GHD

SuRF
FORUM SUR LA RÉHABILITATION DURABLE

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SUSTAINABLE REMEDIATION FORUM

Decarbonizing the Global Economy - How Can the Environmental Remediation Industry Contribute?

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Presentation plan

- **The problem statement.** Understanding what we’re facing
- **Proposed solutions and proven methods.** Measuring and reducing the carbon footprint
- **Case study.** Challenges and success factors

Problem statement:

Climate change

- It is unequivocal that human influence has warmed the atmosphere, ocean and land.
- Global surface temperature will continue to increase until at least the mid-century under all emissions scenarios considered.
- Increases in the frequency and intensity of hot extremes, marine heatwaves, heavy precipitation, agricultural and ecological droughts, intense tropical cyclones, reductions in Arctic sea ice, snow cover and permafrost

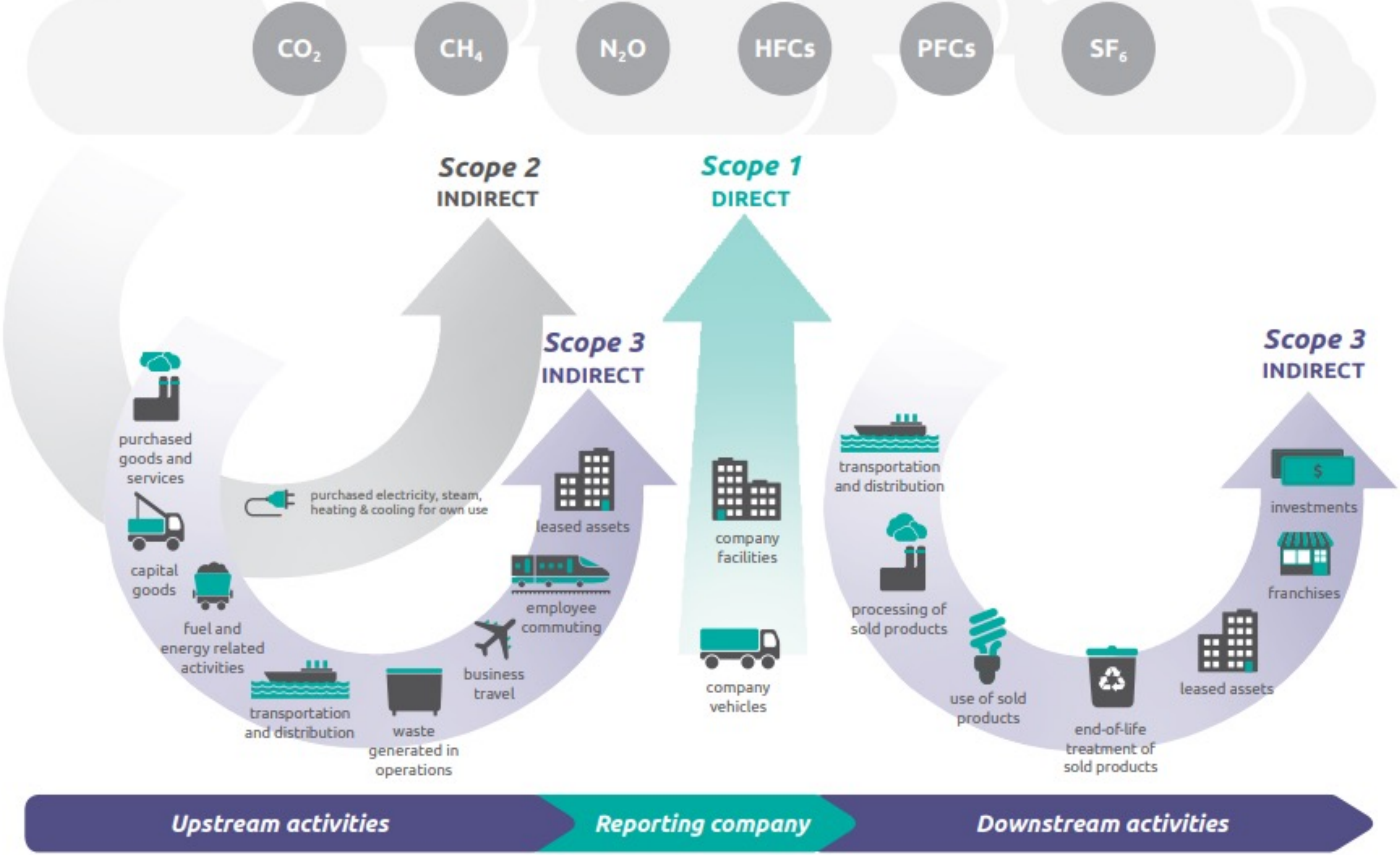
Source: IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B. R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. ambridge University Press. In Press.

Proposed solution:

Supply Chain Decarbonization

Where is the carbon?

Source: GHG protocol



Case Study

Quantification – Verification and development of a GHG Reduction and Offset Plan (2022-2025)

Federal entity

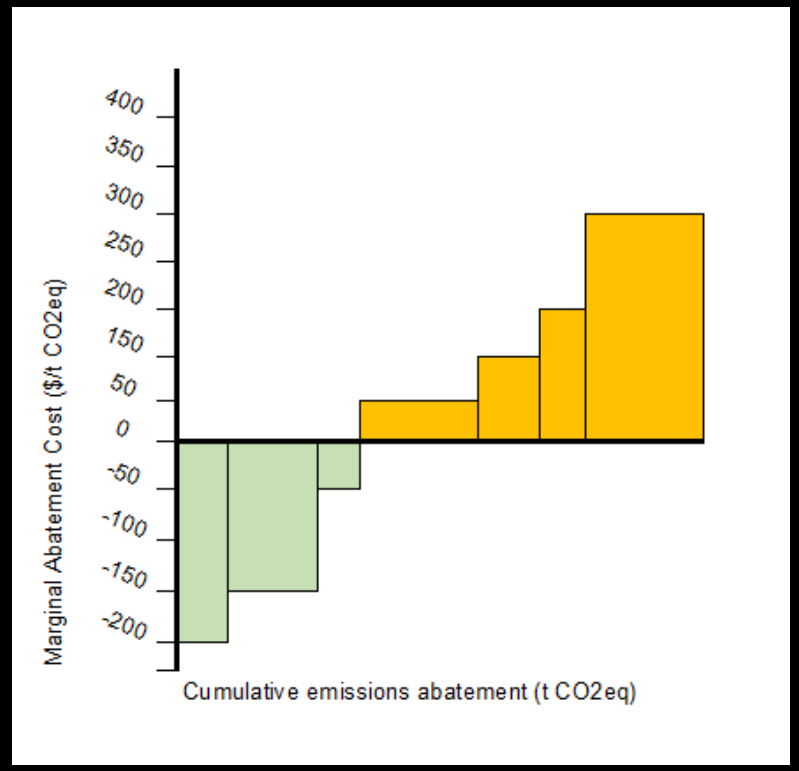
For 2021/2022: $193.4 million in major work

Infrastructure O&M– Demo/Construction – land management

Federal Plan Objectives

- 2030: GHG reduction of 40% compared to 2005
- Aim for carbon neutrality by 2050
- Leader in infrastructure management
- Leader in mobility

Decarbonization Roadmap



Verify, validate and monitor

Quantification

Identify reduction measures

Develop reduction scenarios

Draft an action plan

Quantification Methodology

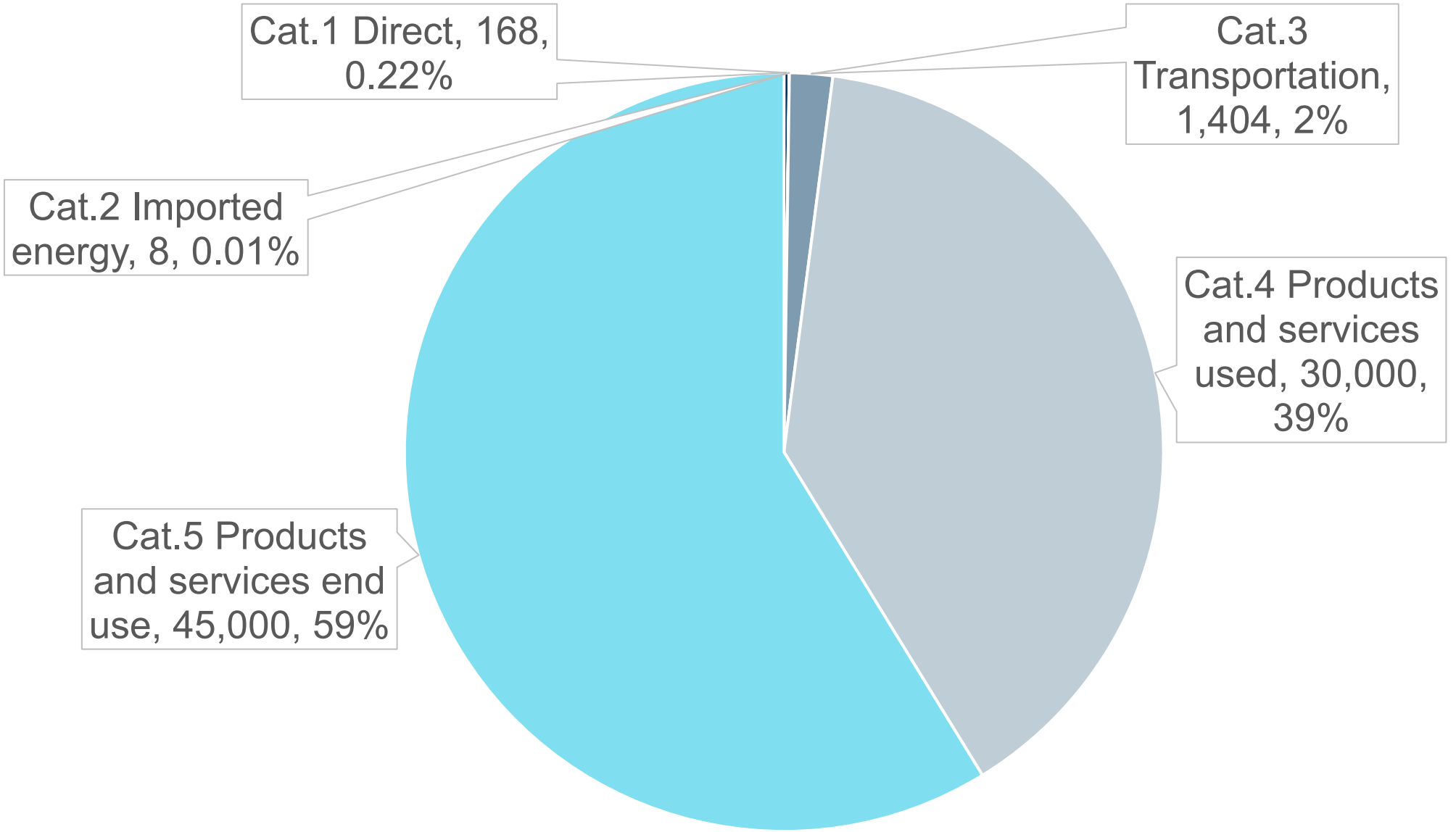
ISO 14064-1 applies to quantification and reporting of GHG emissions and removals at organization level (i.e., regulatory reporting)

- Cat.1: Direct GHG emissions and removals
- Cat.2: Indirect GHG emissions from imported energy
- Cat.3: Indirect GHG emissions from transportation
- Cat 4: Indirect GHG emissions from products used
- Cat.5 : Indirect GHG emissions from the use of products
- Cat.6 : Indirect GHG emissions from other sources

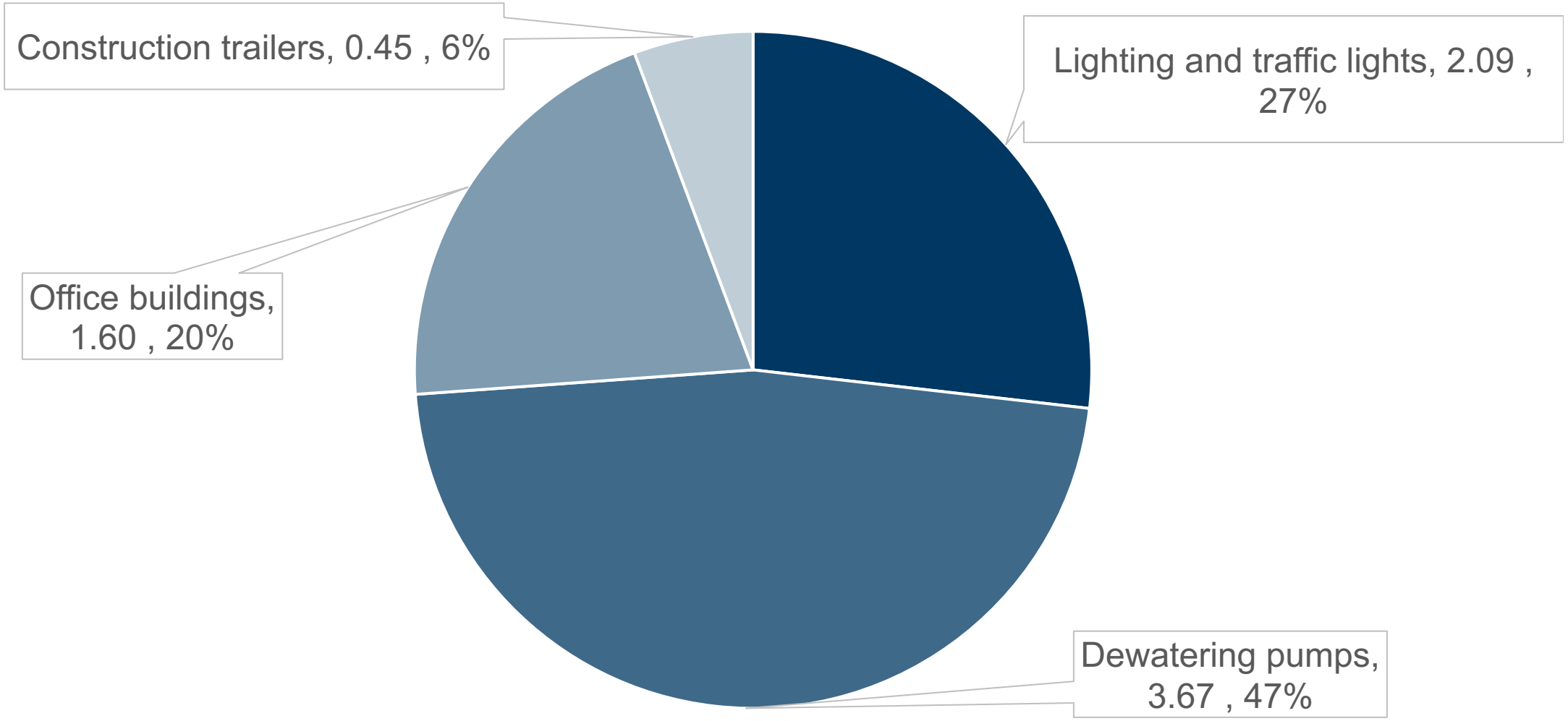
ISO 14064-2 applies to quantification, monitoring and reporting of GHG emission reductions or removal enhancements at the project level (i.e., voluntary or carbon offset projects)

ISO 14064-3 Specification with guidance for the verification and validation of greenhouse gas statements

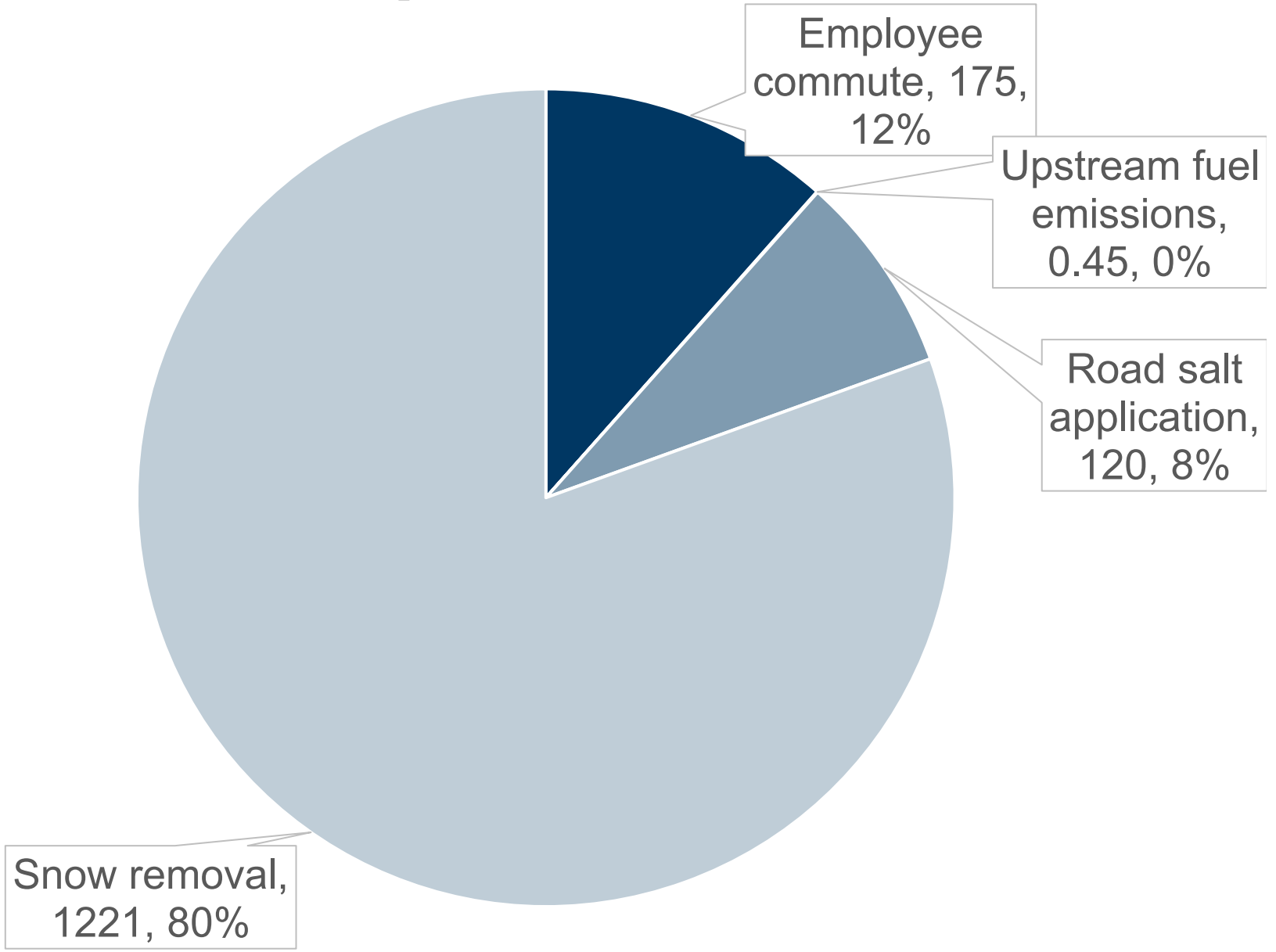
Results : Emissions by Category



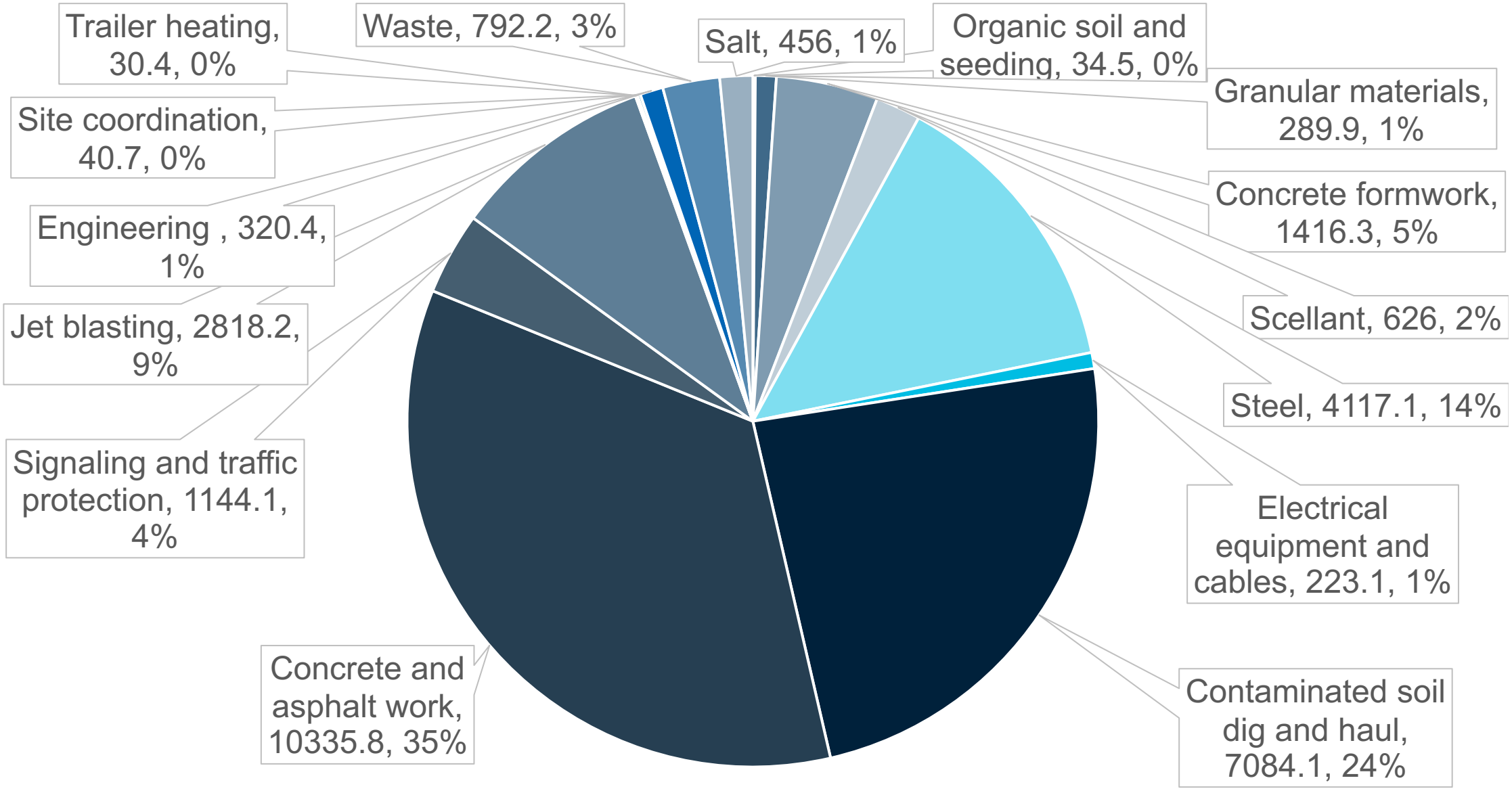
Results : Cat.2 Imported energy



Results : Cat.3 Transportation

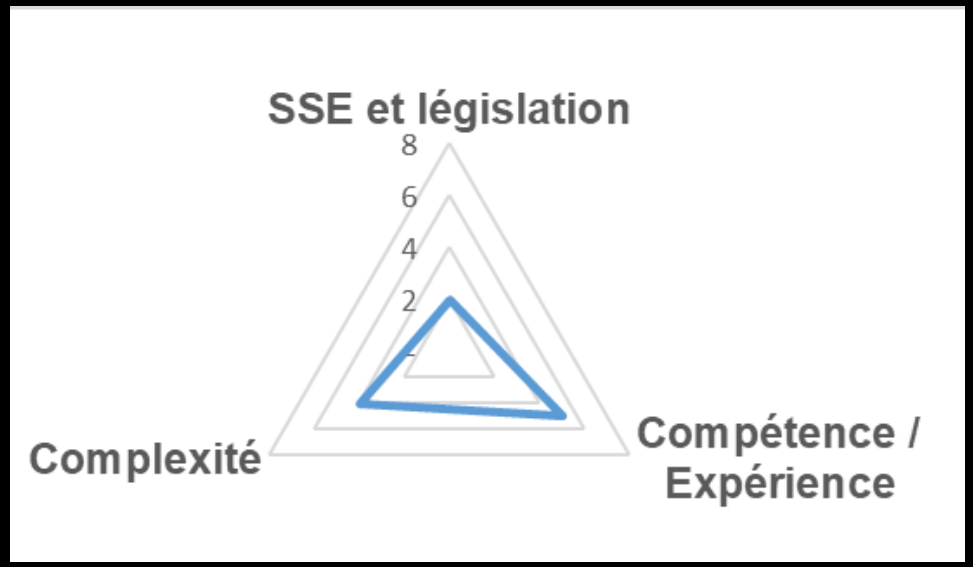


Results : Cat.4 Products and services

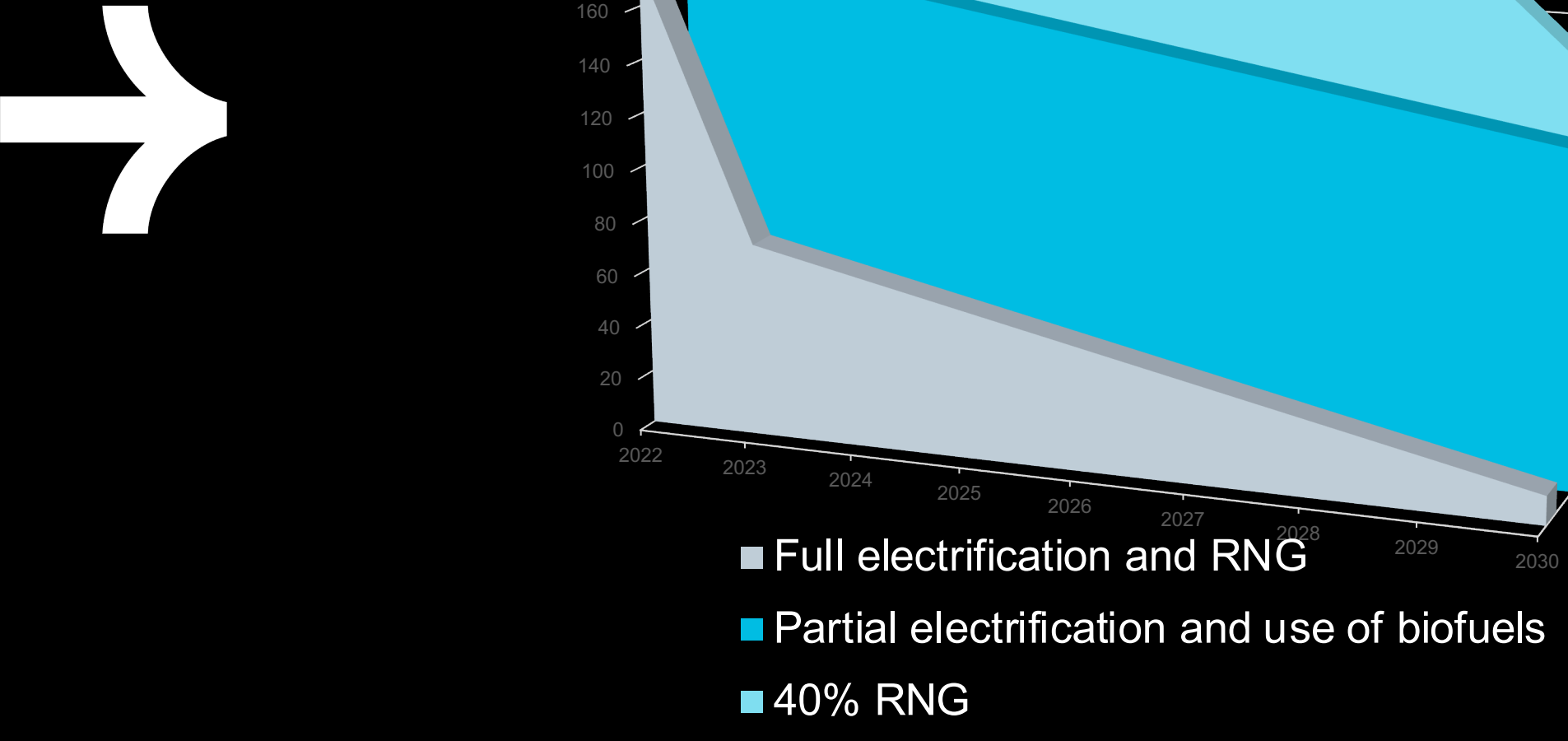


Identify reduction measures

Indicator	Scoring (0/1/2)	Low Risk (0)
Impact on people	1	Gravity of HSE risk people would be exposed to
Environnemental Impact	0	Lenght of time during which there is a risk of impact to the environment
Legal Obligations	1	Degre of understansing of legal obligation
Stakeholders	0	Probability of negative impact on stakeholders
Experience with technology	1	Level of experiece with technology or approach
Supply Chain	2	Level of development of supply chain
Impact on Operations	2	Has this been implemented elsewhere in similar conditions and what is the level of operational change needed?
Feasibility	2	Level of knowledge and experience of suppliers/contractor with the appoach
Technological maturity	1	To what level has this approach been tested in the industry?
Cost	1	Level of availability of data to estimate OPEX and CAPEX



Reduction Scenarios



Lessons learned

- Reliable data collection and management processes are crucial, and these need to be constantly improved for accuracy
- Don’t underestimate the time needed for workshops and communications, especially for indirect emissions
- Once the low hanging reductions are captured, these may not be sufficient to reach objectives, need to look at longer term incremental changes
- Sustainable procurement practices can have a huge impact on GHG emissions, but these take a long time to implement, so start now!
- Awareness and engagement around decarbonization is key to achieving real results