REPORT

CO2-prestatieladder dominantieanalyse 2023

Inclusief reductievoorstel per PMC

Klant: Intern

Referentie: BC1049-QHSE-10-BC-RP-49-0001
Status: S0/P01.01
Datum: 10 maart 2023

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Enhancing Society Together

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Titel document:	CO2-prestatieladder dominantieanalyse 2023
Referentie:	BC1049-QHSE-10-BC-RP-49-0001
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Status:	S0/P01.01
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Projectnummer:	BC1049
Auteur(s):	WD

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Classificatie

Alleen voor intern gebruik

Most important material scope 3 emissions (Top 6 ranking PMC's Royal HaskoningDHV)

Goal:
Determine a ranking of the most substantive scope 3 emissions sources that contribute most to the total scope 3 emissions of RHDHV-NL (project of our clients) and at the same time can be influenced by the company, all based on indications of relative size. Commuting travel is not included as an activity of CO2 emissions, as this is included fully in the RHDHV footprint and is not directly related to activities in projects of clients.

PMC's (product market combination)	Description of activity of CO_2 emission	Emission sources of CO_2 emission	Relative impact of this sector and activities on CO_2 emissions	Relative impact (*)	Our influence in the design on CO_2 reduction	4. Influence factor (**)	Influence of turnover of this PMC in NL (***)	Share in turn-over (multiplying 3b, 4b and 5)
1	2a	2b	3a	3b	4a	4b	5	6
1. Industry & Buildings	Sustainable Universities/ hospitals Design and construction. Including energy performance during the period off use and asset management (Structural design & ABB)	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emissions during the period of use: - Building facilities: heating, cooling and air treatment (excluding their personal (ICT) energy needs.	The construction and use of universities and hospitals has globally a small impact on CO2 emissions, based on expert judgement	3	In our design activities for our clients we have a significant influence on the CO2-footprint of the construction and the CO2 emission during the period of use.	10		
	Offices Design, construction and energy performance during the period off use. (Structural design & ABB)	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emissions during the period of use: - Building facilities: heating, cooling and air treatment (excluding their personal (ICT) energy needs.	The construction and use of buildings has globally a substantial impact on CO2 emissions, based on expert judgement	7	In our design activities for our clients we have a significant influence on the CO2-footprint of the construction and the CO2 emission during the period of use.	10		
	Industry and energy (Industrial engineering)	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emissions during production period: - Raw materials/ resources	Industry is a significant factor in global CO2 emissions	8	In our engineering activities for our clients we have a significant influence on the CO2-footprint of the constrruction and the CO2 emission during the period of use.	8		

PMC's (product market combination)	Description of activity of CO_2 emission	Emission sources of CO_2 emission	Relative impact of this sector and activities on CO_2 emissions	Relative impact (*)	Our influence in the design on CO_2 reduction	4. Influence factor (**)	Influence of turnover of this PMC in NL (***)	Share in turn-over (multiplying 3b, 4b and 5)
		- Transport - Energy consumption						
	Industry and energy (Consultancy)	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emissions during production period: - Raw materials/ resources - Transport - Energy consumption	Industry is a significant factor in global CO2 emissions	8	In our consultancy activities we van have a significant infulence on the CO2-emission during the period of use.	8		
Total Industry & Buildings			**Total impact PMC Industry & Buildings:**	**7**	**Total influence PMC Industry & Buildings:**	**9**	**4**	**252**
2. Mobility & infrastructure	Infrastructure roads: civil constructions and bridges, including utilities and maintenance. CO2 emission from road- and rail travel kilometres is excluded.	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emission during the period of use: - Maintenance - Electricity (movable bridges)	The construction and use of civil constructions and bridges has globally a substantial impact on CO2 emissions, based on expert judgment	7	We do have significant influence because of our innovation initiatives	10		
	Infrastructure: design and construction including energy (electricity use) and maintenance during use.	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emission during the period of use: - Maintenance - Electricity (street and highway light and traffic light etc.)	Transport contributes substantially to CO2 emission, based on expert judgment.	7	We do have significant influence because of our innovation initiatives	10		
	Urban area development, Master planning	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emission during the period of use:	Main source of CO2 in urban surroundings is from the use of roads and buildings not the development and the presence of the sites itself, so limited influence (expert judgement)	4	Working on sustainable development we do have substantial influence in the design phase of these projects: medium	7		

PMC's (product market combination)	Description of activity of CO_2 emission	Emission sources of CO_2 emission	Relative impact of this sector and activities on CO_2 emissions	Relative impact (*)	Our influence in the design on CO_2 reduction	4. Influence factor (**)	Influence of turnover of this PMC in NL (***)	Share in turn-over (multiplying 3b, 4b and 5)
		- Maintenance						
	Rail, design and construction. Including utilities and maintenance during use. CO2 emission from road- and rail travel kilometres is excluded.	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emission during the period of use: - Maintenance - - Electricity (street and highway light and traffic light etc.)	Transport contributes substantially to CO2 emission, based on expert judgment.	7	Even though our design influence is big we have very small influence on CO2-emissions during the period of us (travel kilometers)	3		
	Infrastructure: roads and bridges and asset management. CO2 emission from road- and rail travel kilometres is excluded.	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emission during the period of use: - Maintenance - - Electricity (street and highway light and traffic light etc.)	Transport asset management has small influence on CO2 emission, based on expert judgment	3	We do have substantial influence because of our innovation initiatives	7		
	Airport development. CO2 emission from air travel kilometres is excluded.	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emission during the period of use: - Maintenance - Building facilities: heating, cooling and air treatment (excluding the personal (ICT) energy needs) Airport vehicles	Total CO2 emission of CO2 from construction and maintenance is a niche market	2	As with other design activities, influence is relatively high because of our innovation initiatives	10		
Total Mobility & infrastructure			**Total impact PMC Mobility &infrastructure:**	**5**	**Total influence PMC Mobility & infrastructure**	**7**	**4**	**140**
3. Water & maritime	Harbours, quays etc. CO2 emission from ship travel kilometres is excluded.	CO2 emissions from construction: - Energy	Total CO2 emission of CO2 from construction	1	We do have significant influence because of our innovation initiatives	10		

PMC's (product market combination)	Description of activity of CO_2 emission	Emission sources of CO_2 emission	Relative impact of this sector and activities on CO_2 emissions	Relative impact (*)	Our influence in the design on CO_2 reduction	4. Influence factor (**)	Influence of turnover of this PMC in NL (***)	Share in turn-over (multiplying 3b, 4b and 5)
		- Raw materials/ resources - Transport CO2 emission during the period of use: - Maintenance - Electricity (movable bridges)	and maintenance is small compared to other PMC's					
		-						
	Water technology: Waste water treatment	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emission during the period of use: - Energy consumption	This sector has small impact on total CO2 emissions, waste water is more and more also a source of energy and other resources	3	We do have significant influence because of our innovation initiatives	10		
	Water management: Flood protection; coastal development etc.	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emission during the period of use: - - Maintenance	Main source of CO2 is the field of area development. There is a small influence from this sector (expert judgement)	2	Working on sustainable development we do have substantial influence in the design phase of these projects: medium	7		
	Water Technology: Drinking Water	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport CO2 emission during the period of use: - - Energy consumption	Compared to building and transport this sector has small impact on total CO2 emissions, waste water is more and more also a source of energy and other resources	3	We do have significant influence because of our innovation initiatives	10		
Total Water & maritime			**Total impact PMC Water & maritime:**	**3**	**Total influence PMC Water & maritime:**	**9**	**3**	**54**
4. Digital	**Digital twins (for buildings, waste water systems, etc. in collboration with the other business lines)**	CO2 emissions from construction: - Energy - Raw materials/ resources - Transport	The impact of material use etc is already calculated in the other business lines. Impact of software is limited.	**1**	The use of digital twins can give insights to optimise the design and reduce CO2-emissions. The influence of the digital consultant is limited.	**5**		

PMC's (product market combination)	Description of activity of CO_2 emission	Emission sources of CO_2 emission	Relative impact of this sector and activities on CO_2 emissions	Relative impact (*)	Our influence in the design on CO_2 reduction	4. Influence factor (**)	Influence of turnover of this PMC in NL (***)	Share in turn-over (multiplying 3b, 4b and 5)
		CO2 emission during the period of use: - Maintenance						
	Software development	CO2-emissions from digital assets (computers, servers) Construction: - Energy - Raw materials - Transport CO2 emission during the period of use - Energy consumption	Compared to the activities in the 'fysical' domains (infrastructure, buildings etc) the impact of digital services is small	**2**	Software may be used to analyse, forecast or design which can impact CO2-emissions in a project. However the influence of the digital consultant is small.	**4**		
Total Digital			**Total impact PMC Digital**	**2**	**Total infuence PMC Digital**	**5**	**1**	**10**

(*) Relative impact

Significant	8 – 10
Substantial	6 – 7
Limited	4 – 5
Small	1 – 3

(**) influence factor:

Significant	8 – 10
Substantial	6 – 7
Limited	4 – 5
Small	1 – 3

(***) Share in turn-over based on 2021 annual report. Estimation of Dutch activities per PMC

Share in turn-over	
< 10	1
10 – 19	2
20 – 29	3
30 – 39	4
40 – 49	5
50 – 59	6
60 – 69	7
70 – 79	8
80 – 89	9
90 – 100	10