



ICF Marbek Improving Energy Efficiency in Alberta's Industrial and Manufacturing Sectors

February 2013

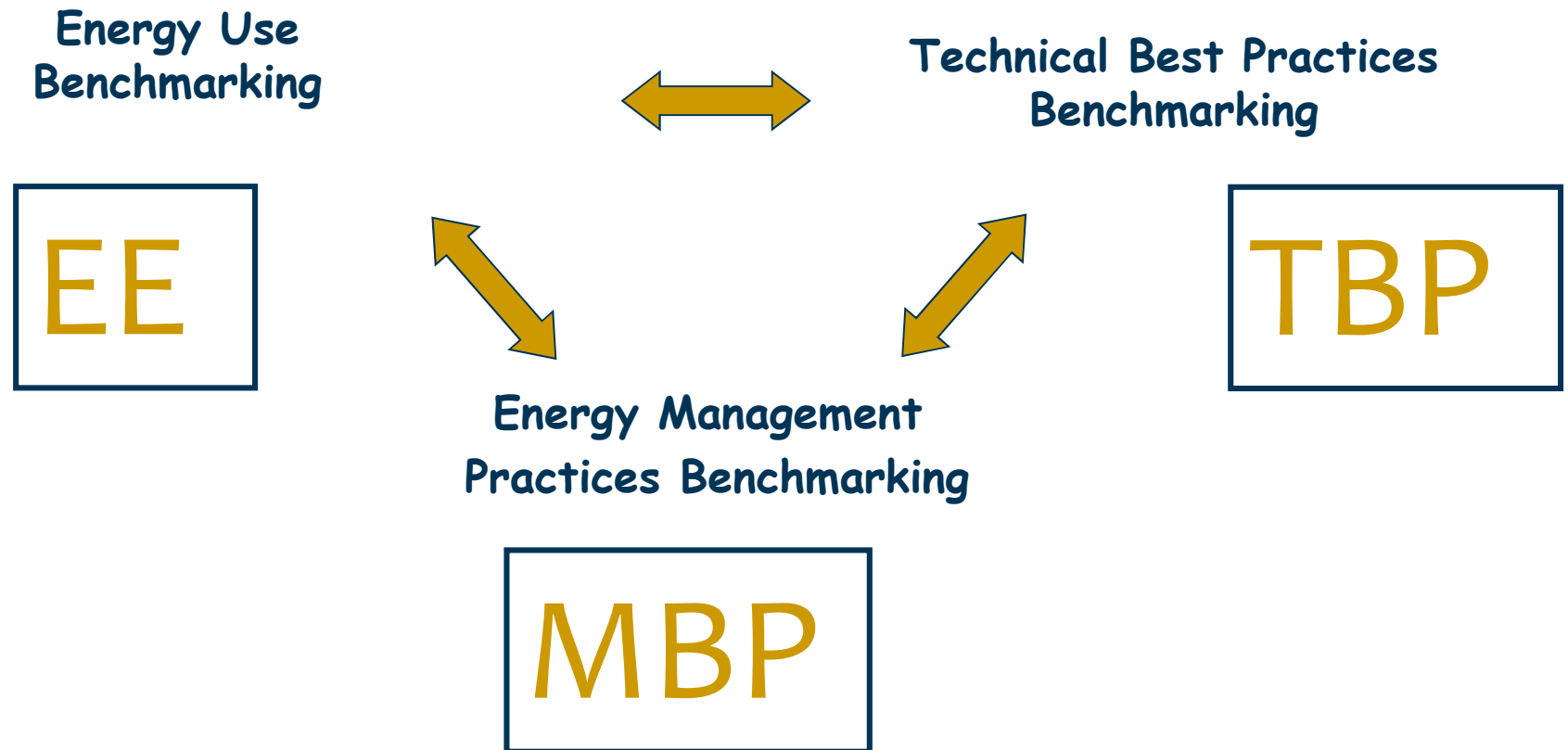
Objective and Context

- Industry to be *sustainable* and *competitive*
- Understand the *opportunities, needs*, and *challenges* in industry
- Associations, government and utilities develop *programs* and *policies* to address the needs of industry

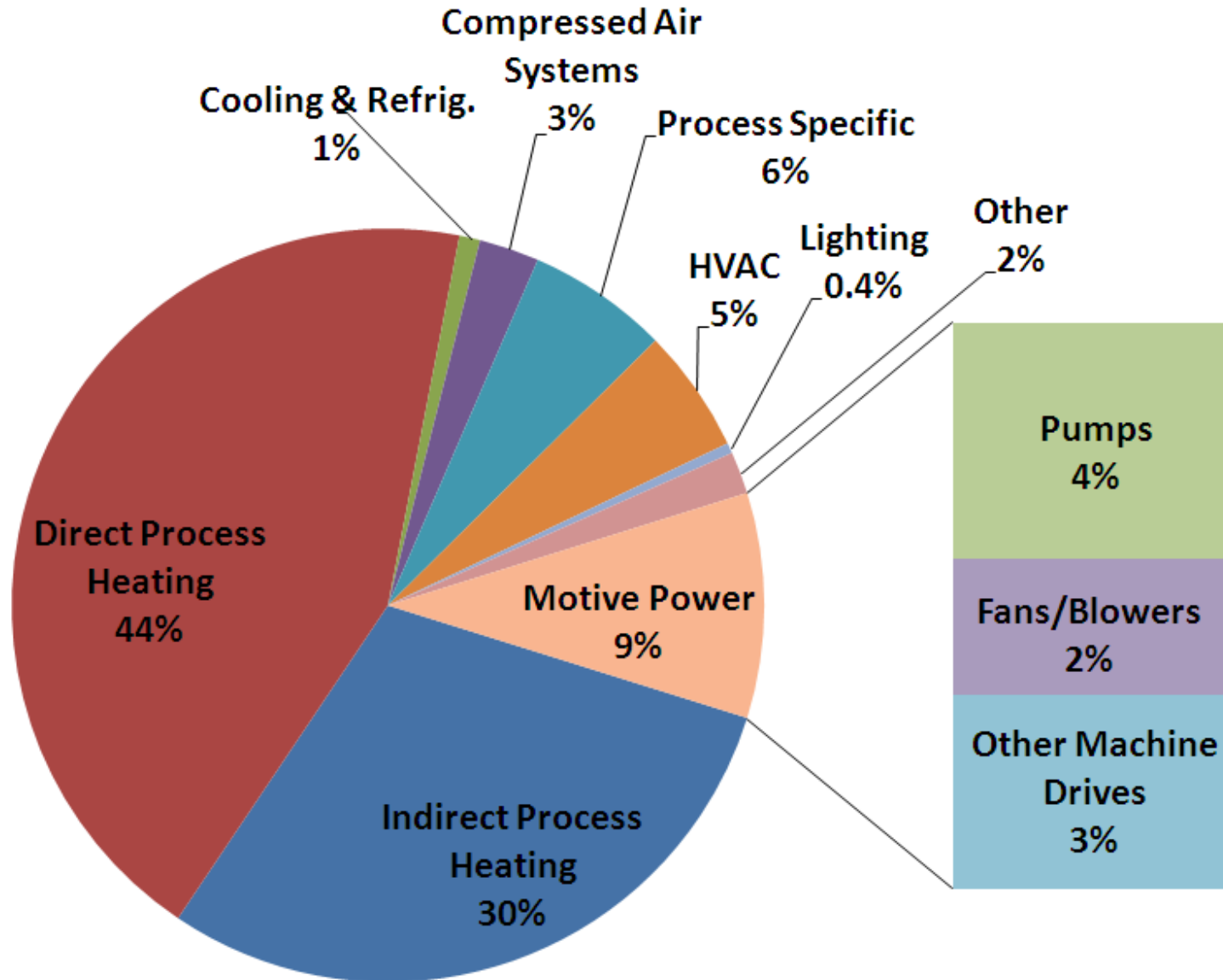
Scope

- Data from 40 on-site assessments
- 4 Industrial sub-sectors
- All energy end-uses on site
- All types of fuels purchased

Integrated Assessment



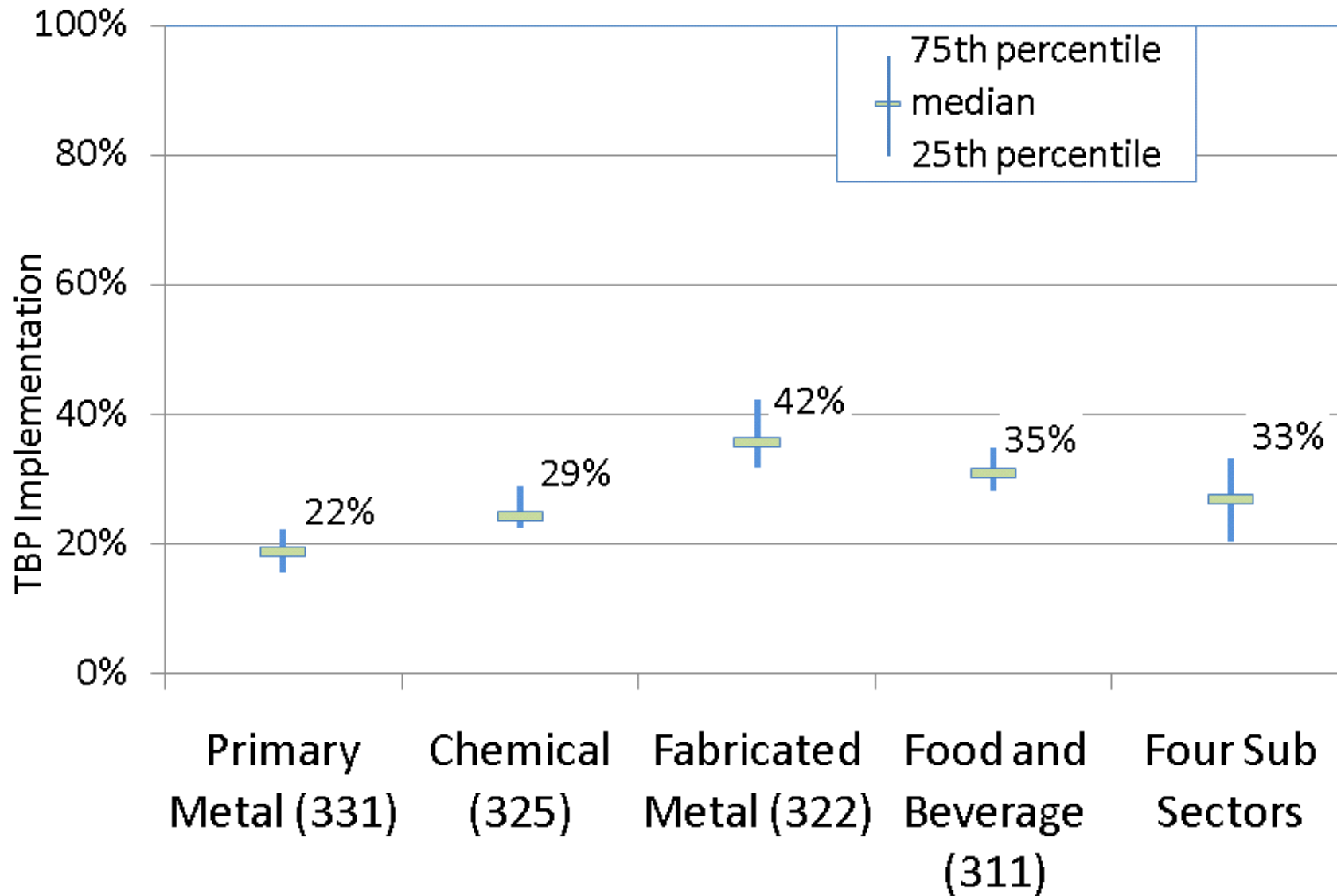
Alberta Industry Energy End Use



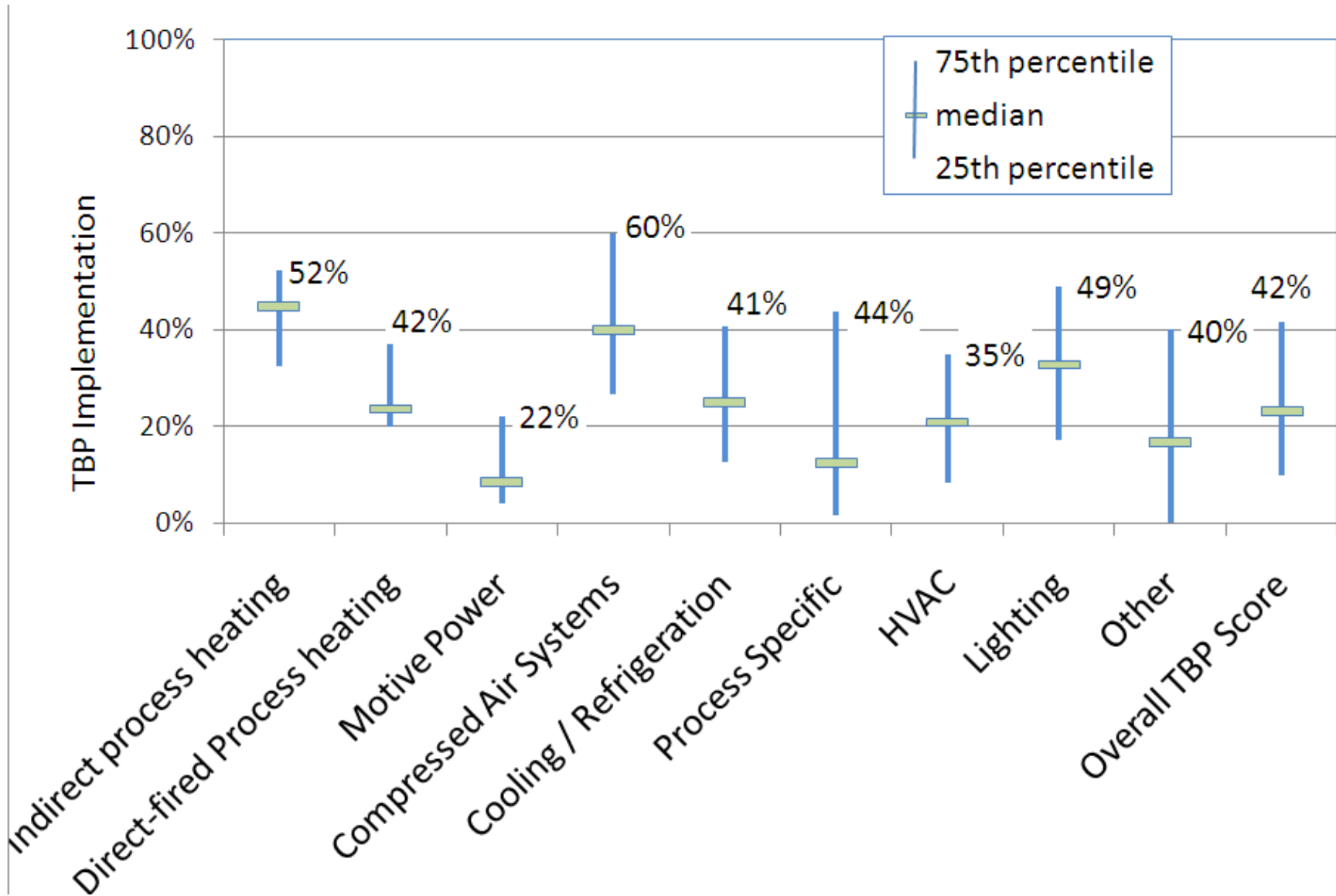
Technical Best Practices

Steam boilers and steam system	Condensing boiler
	Instantaneous steam generation
	High efficiency burner
	Economizer
	Boiler right sizing and load management
	Blowdown heat recovery
	Boiler combustion air preheat
	Process heat recovery to preheat makeup water
	Condensate return
	Advanced boiler controls
	Blowdown control
	Insulation
	Boiler preventative maintenance
	Boiler water treatment
Minimize deaerator vent losses	
Steam trap survey and repair	

Implementation of TBPs



Implementation of TBPs

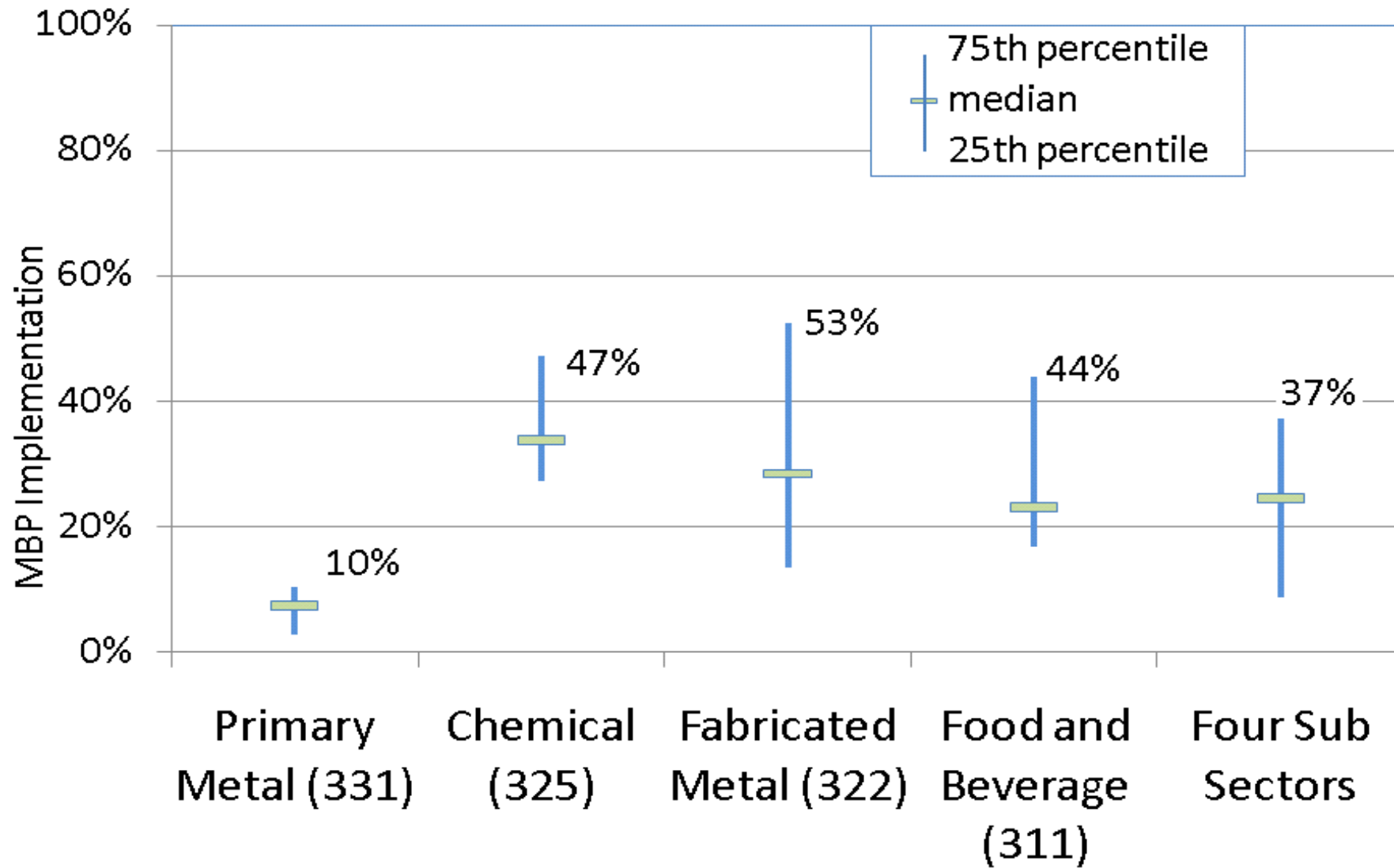


Management Best Practices

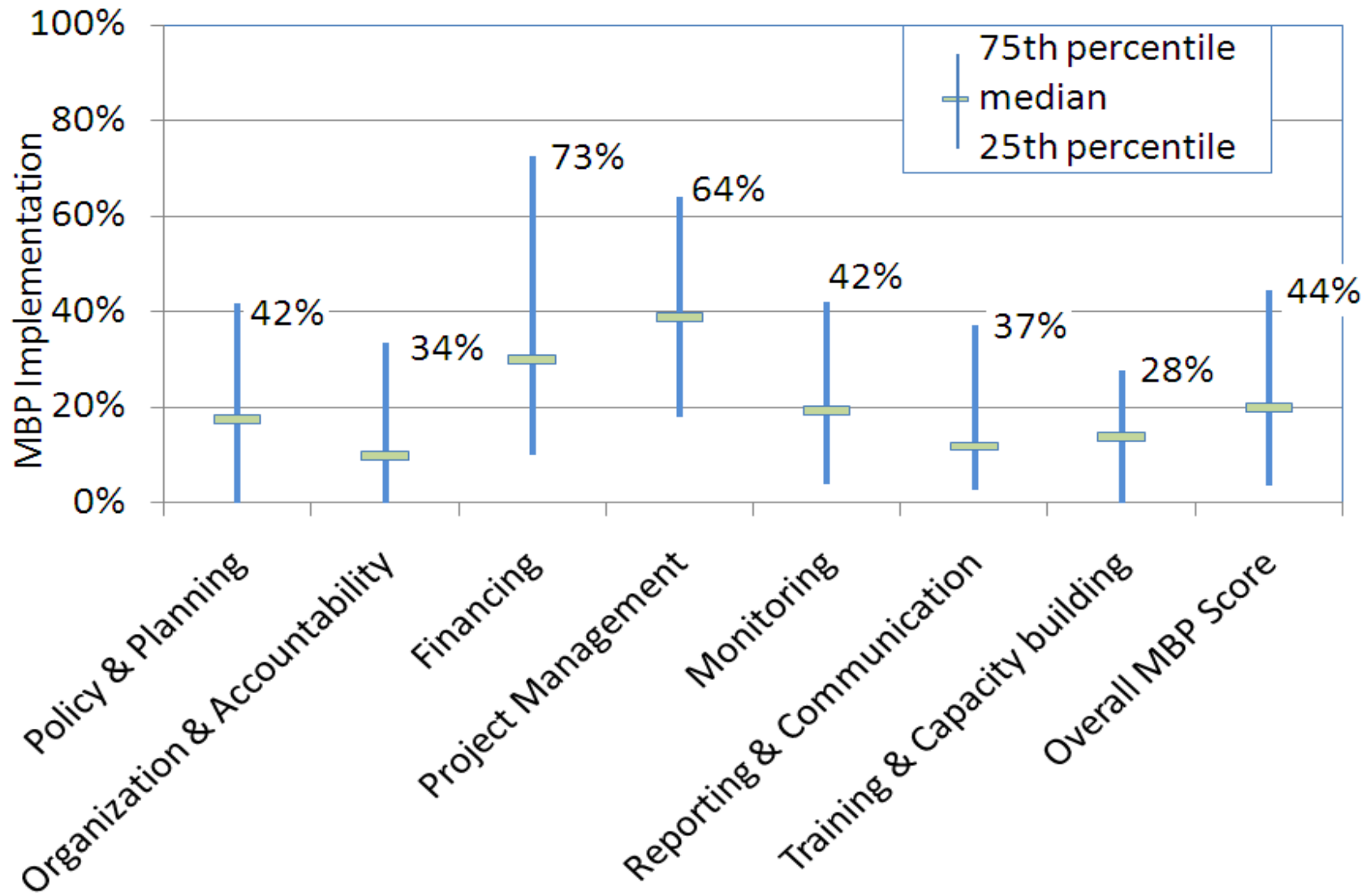


MBP Element	MBP Sub-Element
Commitment	Promotion
	Policy
	Guidelines and Procedures
Planning	Formal Planning
	Support for Planning
	Implementation
Organization	Energy Champion
	Responsibility and accountability
	Energy Leader
	Energy Team
Project Development	Capacity building
	Identification of Opportunities
	Energy Management Best Practices
Financing	Commitment
	Planning
	Integrating energy management with project approval
Measurement and Reporting	Monitoring System
	Reporting
	Use of Monitoring Results
Communication	Extent
	Frequency
	Awareness and Participation

Implementation of MPBs

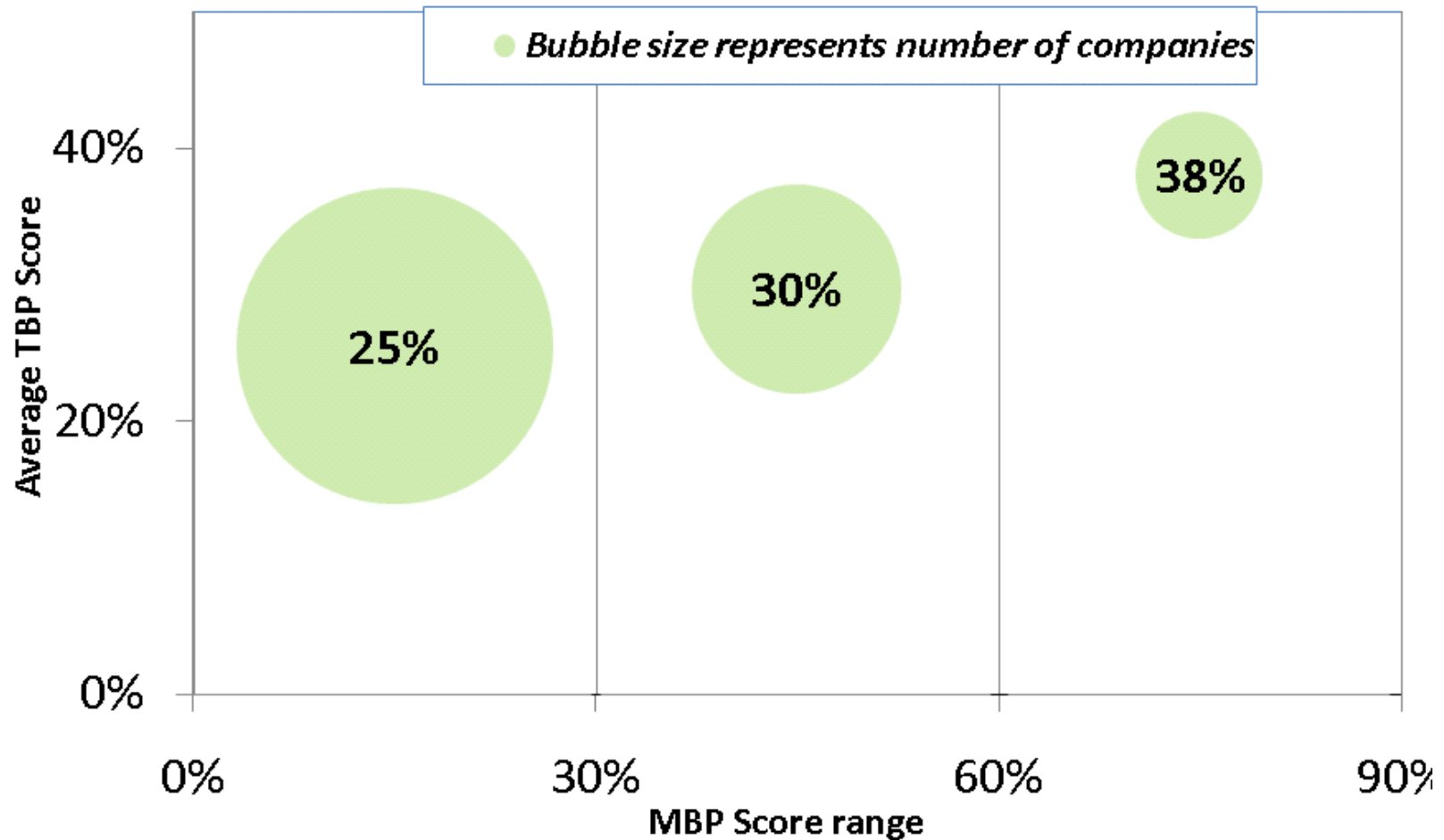


Implementation of MBPs

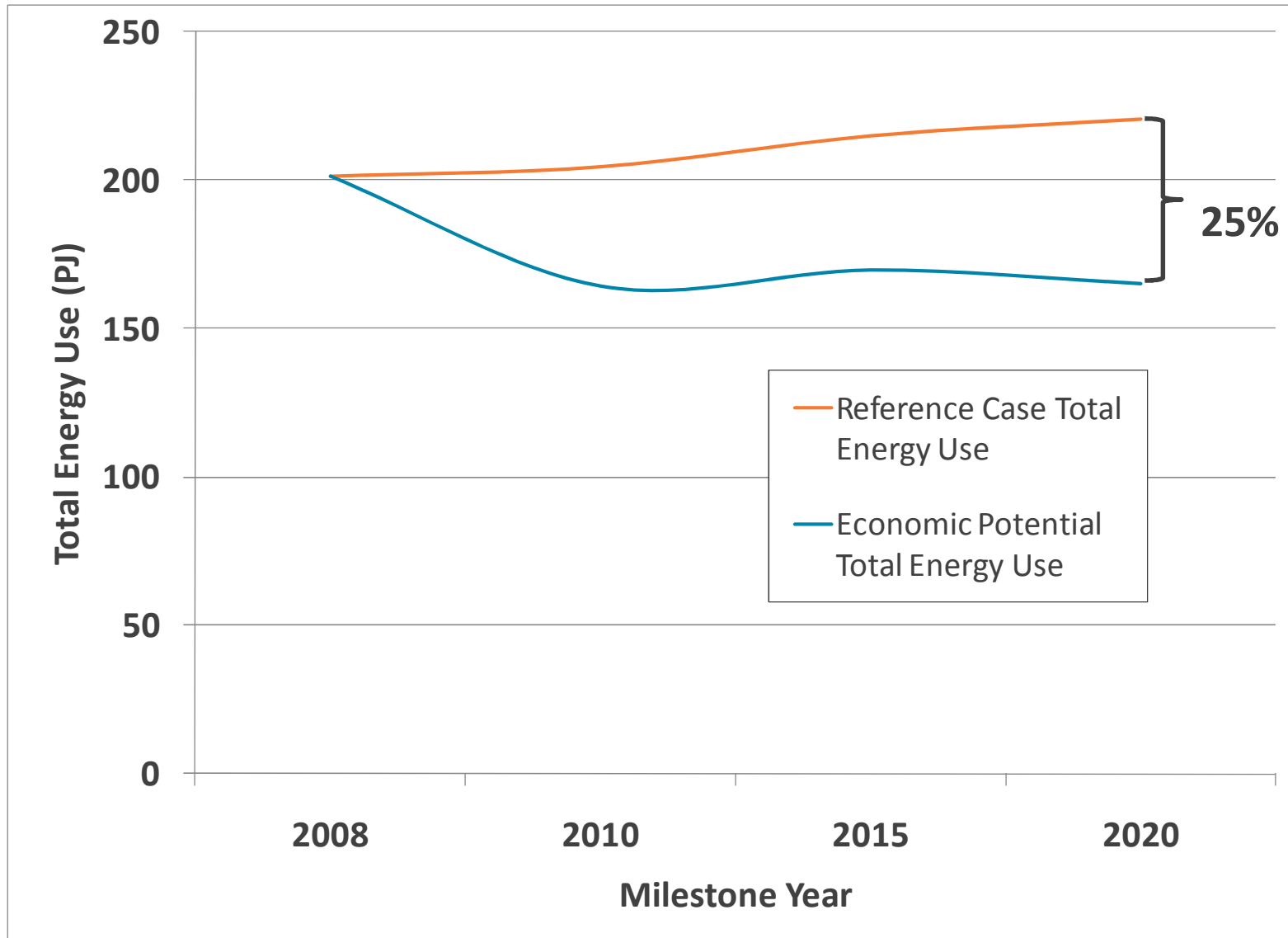


MBPs vs TBP

40 Plants: Average MBP Score Ranges and Corresponding Average TBP Scores



Economic Potential



Potential Solutions



Category	Potential Solution	Total Score	Percentage of Maximum Score
Financing of EE Projects	Incentive based on amount of energy saved.	260	79%
Commitment to Energy Management	Embedded energy manager (includes: energy specialist dedicated to a group of SME).	253	77%
Transaction Costs	One stop centre/platform for programs.	249	75%
Financing of EE Projects	Fixed cost incentive for prescribed equipment.	246	75%
Financing of EE Projects	Incentive to develop business case (incl. detailed feasibility assessment).	236	72%

Questions and Discussion



Henri van Rensburg

henri.vanrensburg@icfi.com

Tel: (416) 341-0738