Natural Resources Canada | Ressources naturelles Canada

2025 Cleantech Industry Survey Results

Natural Resources Canada

Strategic Policy and Innovation

Clean Technology Economic Analysis Unit

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Executive Summary

MARKET DIVERSIFICATION & TRADE

Firms Adjust Market Strategies Amid U.S. Trade Uncertainty

In response to recent U.S. tariff announcements, 85% of Canadian cleantech firms are looking at strategies to shift focus markets, with many looking at the domestic market (42%) while others (32%) are exploring new export opportunities beyond the U.S. Another 35% are evaluating the potential impacts and supply chain resiliency.

Industry Connections Are the Most Desired Non-Financial Support

53% of cleantech firms identified industry connections as the most valuable form of non-financial support during technology development. Approaches designed to strengthen networks for cleantech firms are important for market and technology development, including commercialization and scale-up.

CLEANTECH CAPITAL

Greatest Cleantech Challenge – Raising and Obtaining Capital

Capital remains the top challenge for 52% of cleantech firms, up from 35% in 2022.[1] Venture capital investment in Canadian pure-play firms dropped 44% between 2021 and 2024, falling from $29.7B to $16.7B, mirroring global declines and reinforcing capital as a critical barrier to growth.[2]

Most Impactful Funding and Most Difficult to Access

Government funding was identified by 24% of cleantech firms as the most impactful source of support for business growth, followed by pre-seed funding at 17%. However, respondents also reported that government and scale-up funding were the most difficult to access. Key barriers included limited availability, investor reluctance, and complexity/length of the funding process.

FUTURE OPPORTUNITIES

AI Adoption is Growing to Drive Efficiency and Innovation

66% of cleantech firms have adopted or plan to adopt artificial intelligence (AI) to enhance efficiency, competitiveness, and innovation. AI is seeing broad uptake across sectors such as energy efficiency and precision agriculture. Its growing role in value creation is also reflected in investment trends, with AI capturing 30% of Canadian VC investments in 2024.[3]

Tax Incentives Are a Key Support Tool, with Growing Interest in ITCs

50% of pure-play cleantech companies reported benefiting directly from tax incentives, with the SR&ED program being the most used (84%), followed by the Clean Technology ITC (34%). Interest in ITCs is expected to grow as they are further clarified, and particularly for firms with commercial technology.

2025 Cleantech Industry Survey Overview

Data Collection: February 3 – March 28, 2025

Survey Topics: Capital and support needs, industry challenges, innovation considerations, and company characteristics

Response Rate: 30% among the 2039 pure-play companies that were contacted, with representation above 25% across all provinces and cleantech industries. The total number of respondents was 611 pure-play cleantech firms.

Context: Cleantech refers to technologies and solutions that reduce emissions and improve environmental performance across a range of sectors, including energy (e.g., renewable and non-emitting sources, energy efficiency, smart grids, and energy storage), transportation, agriculture, manufacturing, and more.

Pure-play cleantech companies are defined as those firms who are primarily engaged in the development, production, and deployment of technologies, products, or services that generate a positive environmental impact.

See Annex A for more information on survey methodology. See Annex B for a list of survey variables

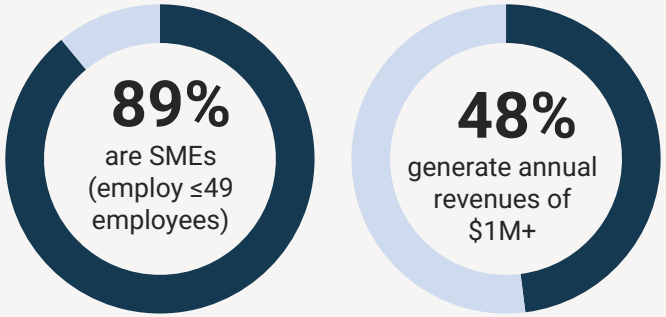
Respondent Profile – Overall

Canada

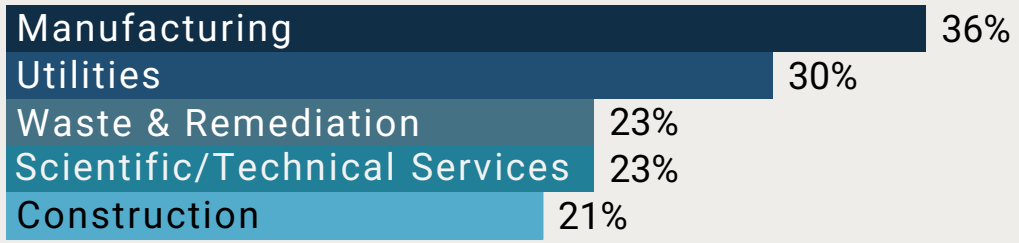
611

total survey respondents

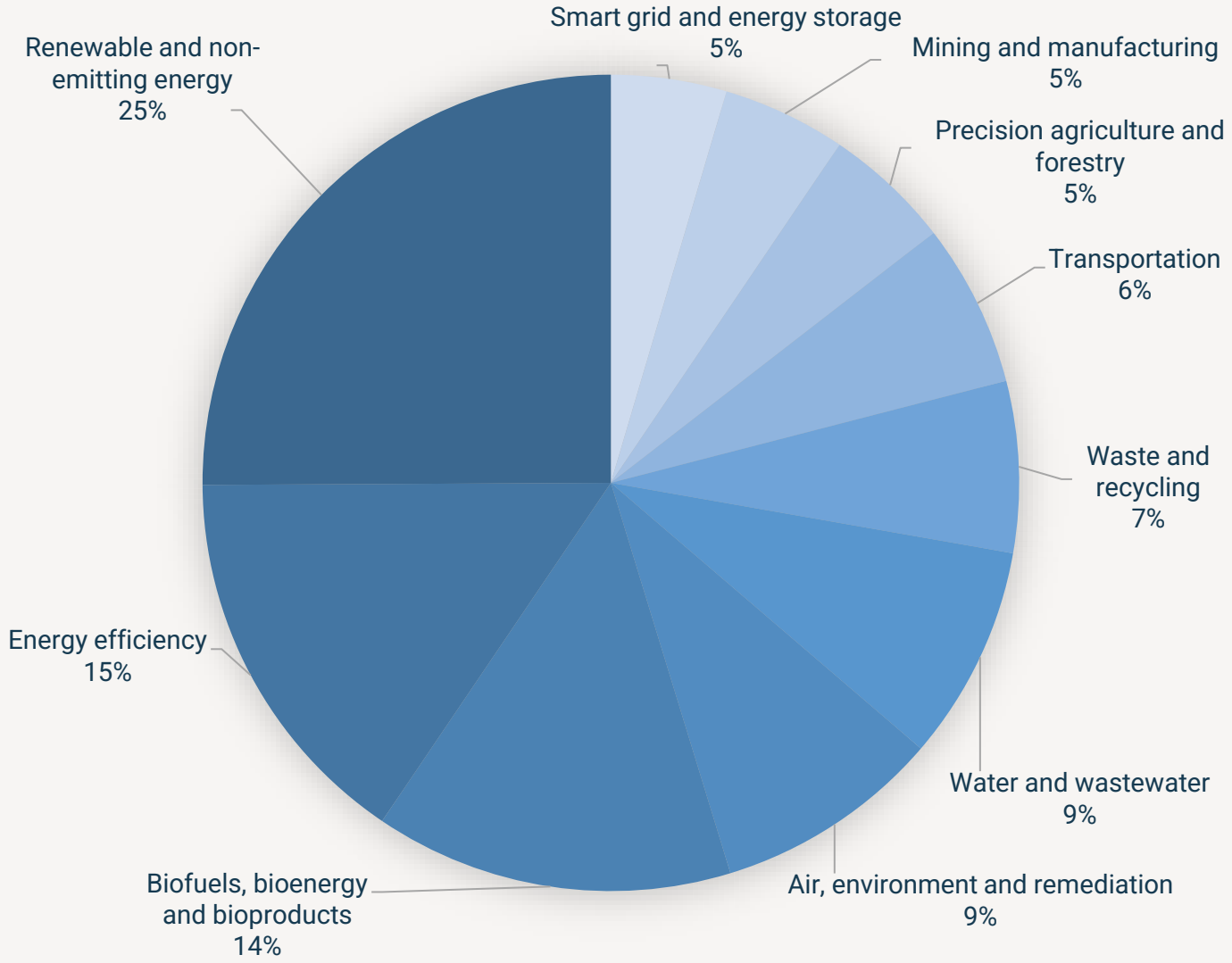
Key Characteristics



Top Markets Served

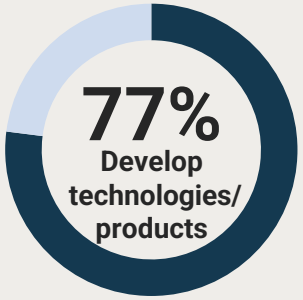


Subsector Breakdown



Respondent Profile – By Activity

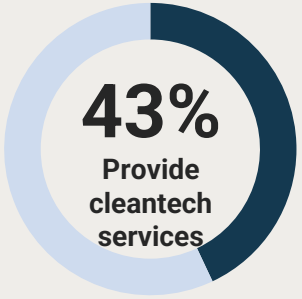
Of the 611 survey respondents:



Stages of Development for Technology Providers: (based on highest TRL selected)

Top Destination for Exporters:

82% sell to the U.S., **42%** to the EU, and **24%** to Central/South America



Leading Industries for Service Providers:

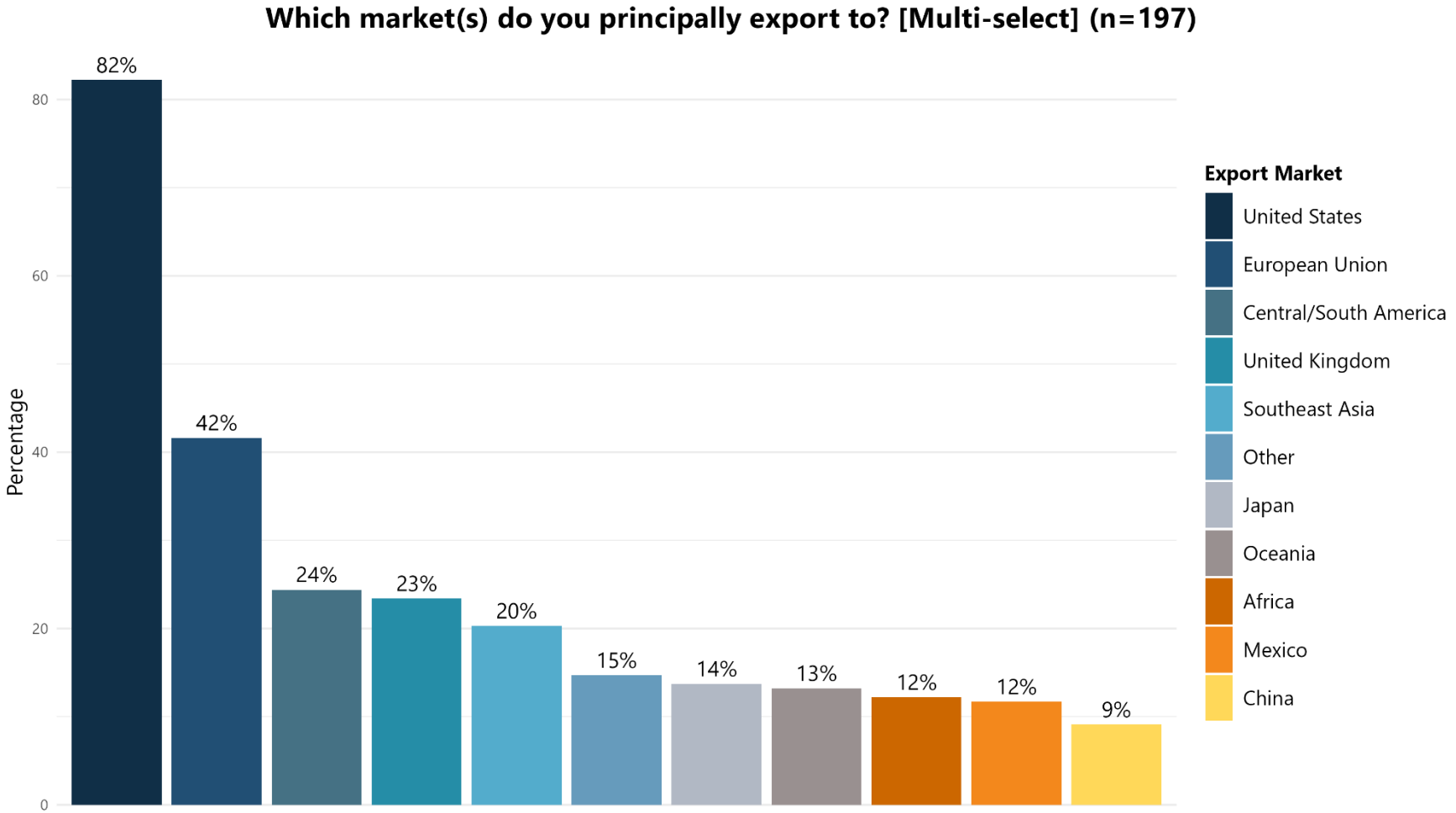
38% service the renewable and non-emitting energy industry

16% service the energy efficiency industry

Expanding Horizons:

Considerations for Market Diversification and Global Trade

Export Ready Firms – Nearly a third of SMEs surveyed are actively engaged in global markets

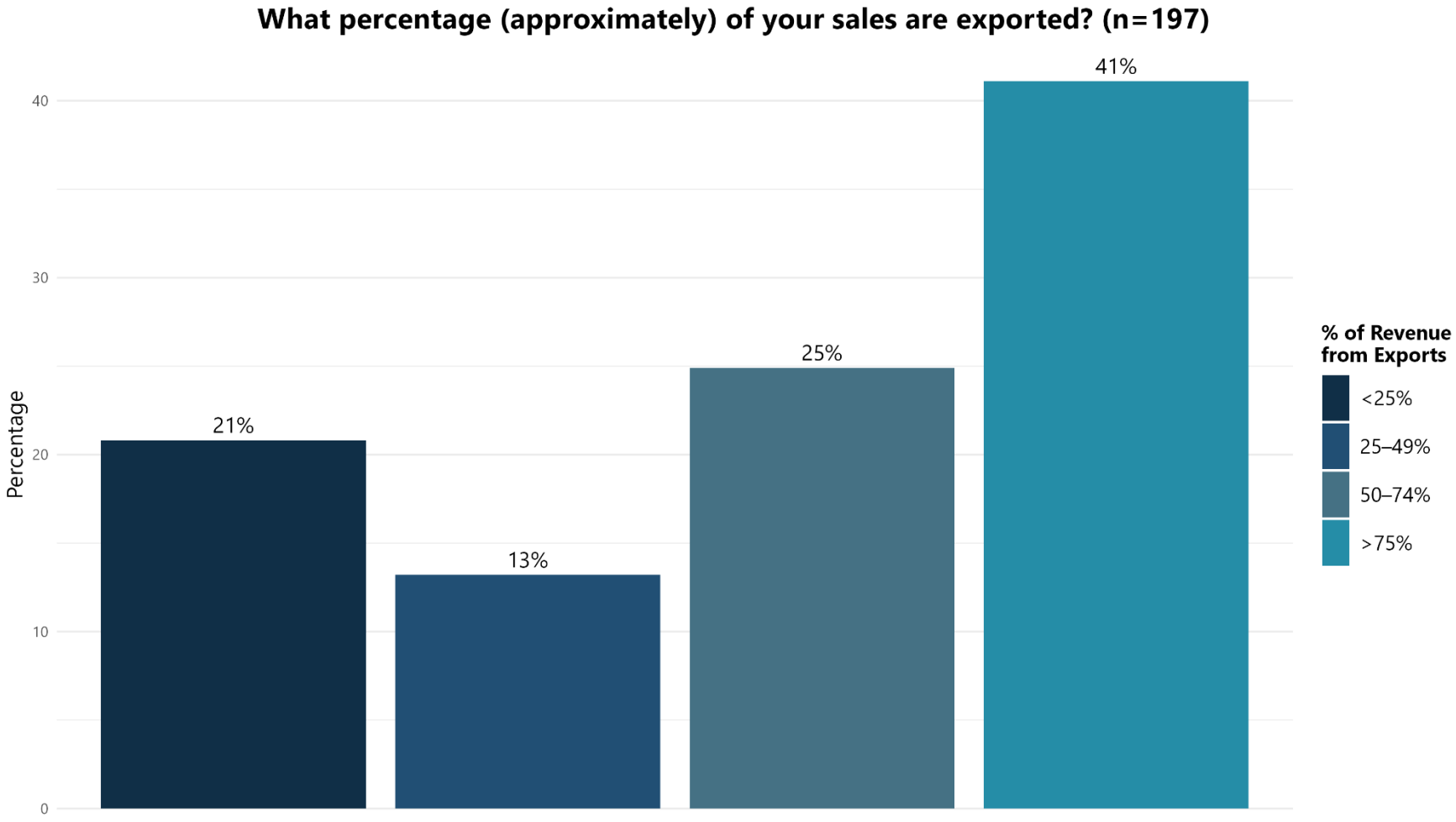


Nearly **one third** of surveyed firms are currently exporting their products. However, export activity is heavily concentrated, with **82%** of firms identifying the **United States** as one of their export markets, which highlights a significant dependency risk.

While the United States represents a large and accessible market, overreliance exposes firms to the economic, political, and regulatory fluctuations tied to a single country.

Diversifying into other major markets, such as the **European Union, Central and South America, and the United Kingdom,** can help cleantech companies capture growth opportunities in emerging regions, and build greater resilience against external shocks.

International Revenue – 66% of exporting firms generate the majority of revenue from international sales

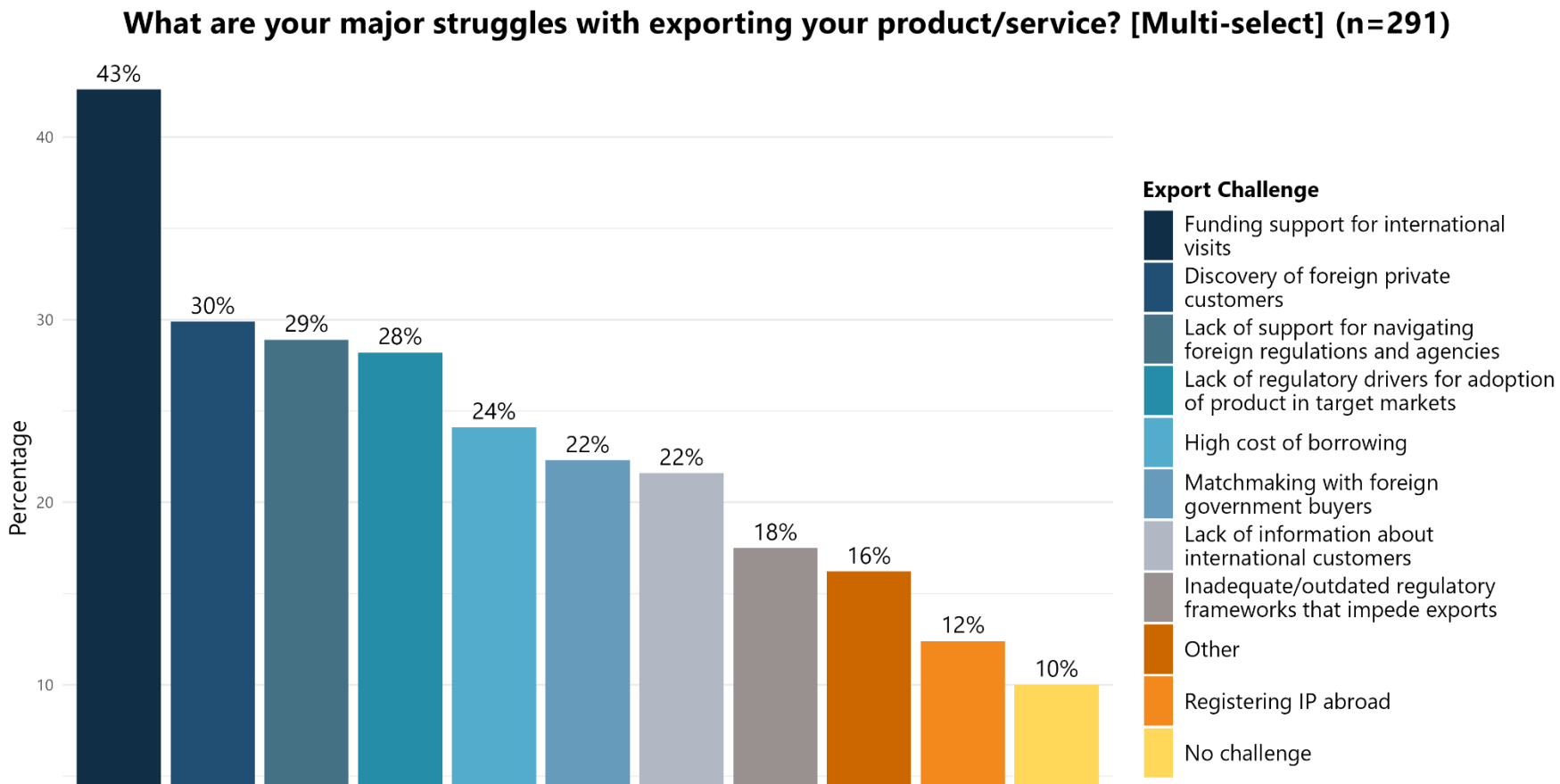


Among the companies surveyed, **66%** of exporters **generated at least half** of their total sales **from international markets**, and 41% earned more than 75% of their sales abroad. These figures underscore how central global trade is to cleantech business performance and growth.

But heavy reliance on a single market leaves firms exposed to geopolitical and policy-related risks. Trade disruptions, shifting tariffs, or changes in demand can quickly impact revenues. Expanding into new international markets opens the door to broader customer bases and more stable growth opportunities.

As global trade dynamics continue to evolve, deepening and **diversifying export activity** will be important. Doing so strengthens economic resilience, reduces vulnerability to external shocks, and supports long-term industry competitiveness on the global stage.

Exporting Barriers – 43% of exporting firms cite funding for international market development as a key challenge

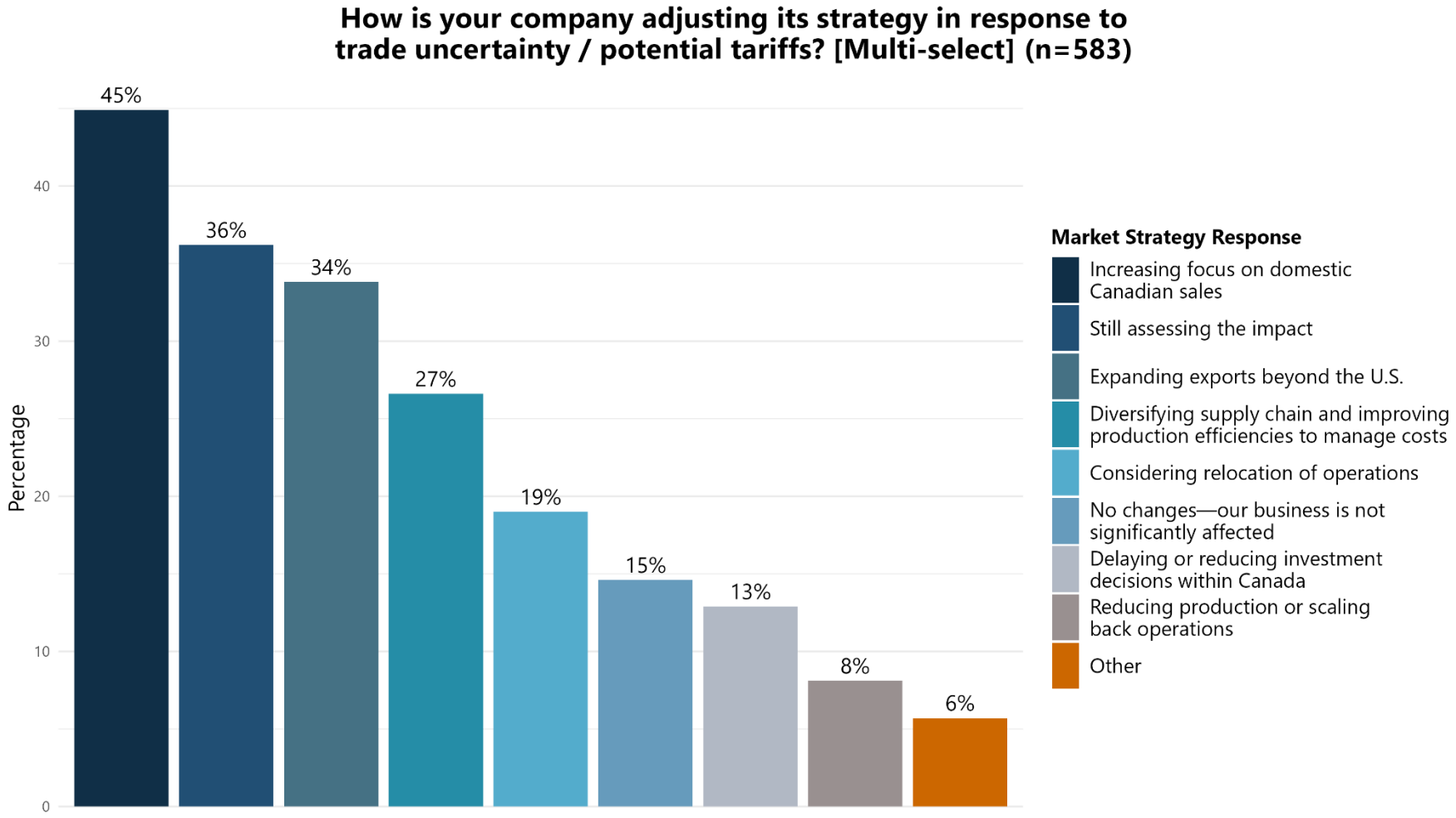


Cleantech SMEs face complex barriers in reaching international markets. Unlike large multinationals, these firms often lack established customer relationships and face steep costs to establish a foothold abroad.

The top challenge, cited by 43% of respondents, is **insufficient funding for international visits,** a critical step for relationship-building and market presence. Firms also reported **difficulty discovering foreign customers** (30%) and **navigating complex regulations** (29%). **Regulatory hurdles** appeared twice: 28% cited a lack of regulatory drivers for product adoption, and 18% pointed to outdated frameworks that hinder exports.

For many firms, “market access” means more than finding buyers. It also involves aligning technical codes and navigating regulatory pathways, standards, and ESG concerns. This underscores the need for targeted support alongside trade promotion to help firms convert innovation into globally competitive, export-ready offerings.

Strategic Shift – 45% are prioritizing Canadian markets, 34% are expanding beyond U.S. borders

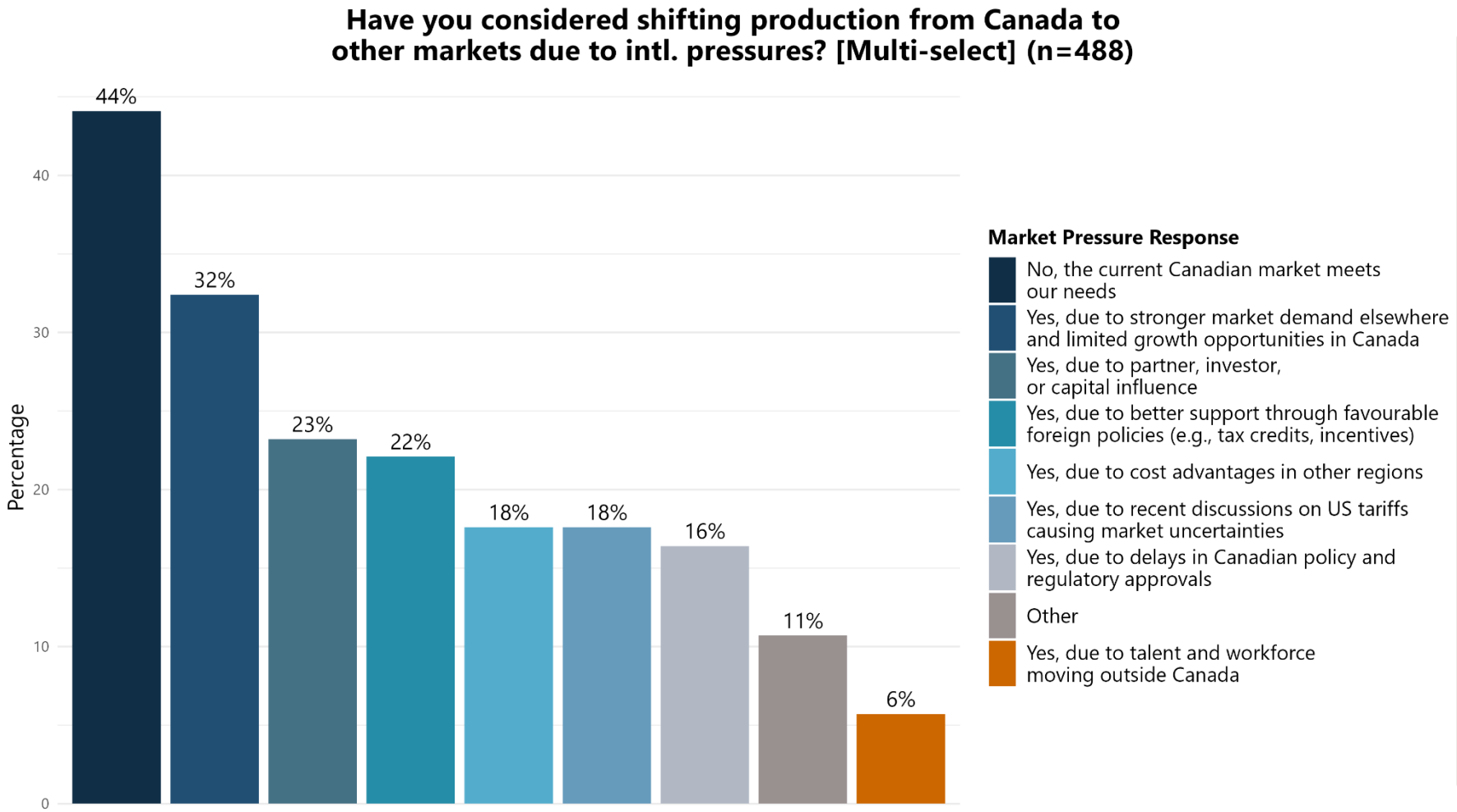


Amid rising trade uncertainty and tariff risks, Canadian firms are actively reshaping their market strategies. **45%** are doubling down on **domestic sales**, while **34%** are diversifying into markets **beyond the U.S.**, signalling a strategic push for broader global engagement.

Simultaneously, **27%** are **strengthening supply chains** and improving cost efficiencies to boost resilience.

These trends highlight a significant pivot towards reducing market dependency and vulnerability to support market diversity and long-term stability. Sustained success will rely on government support for export expansion, supply chain adaptation, and enhanced global market access.

Market Pressures – Over half of firms consider shifting production beyond Canada



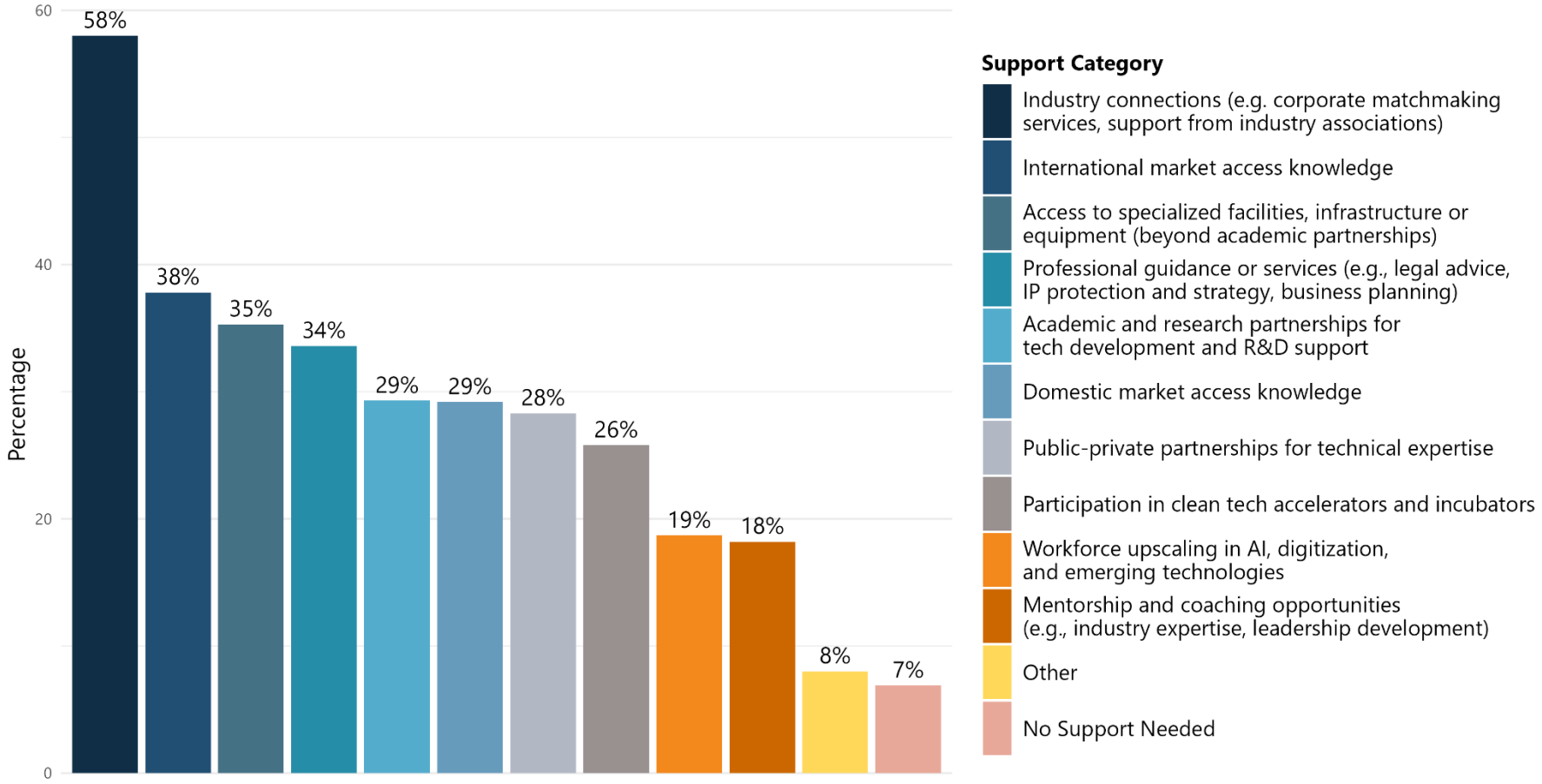
More than half of the firms surveyed are considering shifting production outside of Canada, raising serious concerns about the country's competitiveness.

While **44%** of firms reported that the **Canadian market still meets their needs**, **32%** are **looking abroad** due to stronger market demand and **limited domestic growth**. Additionally, 23% cited partner, investor, or capital pressure, and 22% pointed to more favourable foreign policies such as tax credits and incentives.

These findings signal a critical need for Canada to address structural barriers and enhance its market attractiveness. Without strategic reforms to improve domestic business conditions, there is a growing risk of investment and talent moving offshore, undermining the country's long-term industrial and economic resilience.

Critical Supports – Networks and market knowledge key to overcoming barriers

What non-financial (in-kind) supports would benefit your business in terms of researching and developing technologies? [Multi-select] (n=566)



When it comes to non-financial supports needed by cleantech firms developing technology, **58%** of firms cited stronger **industry connections** as critical for growth, while **35%** are seeking **specialized facilities** and **34%** report needing professional guidance to build the capabilities required for success.

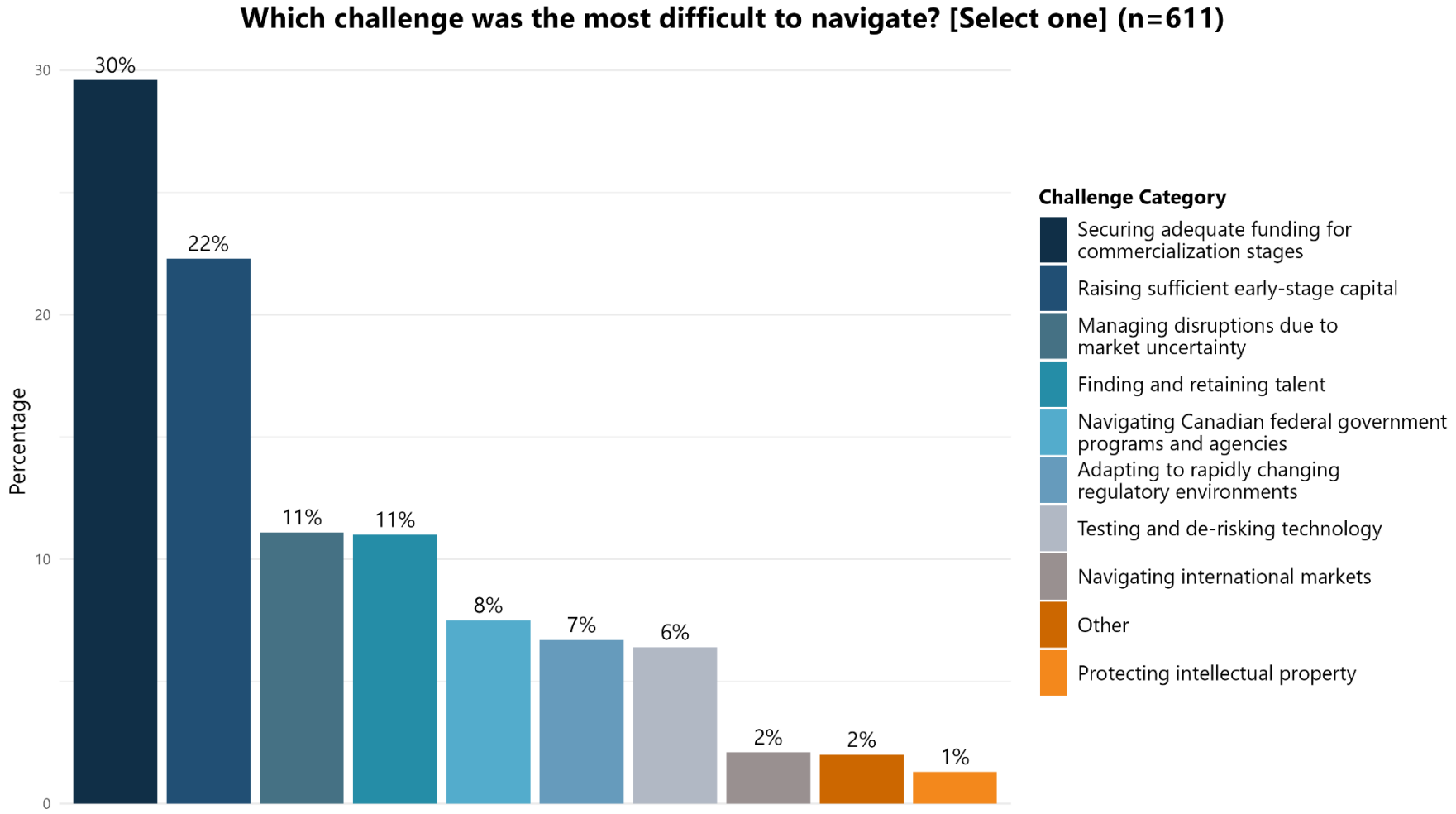
International market access knowledge ranked **second highest (38%),** reflecting the need for support in navigating regulations, understanding customer needs, and overcoming procedural hurdles.

These needs are shared by firms across all stages of development, including those preparing for first-time exports. Strengthening support for R&D-stage companies will be key to helping them move from development to commercialization and expansion into global markets.

Enabling Innovation:

Navigating the Capital Landscape for Cleantech Growth

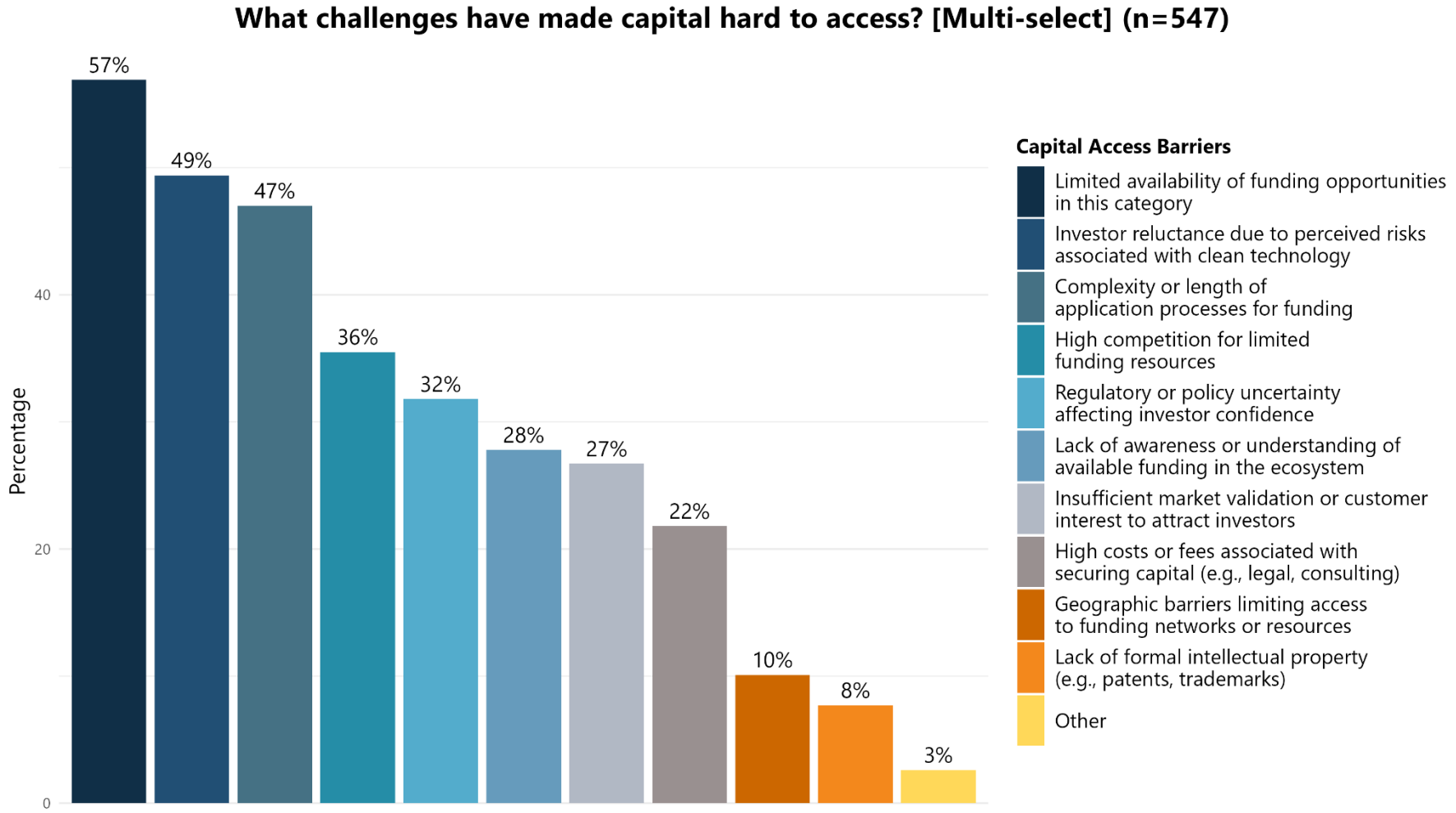
Capital Remains the Top Challenge – 52% say capital is their biggest hurdle (30% for commercial and 22% for early-stage funding)



Access to capital remains the most significant challenge facing Canadian cleantech firms, and the problem is growing. In the **2022 Cleantech Industry Survey, only 35%** of respondents identified **capital as their greatest challenge**.[1] The latest survey data suggests that capital-related challenges have intensified in the last 3 years and continues to hinder companies trying to scale and grow.

The tightening of capital aligns with trends. Venture capital investment in Canadian pure-play firms dropped 44% between 2021 and 2024, falling from $29.7B to $16.7B.[2] The Business Development Bank of Canada further highlights Canada's reliance on foreign capital, particularly from the U.S., which now faces an elevated risk of retreat due to ongoing tariff and trade uncertainties.[3]

The Cleantech Capital Crunch – Hard to find, harder to secure



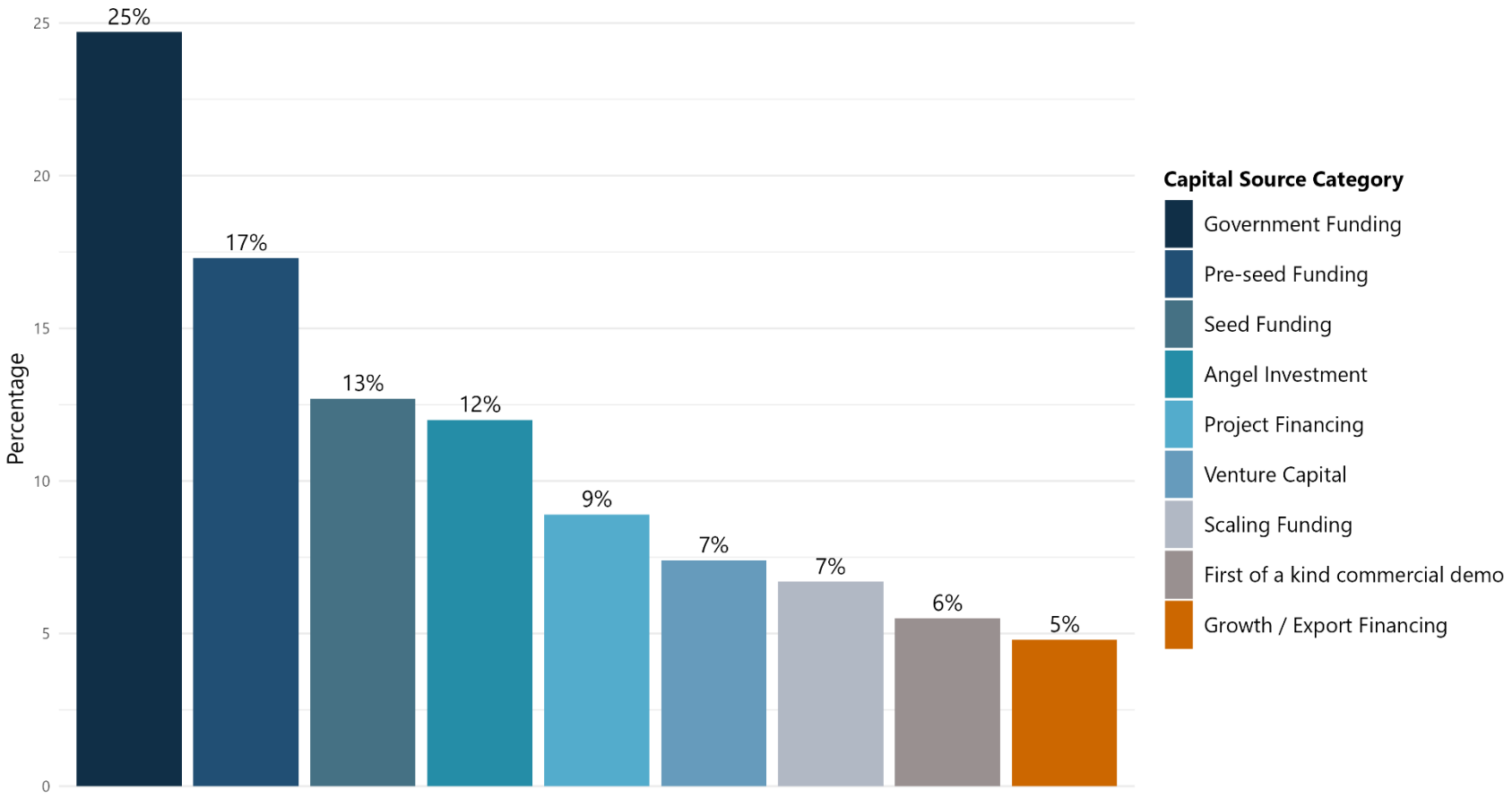
When asked which challenges made capital hard to access, **limited availability of funding (57%)** was cited as the leading reason. Respondents also pointed to deeper structural issues such as **investor hesitation around clean technology (49%), complex application processes (47%),** and **regulatory uncertainty (36%),** all of which further restrict access to capital.

These findings indicate that barriers extend well beyond funding availability alone. Many firms face significant uncertainty and complexity when navigating existing funding pathways.

Together, these patterns reveal a structural gap in capital access that impacts firms at critical stages of the innovation cycle.

Capital that Drives Growth – Government and pre-seed funding lead

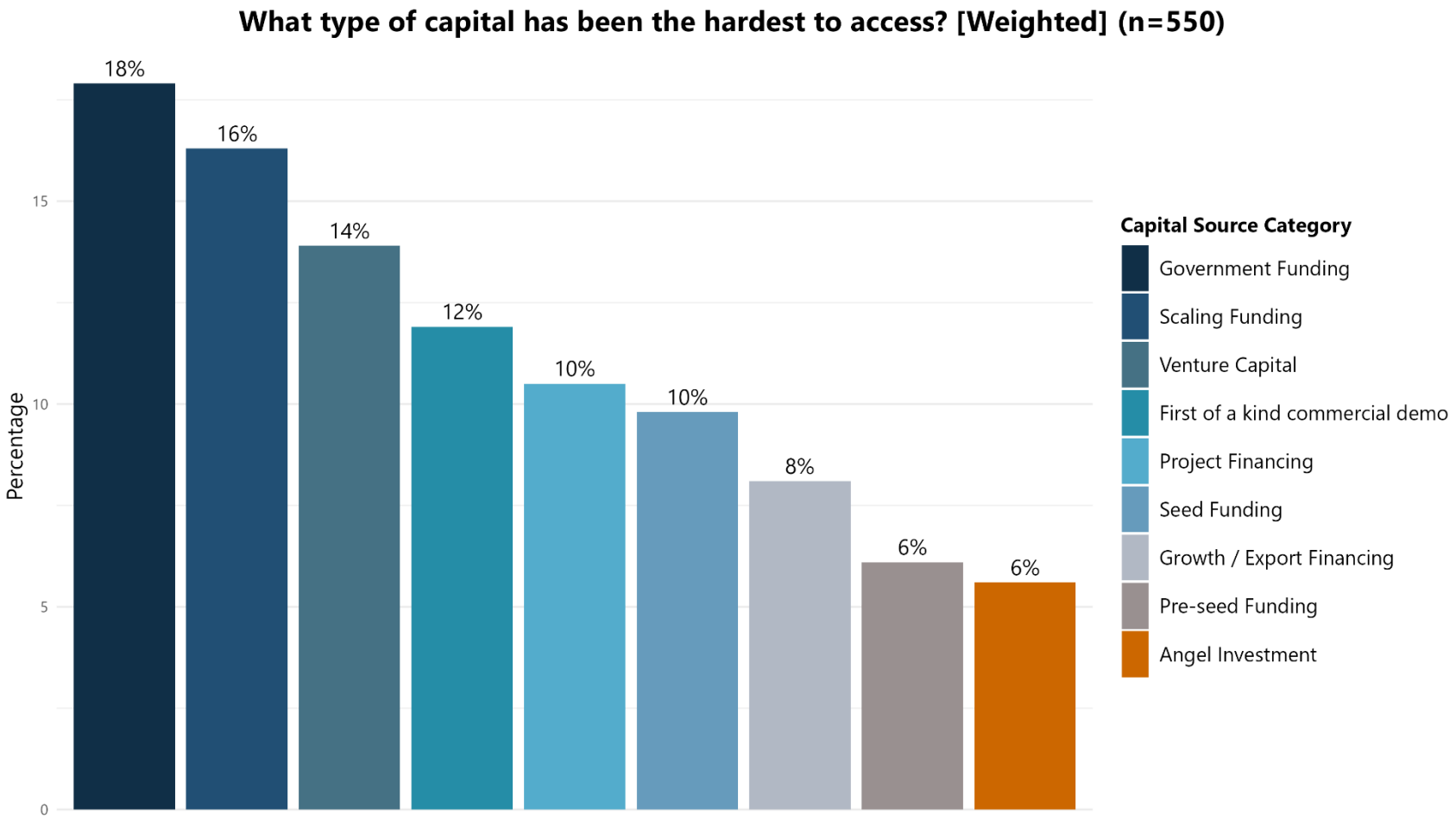
Which source of capital has been the most successful for business growth? [Weighted] (n=510)



Government funding is seen as the most successful source of capital for driving business growth, with **25%** of firms identifying it as their top contributor. **Pre-seed funding (17%),** which supports the earliest stages of company development (such as concept validation and prototype creation) also plays a key role. **Seed funding (13%)** helps firms refine market-ready products and prepare for early growth, while **angel investment (12%)** provides another important source of early-stage capital.

These findings highlight the importance of strong capital support throughout the early stages of the innovation cycle. Without sufficient early-stage funding, many firms risk falling into the “valley of death,” the critical gap between technology development and successful commercialization.

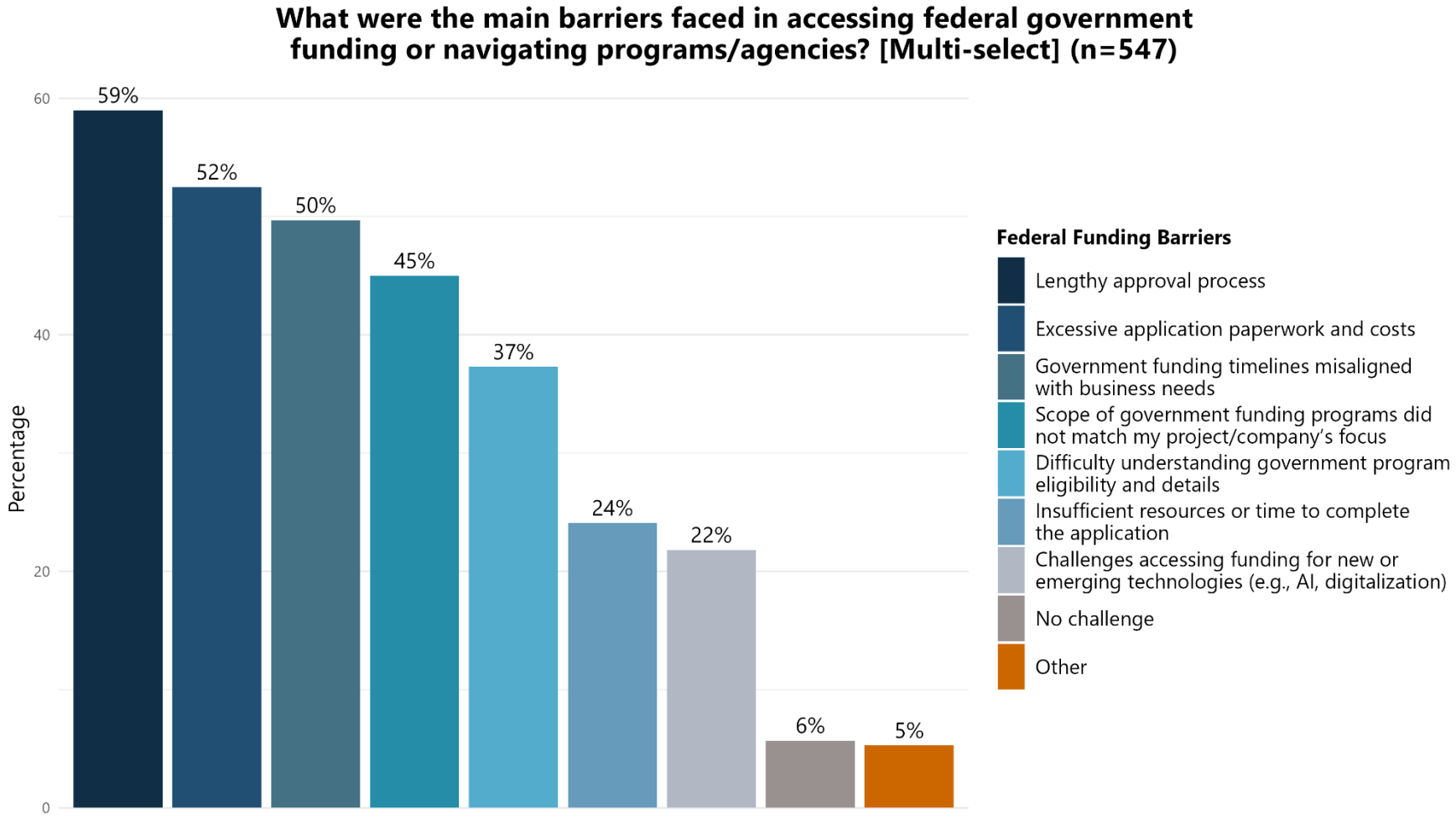
Most Difficult Funding to Secure – Government and scaling funding



Firms reported capital challenges across multiple stages of development, from early innovation through commercialization and growth. The 3 most difficult sources of funding to secure were **government funding (18%), scaling (16%) funding**, and **venture capital (14%).**

While public funding plays an important role in supporting early-stage innovation, limited access to government and scale-up capital remains a major hurdle for companies looking to grow. Many firms struggle to move from development to full commercialization because they cannot secure the funding needed to bring their technologies to market. This financing gap continues to slow the growth of individual companies and the broader cleantech sector in Canada.

Federal Government Funding Challenges – Lengthy approval process, excessive application paperwork/costs and misaligned timelines among top barriers



Government funding has emerged as both **the most impactful** and **most challenging source of capital** to access for cleantech firms. The dual aspect of this result highlights the critical but complex role of government funding, particularly as firms move from early innovation to scaling.

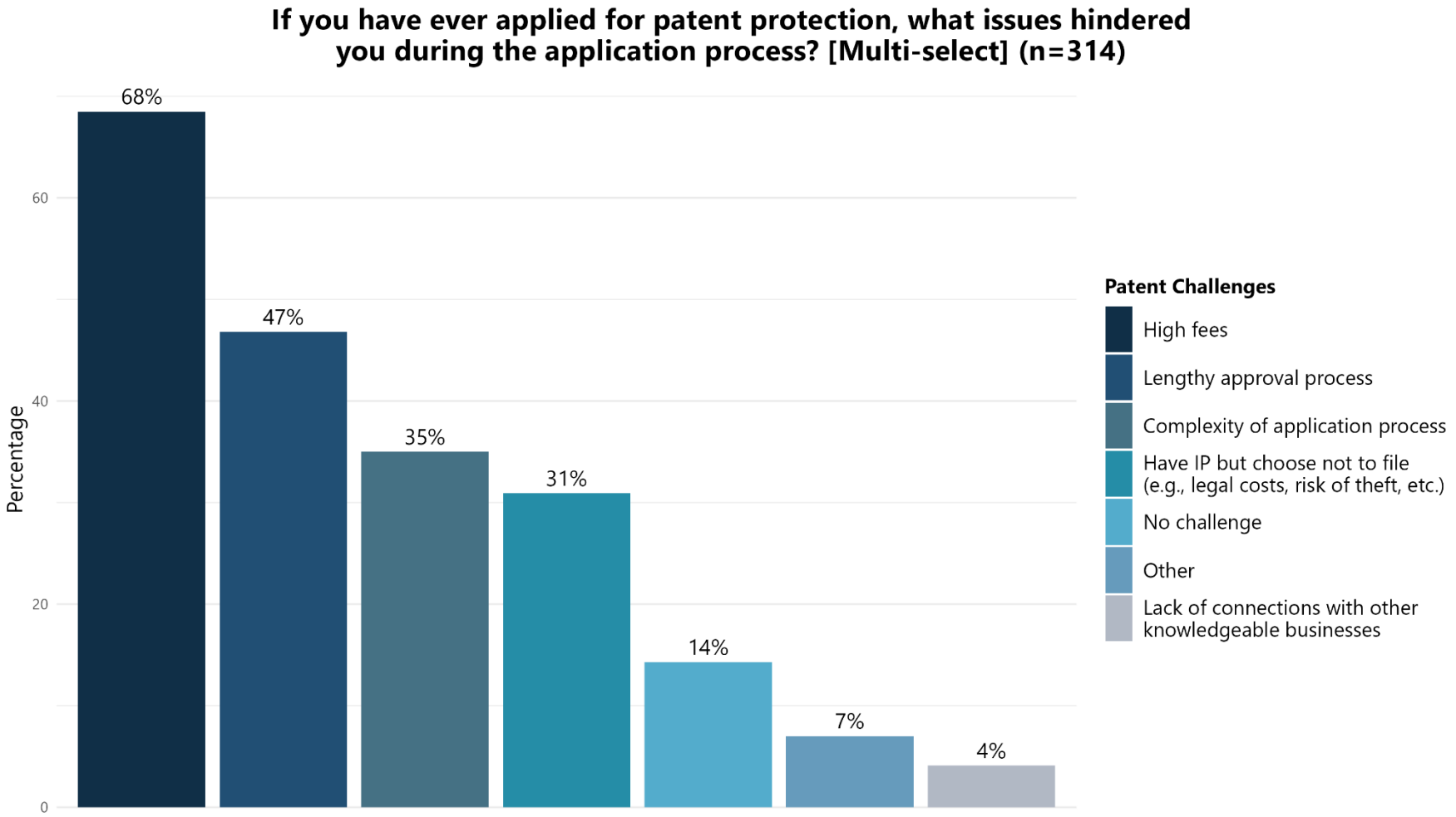
Key barriers to accessing federal funding include **lengthy approval processes (59%), excessive application paperwork and costs (52%),** and **funding timelines that do not align with business needs (50%).**

These results point to opportunities for the federal government to improve program accessibility and responsiveness to help more firms to successfully leverage available funding.

Building Canada's Cleantech Future:

Challenges and Opportunities for Industry Growth

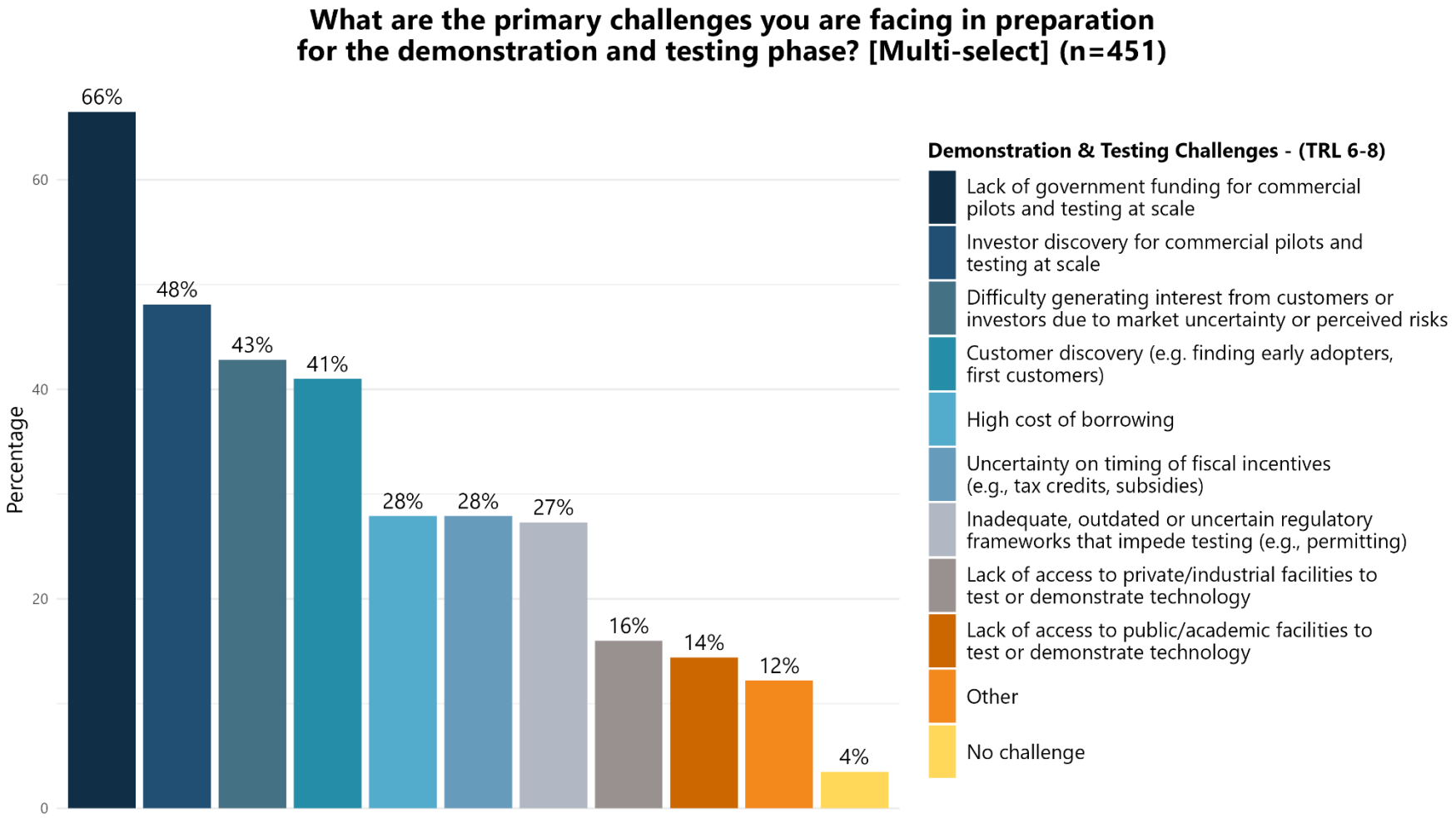
Patent Challenges – A costly and lengthy process for cleantech firms



The **cost associated with patent protection** was cited as the most significant patent challenge by 68% of respondents. In Canada, the cost of a patent application can average between $10,000 and $20,000,[4] and defending a patent in complex cases can exceed $1 million.[5]

Other major challenges with patent protection include the **lengthy approval process (47%)** and **complexity of the application process (35%).** Securing a patent involves multiple steps and often requires the support of legal and technical specialists.[6] On average, it takes approximately 5 years and 8 months for a cleantech patent application to progress from filed to granted in Canada.[7]

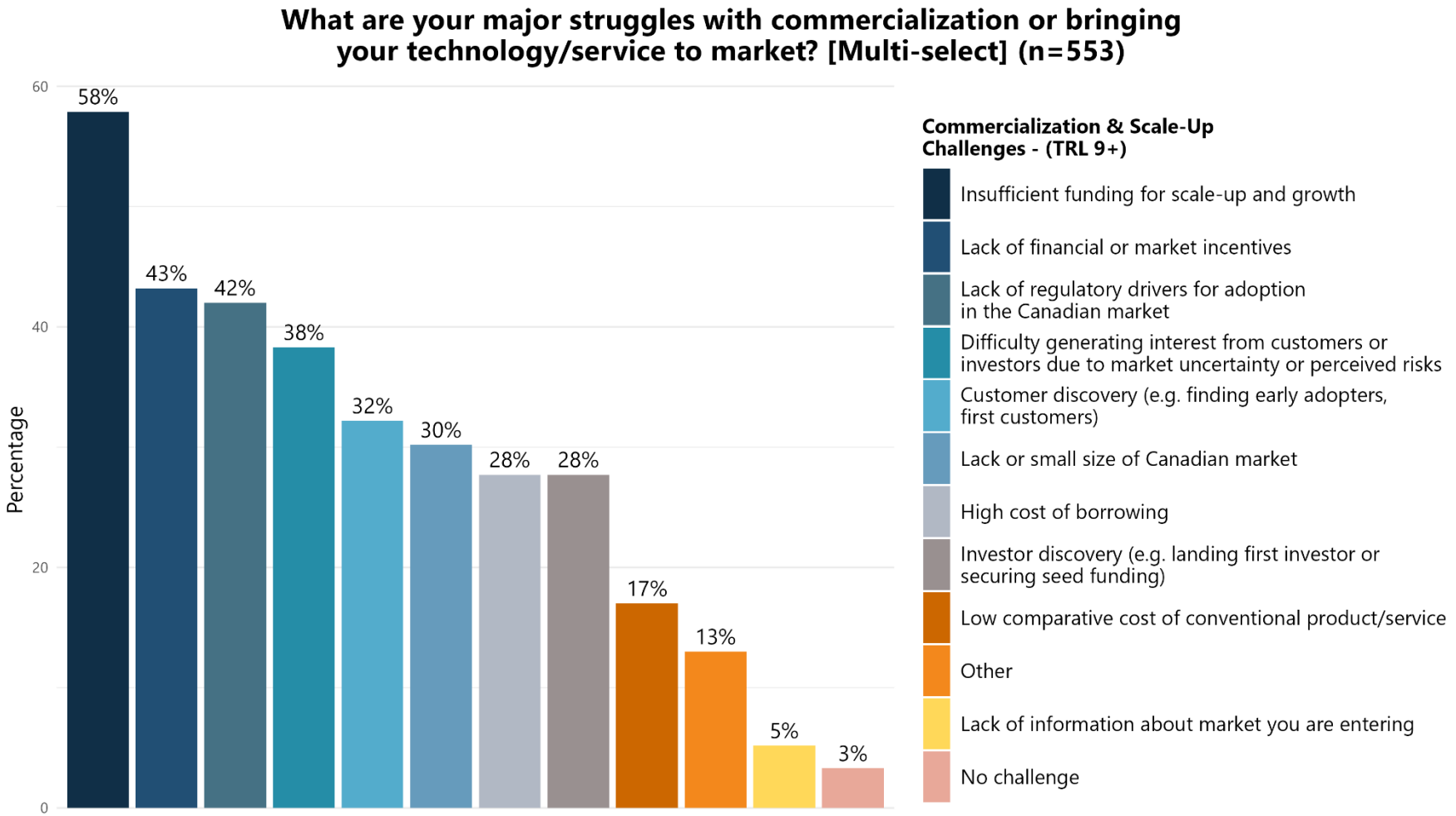
Demonstration & Testing Challenges – Government funding key to advancing commercial pilots



Firms across the innovation spectrum consistently identified capital access as the greatest barrier to advancing through key transitional stages. Among firms in the demonstration and testing phase (TRL 6–8), **67% cited a lack of government funding for commercial pilots and testing at scale** as their primary challenge.

This is a particularly capital-intensive stage of development, with firms needing to prove technologies at scale in real-world conditions to attract investors, customers, and market acceptance. Challenges such as **investor discovery (48%), customer demand uncertainty (43%),** and **regulatory hurdles (28%)** further compound these risks. Strengthening funding pathways and improving policy alignment at this critical phase could help more cleantech innovations successfully cross the demonstration-to-market gap.

Commercialization Challenges – Funding gap slows cleantech commercialization and scale-up

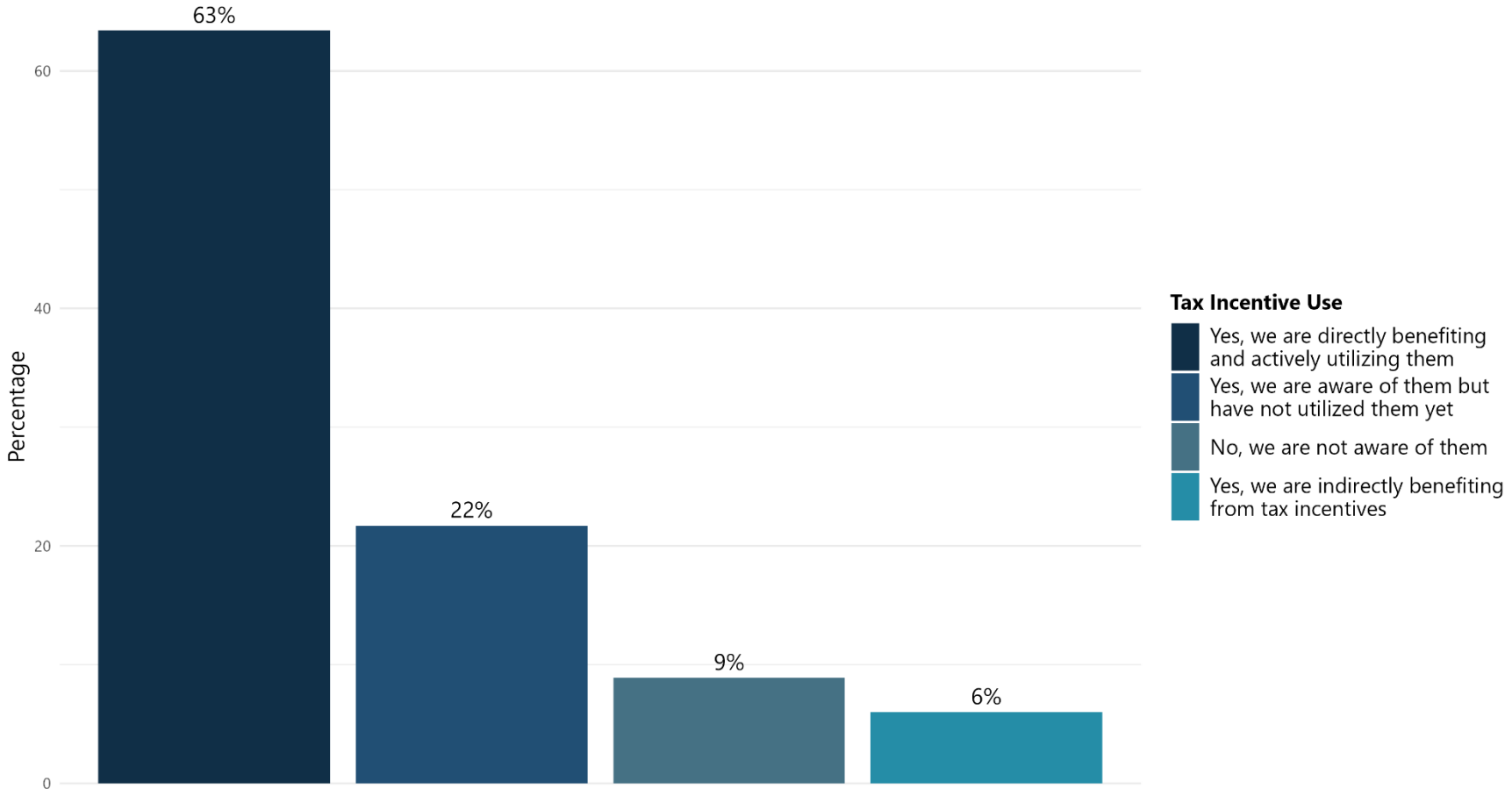


Among firms in the commercialization and scale-up phase (TRL 9+), **58% identified insufficient funding for growth** as a key barrier. These findings highlight a structural gap in capital availability at critical stages of the innovation cycle.

While it remains essential to address capital gaps, direct financial support is just one of the many tools used to accelerate cleantech growth at scale. Firms also rely on a broader ecosystem of public support, including targeted tax incentives and non-financial resources such as expertise, infrastructure, and industry networks. The effectiveness of early-stage government funding shows the need for coordinated, multifaceted support strategies that not only provide capital, but also help firms navigate commercialization and expansion.

Tax Incentives – 69% of firms benefit from tax incentives directly or indirectly

Does your company benefit from any type of tax incentive? [Select one] (n=484)



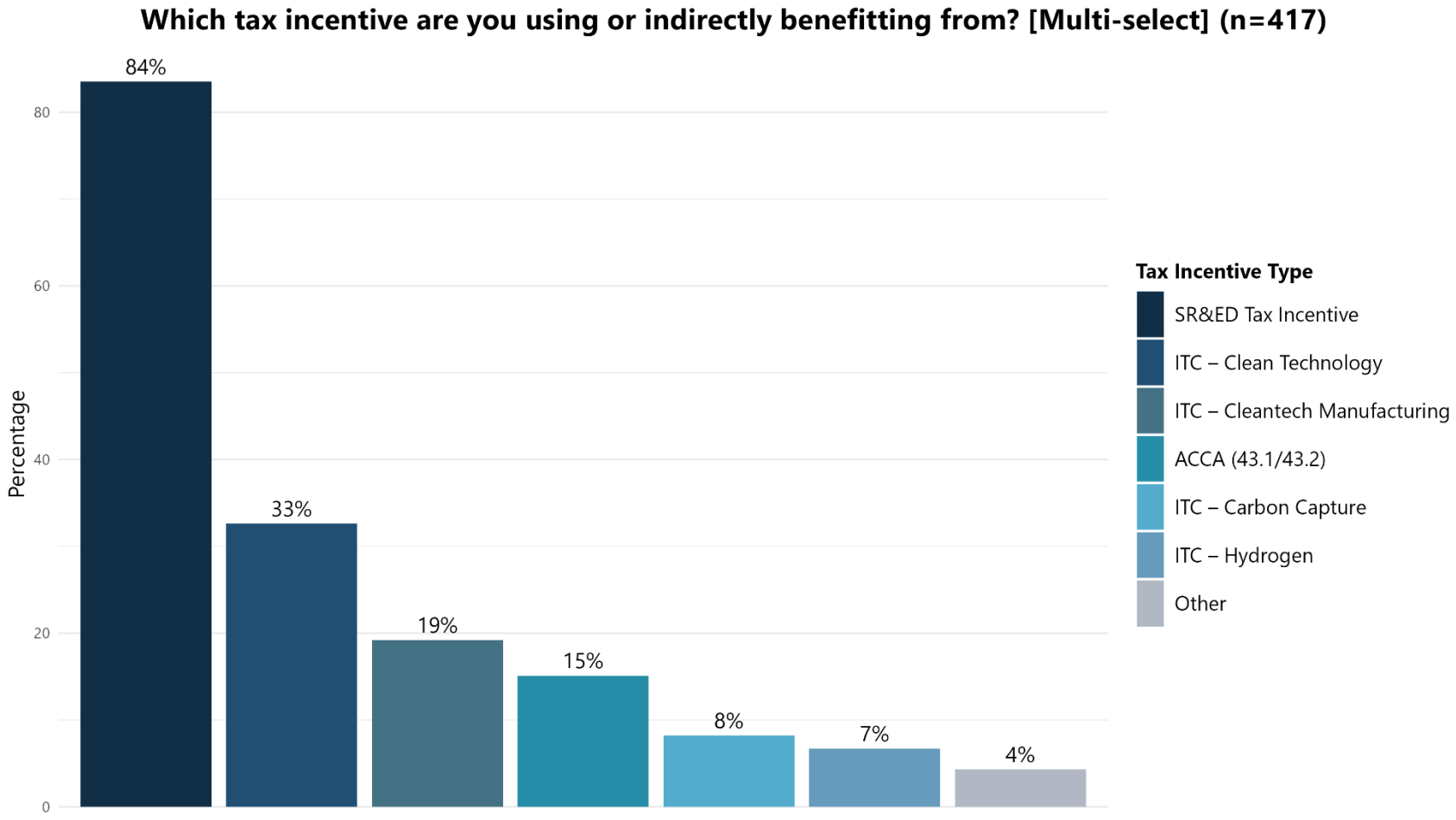
63% are directly benefiting and actively utilizing tax incentives, whereas **6% are indirectly benefiting**.

22% are aware of the incentives but have not utilized them, whereas **9%** of them are **unaware of them**.

Some of the firms that are aware of the incentives but are not yet using them may be planning to take advantage of the **new Clean Economy Investment Tax Credits**, which were recently introduced and may require time to incorporate into their capital planning.

Pure-play firms may also benefit indirectly from these new tax credits through increased demand for their products. However, since the credits are still new, their full impact may not yet be reflected in the survey results.

Tax Incentive Types – Vast majority of firms benefit from the SR&ED Tax Incentive



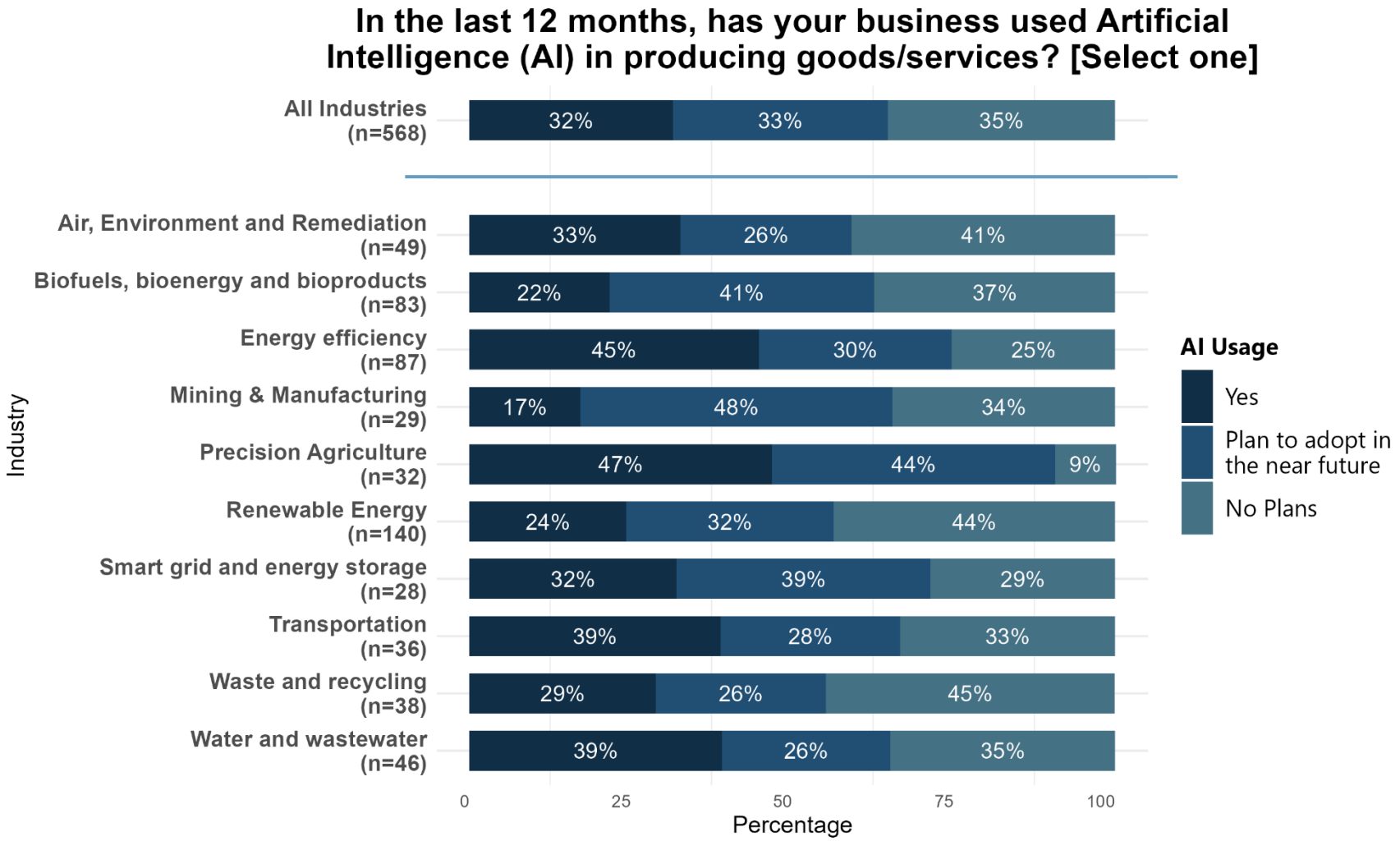
As innovators, pure-play cleantech firms are frequent users of tax incentives. Among those benefiting from tax incentives, **84%** are using or indirectly benefiting from the **SR&ED tax incentive**.

The Clean Economy Investment Tax Credits (ITCs) were introduced in 2024 to provide rebates on capital expenditures and encourage the deployment and adoption of clean technologies. For many pure-play firms, the benefits of these credits may be felt more indirectly, as their business models focus on enabling broader technology adoption.

Currently, only **6%** of firms report **indirect benefits from tax incentives**, but this may grow as companies become more familiar with these new opportunities.

Note: To learn more about the Clean Economy ITCs, go to Clean Economy investment tax credits (ITCs) - Canada.ca

AI Adoption Rising – 66% of cleantech firms embracing AI

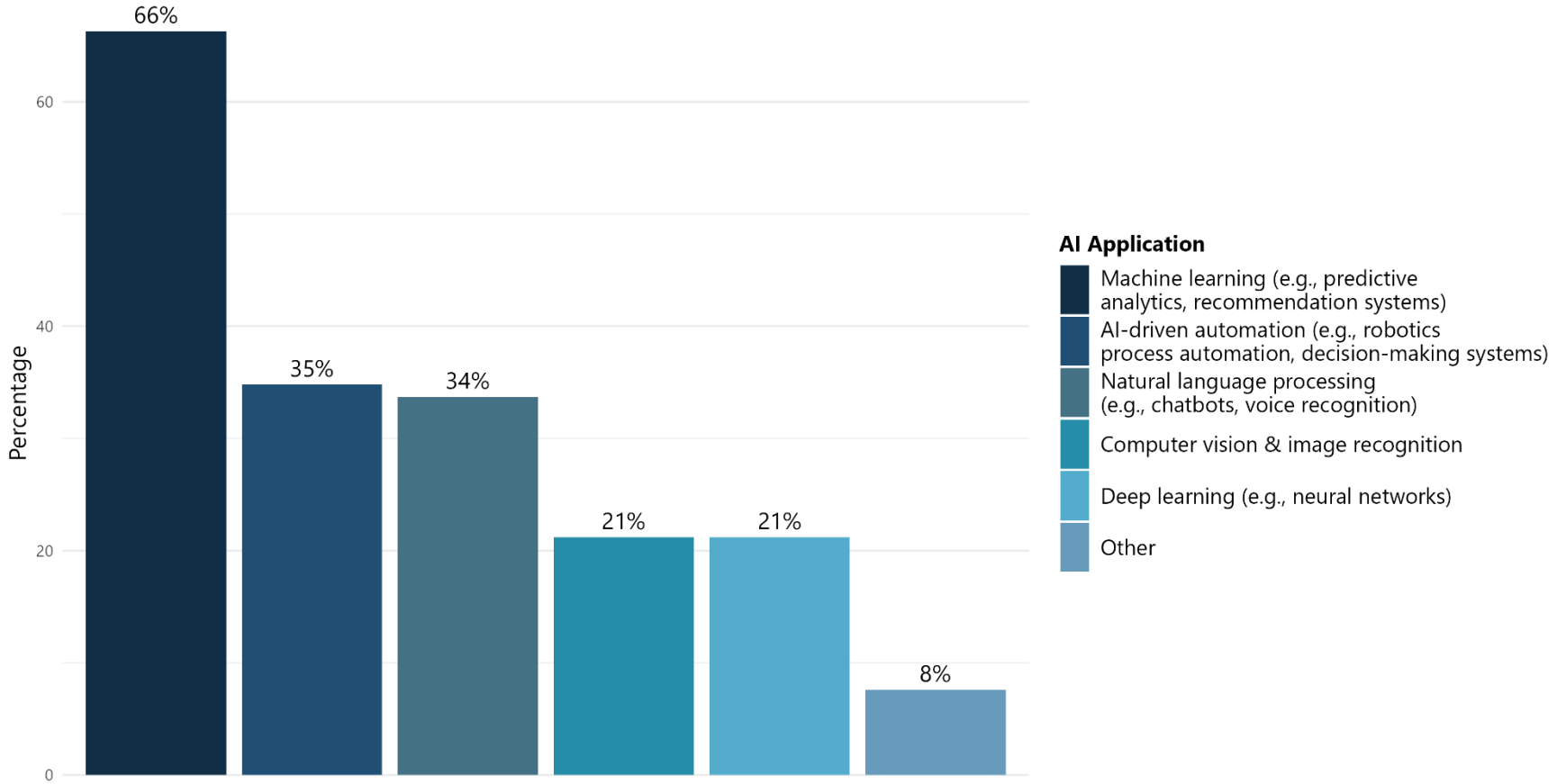


As cleantech firms look to enhance efficiency, competitiveness, and innovation, many are turning to advanced digital technologies to support their growth. According to respondents, **66% of firms have implemented or plan to implement artificial intelligence (AI)** into their operations.

Data from the Business Development Bank of Canada highlights AI's pivotal role in driving innovation and value creation, with AI garnering 30% of all VC investments in Canada. In 2024, more than half of all VC investments in Canada (57%) went towards information and communication technology, followed by life sciences (18%) and the energy and clean technology sectors (16%).

AI Applications – Machine learning leads the way

What type of AI applications did your business use/plan to use in producing goods/services? [Multi-select] (n=368)



Machine learning is the most widely used AI application among cleantech firms, with **66%** of respondents reporting they use or plan to use it in their operations.

Other leading applications include **AI-driven automation (35%)** and **natural language processing (34%),** followed by **computer vision (21%)**, and **deep learning (21%).**

Annexes

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Annex B – Survey Variables
Annex C – Cleantech Industry Respondent Profile Questions
Annex D – Contextual Notes
Annex E – References

Annex A – Survey Methodology

Survey questions were developed in consultation with cleantech industry associations to ensure they were relevant and clear for cleantech firms.

Because many cleantech companies develop multiple products and services at different stages of maturity, the survey was designed to capture this complexity. Respondents were first asked to identify all the activities their company is currently undertaking across their cleantech portfolio. Based on these selections, respondents then received applicable questions relevant to their company's stage of development and activities (Note: these activities are not mutually exclusive). The activity categories were:

- **Fundamental Research:** Early-stage research to validate basic principles and assess feasibility, such as lab-scale experiments or proof of concept (TRL 1–2).
- **Research & Development:** Development and validation of technologies under controlled conditions, focusing on refining prototypes and demonstrating functionality in relevant environments (TRL 3–5).
- **Demonstration & Testing:** Evaluation of technology to meet operational requirements (TRL 6–8).
- **Commercialization & Scale-up:** Products that have progressed from the lab to the market and are available for purchase (TRL 9+).
- **Exporting:** Actively sell or license clean technology products in international markets.
- **Service Provider:** Provide services that enable growth of the cleantech sector, such as suppliers, integrators, or installers of existing clean technologies.

Respondents who indicated that a question was not applicable or that they did not encounter any related challenges were excluded from the sample size for that specific question.

For weighted questions, respondents could select up to three choices. A 3-2-1 scoring system was applied, with three points for first choice, two points for second choice, and one point for third choice.

For multi-select and equally weighted questions, all selected responses from each respondent were normalized so that the total contribution from each respondent equaled one.

Annex B – Survey Variables

The 2025 Cleantech Industry Survey captures 20 variables, organized into four primary categories.

Company Profile
- Target Markets
- Company TRL Stage
- Ownership Demographics
- Company Size
- Annual Revenue

Industry Challenges
- Greatest Challenge
- IP Barriers
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- Commercialization Hurdles
- Export Difficulties
- Export Markets & Share

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- Capital Access Barriers
- Most Effective Capital
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- Desired Non-Financial Support

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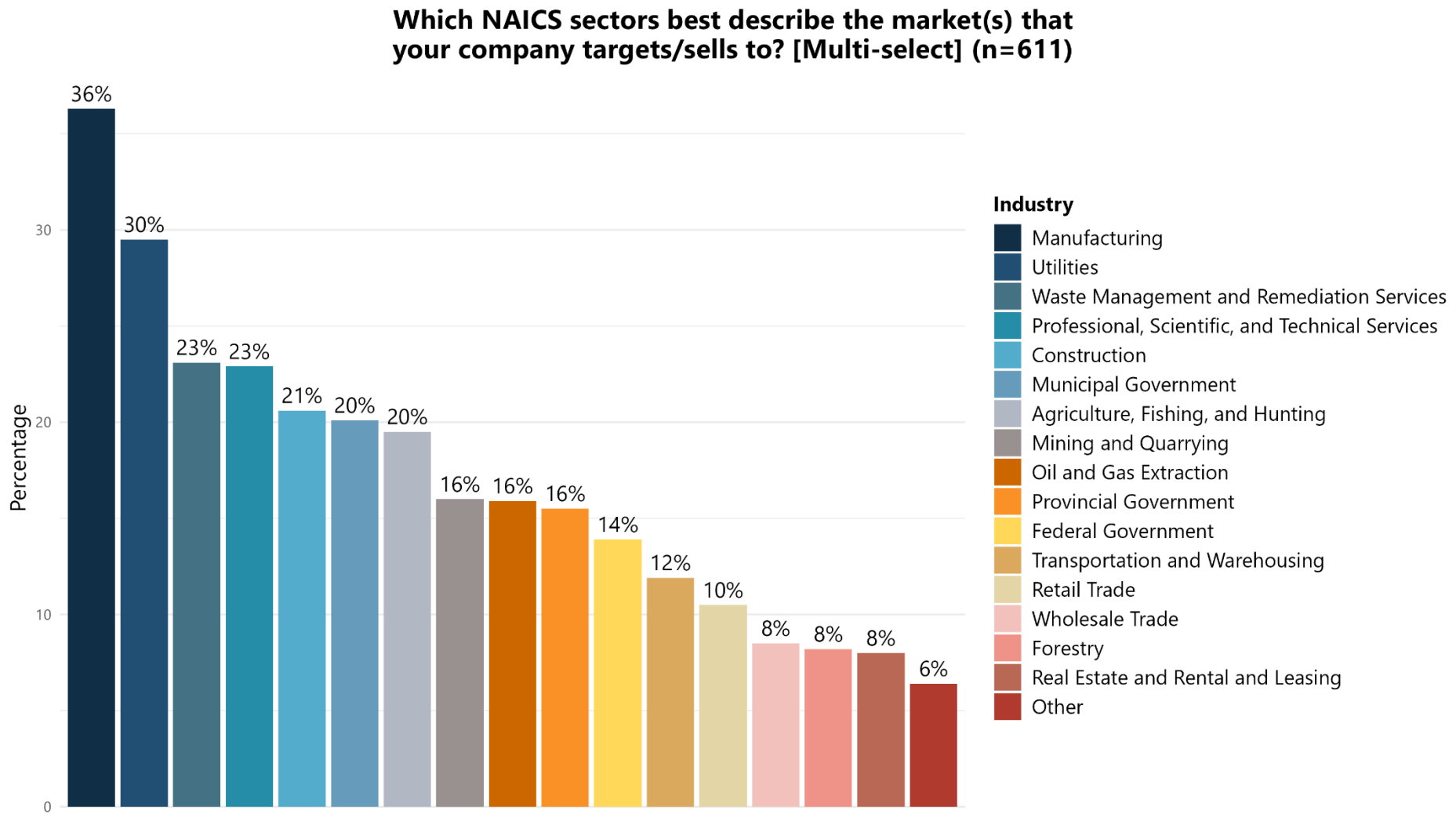
- Trade Adjustment Strategies
- Relocation Consideration
- Tax Incentive Use
- AI Adoption and Use

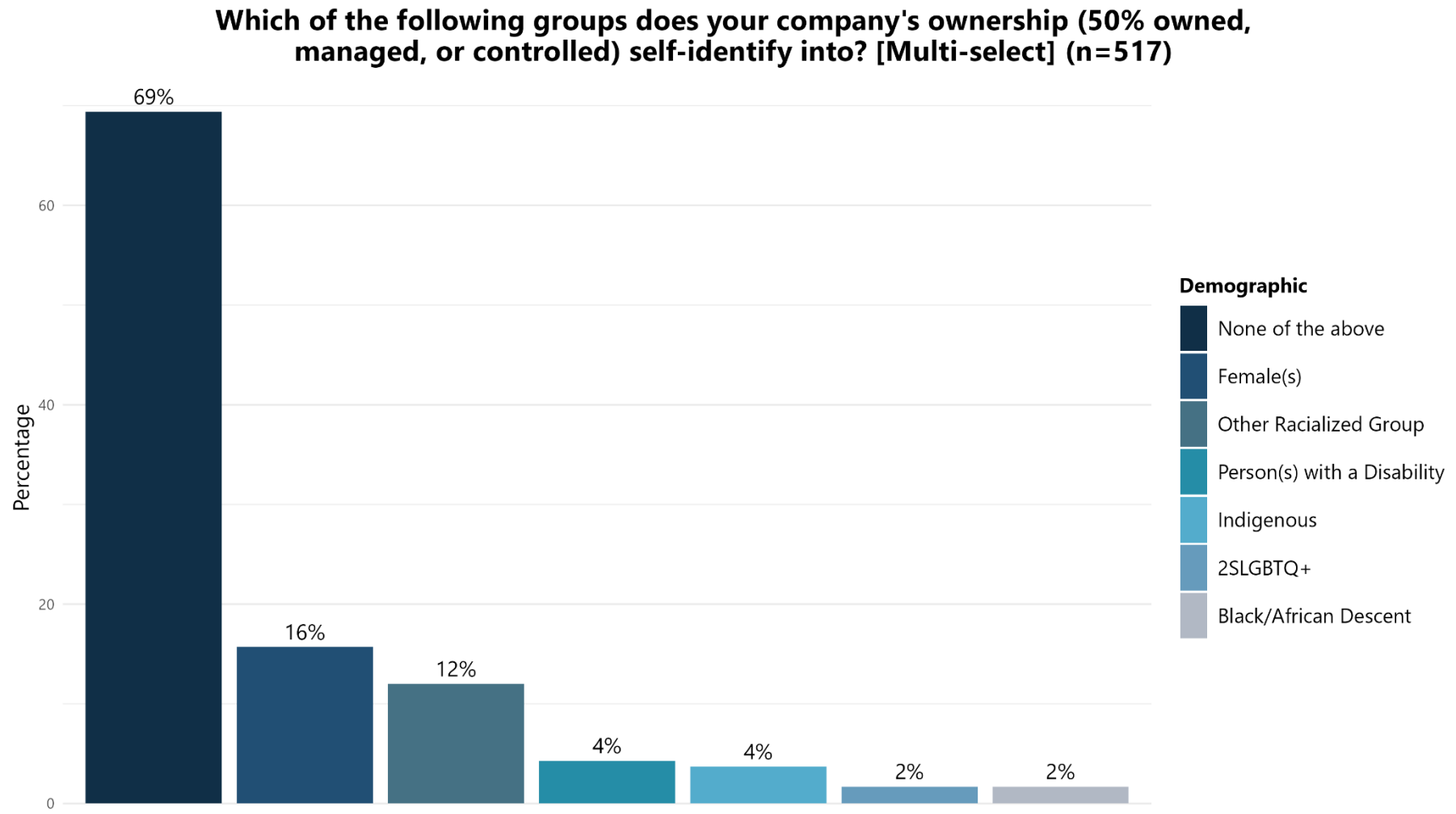
Annex C - Cleantech Industry

Respondent Profile Questions

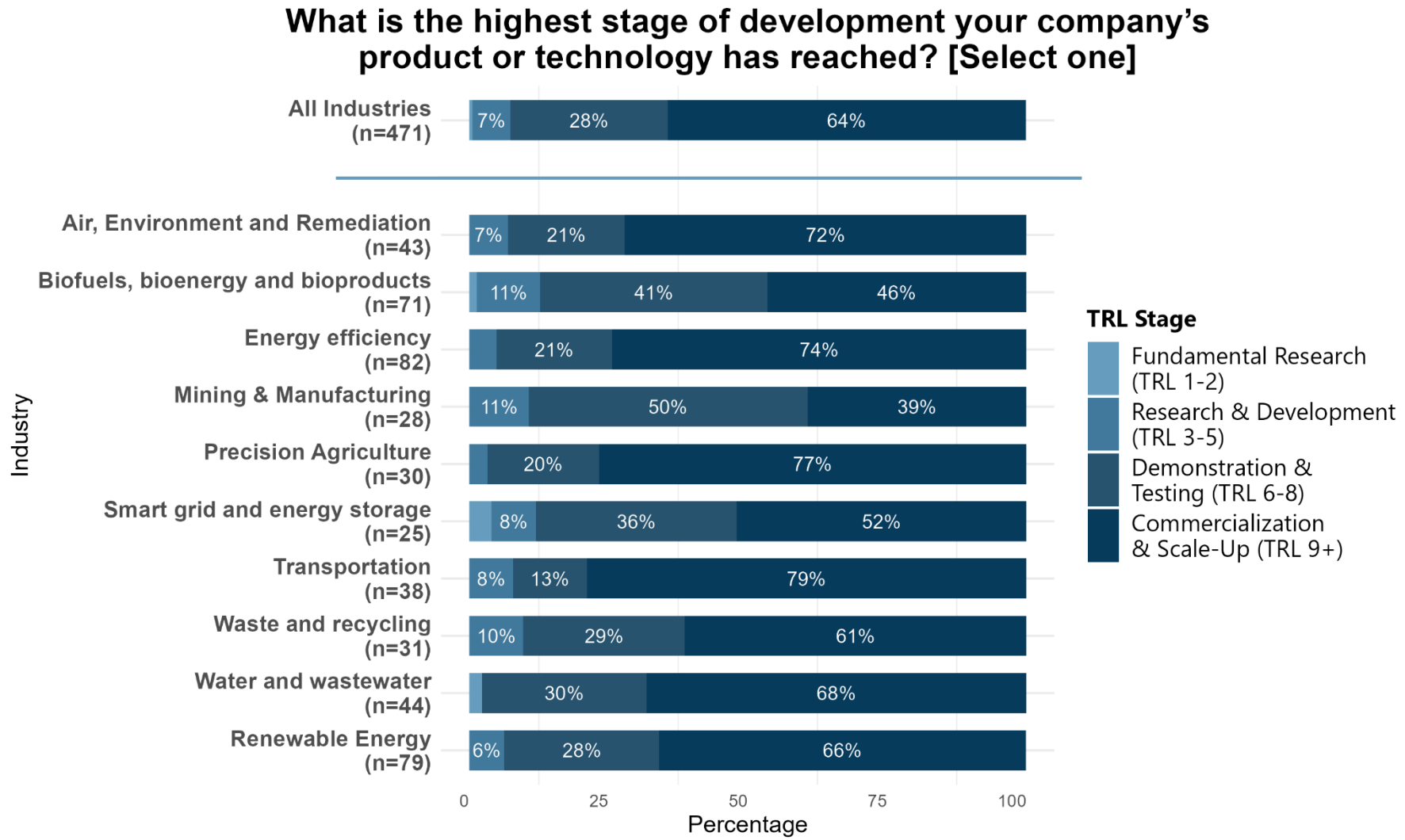
NAICS Market Focus – Top cleantech markets are manufacturing, utilities, waste management and remediation, and scientific/technical services



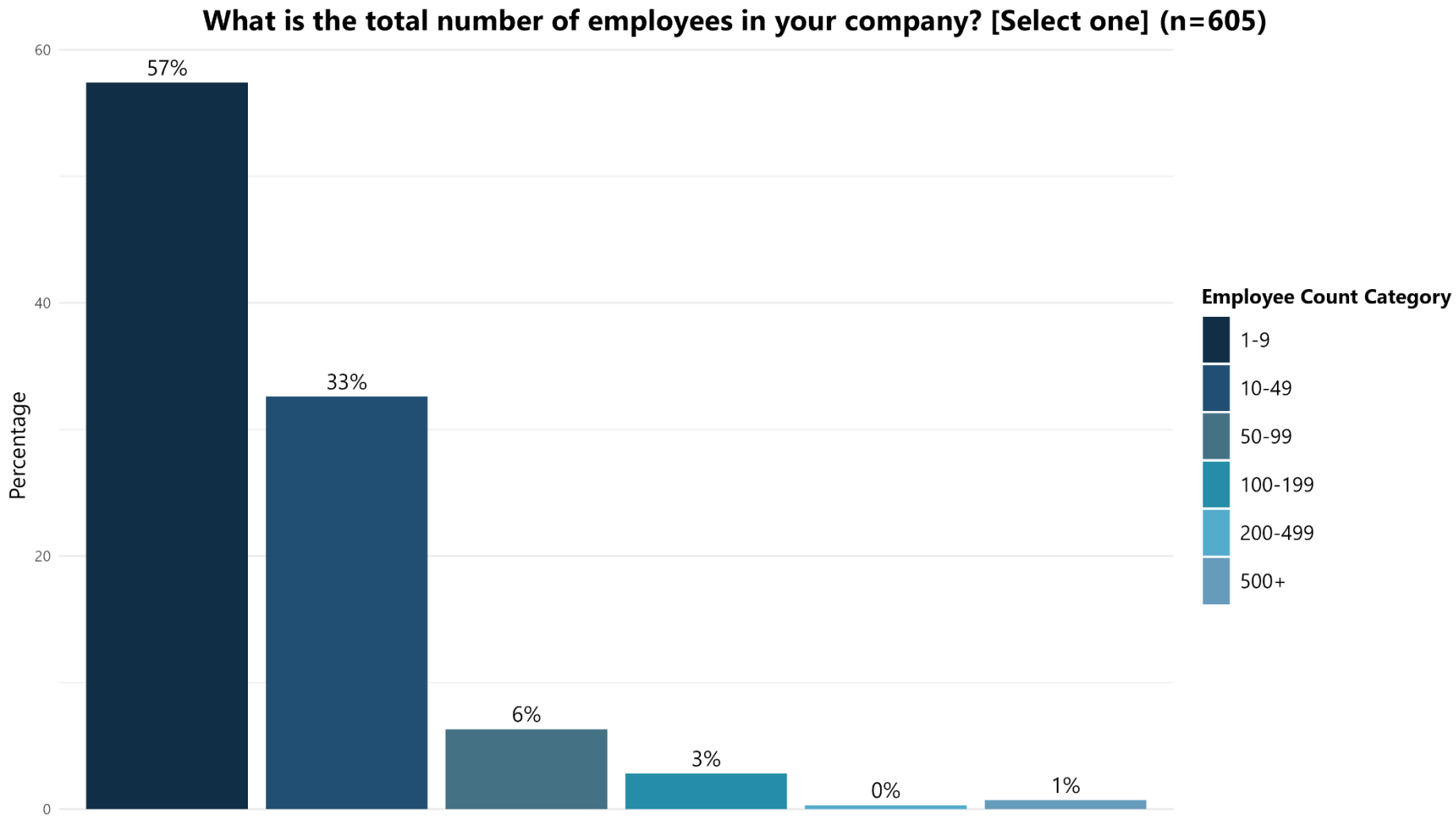
Ownership Demographics – 18% of cleantech firms identified their ownership as belonging to a racialized group, including 12% identifying as other racialized groups, 4% as Indigenous, and 2% as Black or of African descent



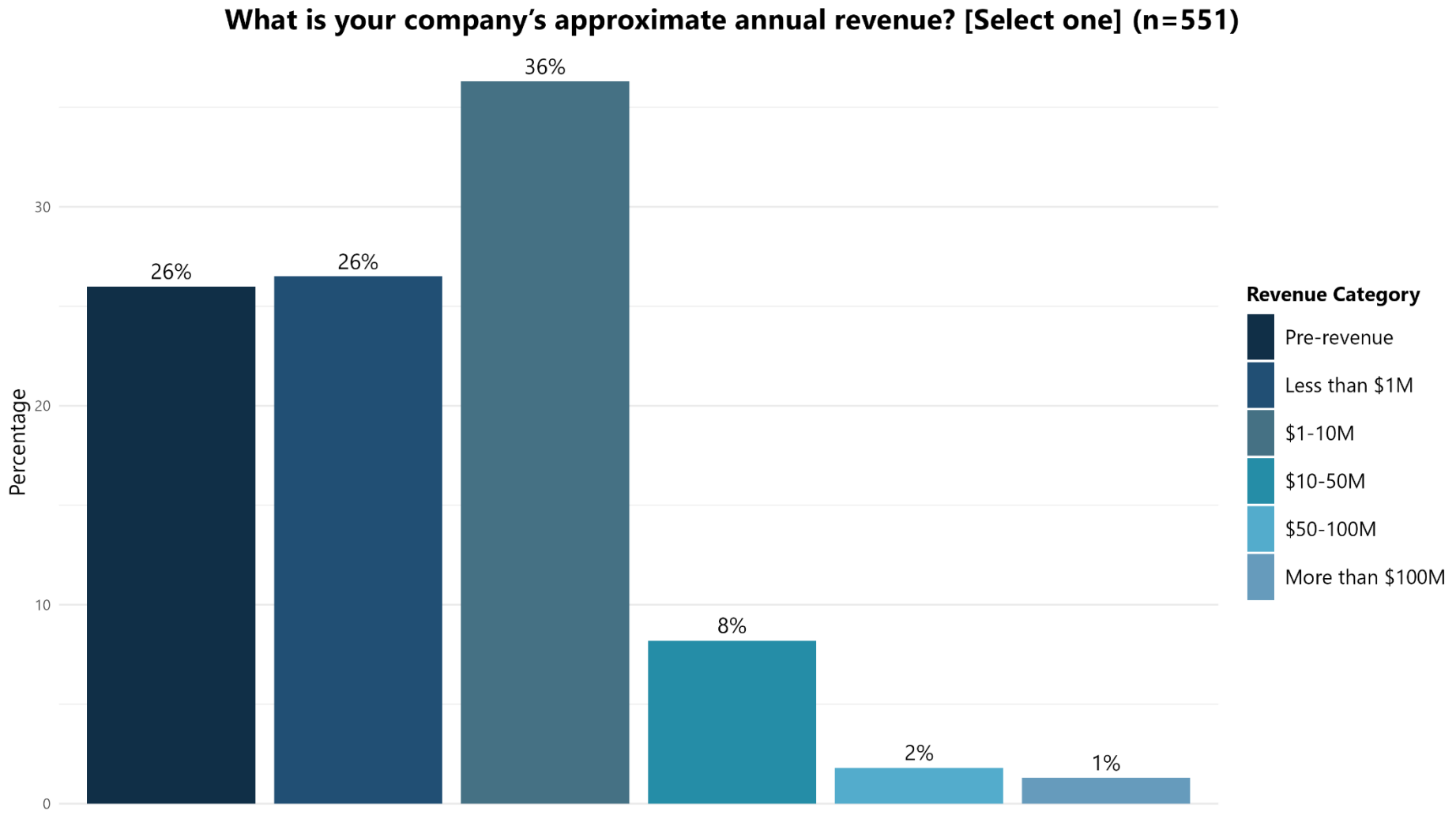
Technology Readiness Level (TRL) – 64% of surveyed technology providers have one product/technology in the commercialization and scale-up stage (TRL 9+)



Employment Size – 89% of cleantech firms have less than 49 employees



Revenue Size – 73% of cleantech firms are generating revenue, with 36% generating between $1 million to $10 million



Annex D – 2025 Industry Data Survey – Contextual Notes

When interpreting the results, please keep in mind the context (i.e., the events of winter 2024/25), which may have influenced the responses of survey participants.

Canada–U.S. Relations

- In Dec 2024, Donald Trump first referenced annexing Canada and making it the 51st U.S. state.
- On Jan 20, 2025, Trump was inaugurated as President of the United States. That same day, he announced that he would impose 25% tariffs on Canada and Mexico by February 1 and signed an executive order to start scrutinizing the impact of the Canada-United States-Mexico Agreement (CUSMA).
- The threat of tariffs and their on-again, off-again implementation (e.g., on energy, aluminum, steel, dairy, lumber, automobiles, etc.) through February and March continued to strain Canada-U.S. relations and raised uncertainty about the stability of existing agreements and treaties between the two countries.

Inflation and Interest Rates

- Rising interest rates in early 2025 made capital more expensive, tightening credit markets and hindering the potential for firm growth and expansion.

AI & Automation

- Rapid advancements in AI and automation began reshaping more industries, driving new efficiencies, innovation opportunities, and competitive pressures.

Annex E – References

1. Natural Resources Canada – Cleantech Economic Analysis Unit. (December 2022). *2022 Cleantech Industry Survey Results*.
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Canada

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