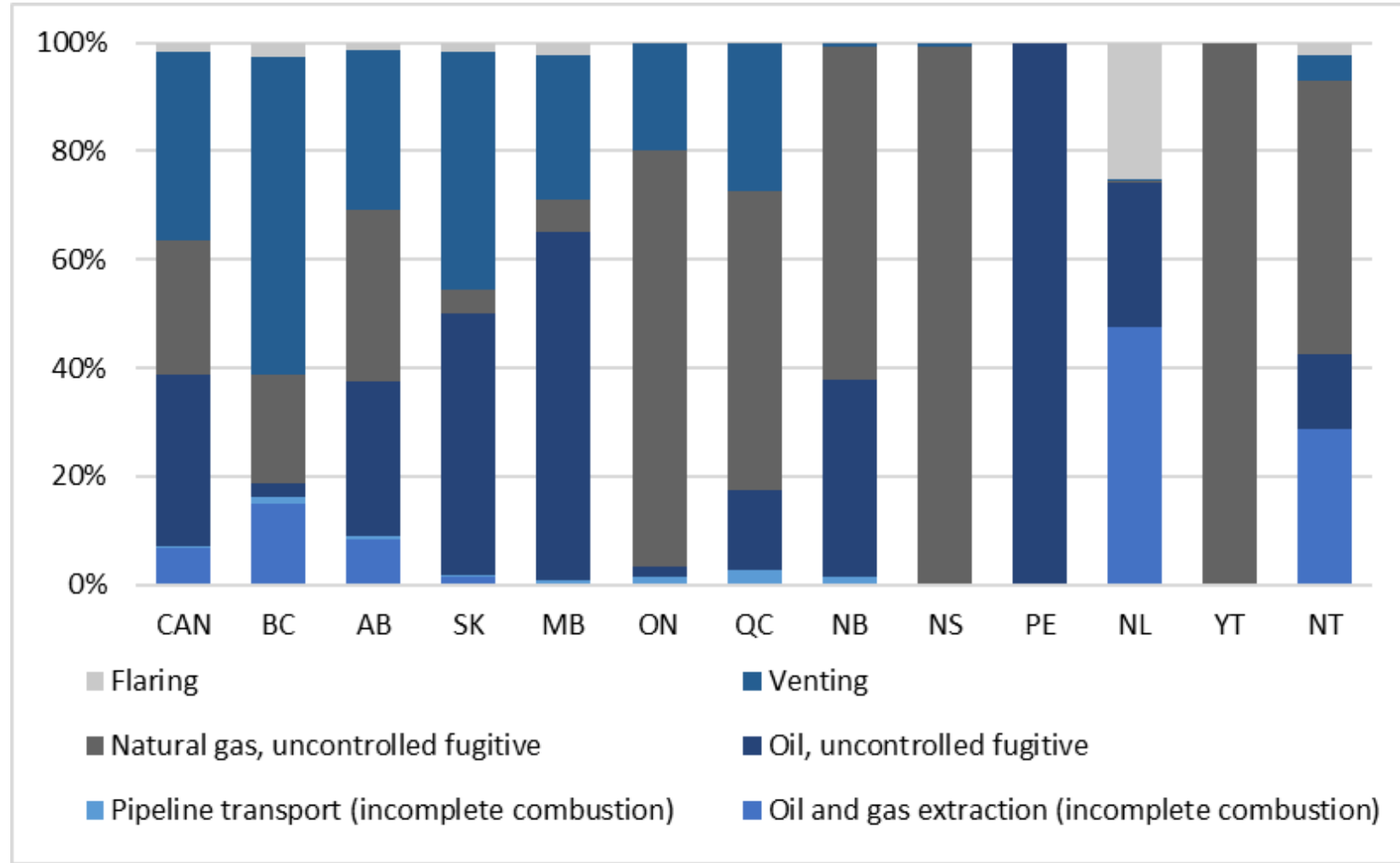
2020 methane emissions (kt CO₂e) by IPCC subcategory



2020 methane emissions by province and economic sector



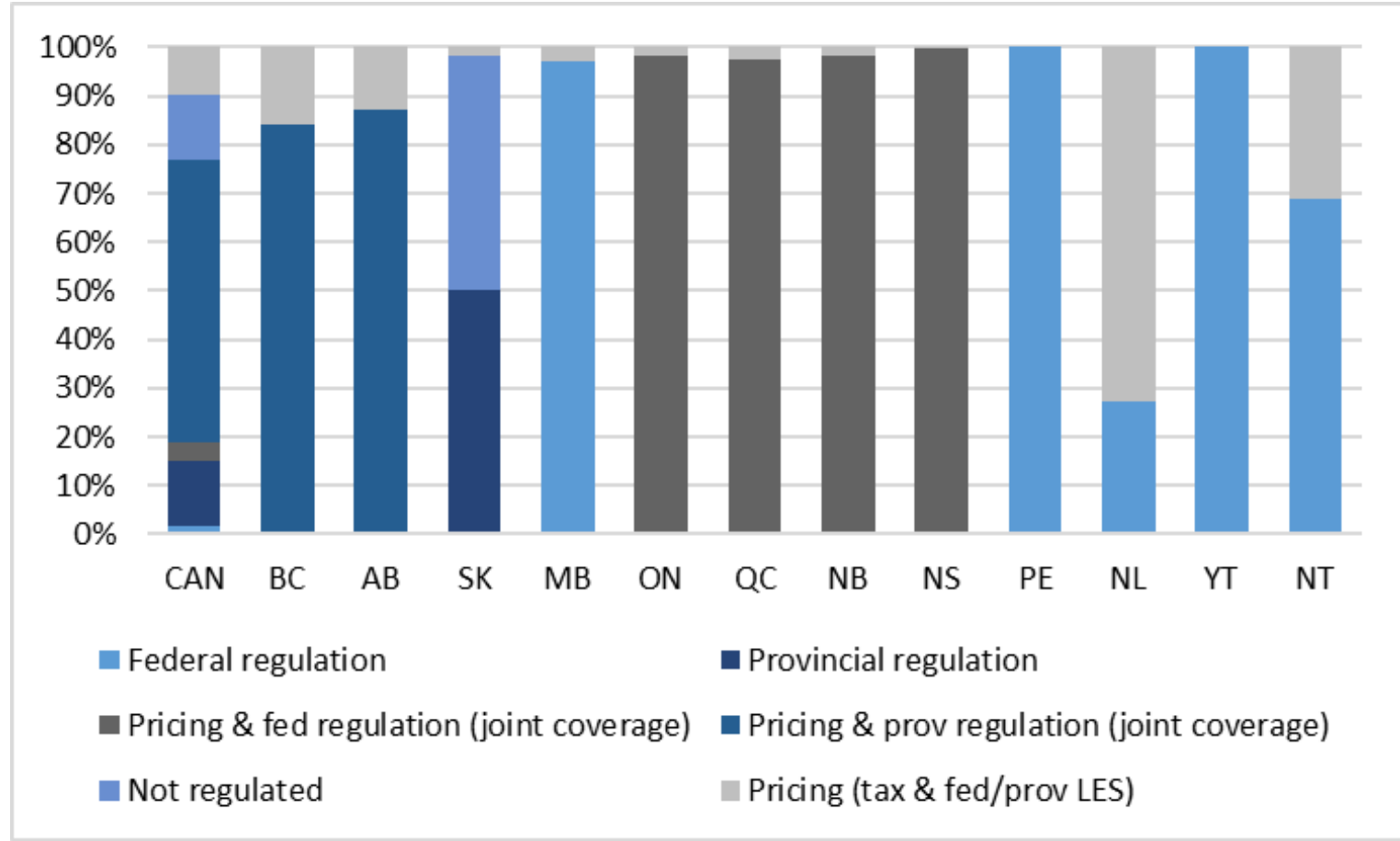
2020 sources of oil and gas methane



Current policy approach

- Direct methane-abatement regulations
 - Technology or performance standards for processes and equipment
 - Leak detection and repair requirements
- Pricing
 - Fuel charge/carbon tax: indirectly regulate methane from incomplete combustion from small emitters through the pricing incentive
 - Large-emitter systems: directly regulate methane through its inclusion in total facility emissions
- Both approaches incompletely regulate
 - Exemptions
 - Excluded activities

Estimated policy coverage of 2020 CH₄ emissions

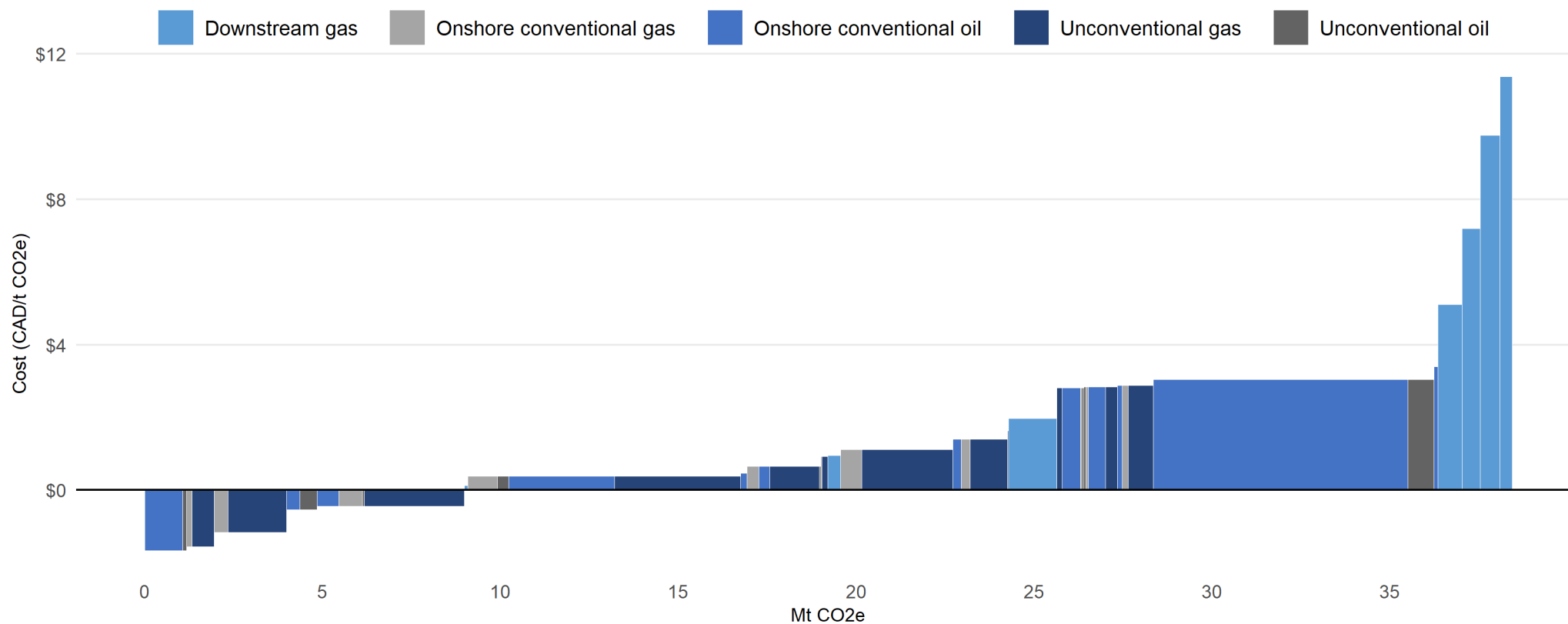


- Up to 87% of O&G methane is regulated
- Most definitely an overestimate!
- Best-case scenario in the absence of detailed point-source data and exemptions

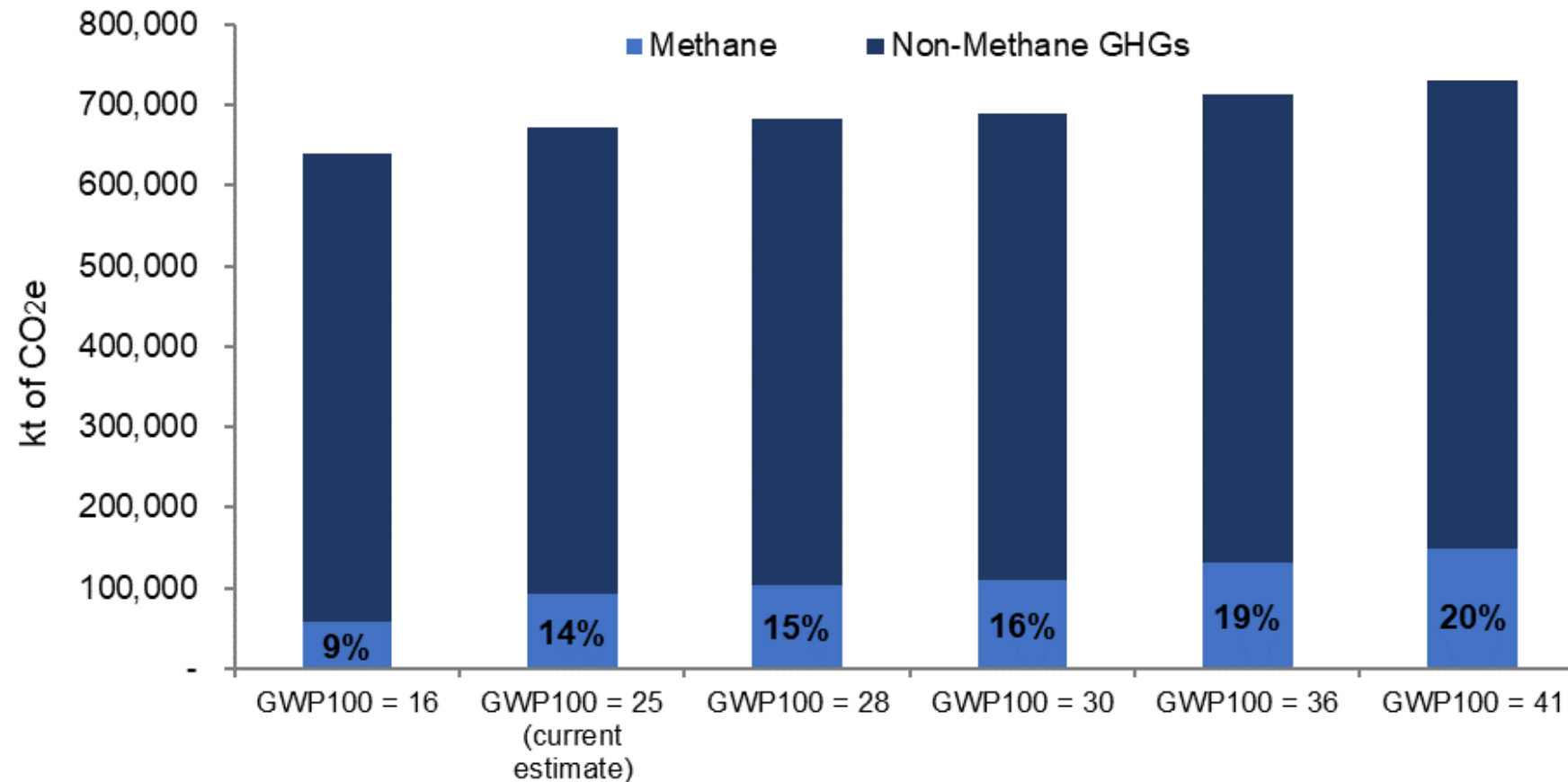
Policy and regulatory gaps

- Threshold-based policies (e.g., facility venting limits)
- Repairs that are time-delimited or have an economic threshold
- Exemptions decrease effective stringency
- Little direction to minimize flaring in favour of gas conservation
- Exclusion of specific types of facilities (e.g., LNG, pipelines)
- Differential treatment (small facilities vs OBPS facilities)
- OBPS facility quantification protocols (estimated vs priced facility emissions)
- Low LDAR frequency
- Regulations focus on upstream production, not the whole supply chain or lifecycle

Abatement potential by market subsector



Challenges in methane measurement



What measurement uncertainty means for policy

- Potentially understating baseline emissions and magnitude of required reductions
 - Creates uncertainty in magnitude of required reductions
 - Additional emissions reductions from unknown or poorly measured sources
- Misallocating policy attention and resources
- Creates uncertainty in amount and cost of abatement ‘supply’
- Affects the appropriate policy choice (market vs command and control)
- Policy action likely to be insufficiently stringent

Conclusions

- While the majority of methane sources are *technically* regulated, exemptions and data gaps make *actual policy coverage* unquantifiable
- Many opportunities for improvements in regulatory and policy design
- Expanding coverage to the whole supply chain and lifecycle is an important next step
- Better measurement and reporting is imperative