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Voluntary Agreement on Clean and Zero-Emission Construction

(Convenant Schoon en Emissieloos Bouwen (SEB))

The Parties

The undersigned:

Central government

1. The Minister of Infrastructure and Water Management, Mr M.G.J. Harbers;
2. The State Secretary for Infrastructure and Water Management, Ms V.L.W.A. Heijnen;

Parties 1 and 2 are hereafter jointly referred to as 'I&W';

3. The Minister of the Interior and Kingdom Relations ('BZK'), Mr H.M. de Jonge;
4. The Minister of Economic Affairs and Climate Policy, Ms M.A.M. Adriaansens;
5. The Minister for Climate and Energy Policy, Mr R.A.A. Jetten; Parties 4 and 5 are hereafter jointly referred to as 'EZK';
6. The Minister for Nature and Nitrogen Policy ('Nature & Nitrogen'), Ms. C. van der Wal-Zeggelink;
7. The State Secretary for Defence ('Defence'), Mr C.M. van der Maat;

Each acting in their capacity as an administrative authority of the State of the Netherlands, hereafter jointly referred to as 'central government';

Provinces

8. The provinces of Drenthe, Flevoland, Friesland, Gelderland, Groningen, Limburg, North Brabant, North Holland, Overijssel, South Holland, Utrecht and Zeeland which for the purposes of signing this agreement have authorised the Association of Provincial Authorities, represented in this matter by Mr A.G. van Schie, member of the Utrecht provincial executive and of the executive advisory committee on accessibility and infrastructure of the Association of Provincial Authorities,

hereafter referred to as 'the provinces';

Municipalities

9. The municipal executive of Amsterdam, represented in this matter by Ms M. van der Horst;
10. The municipal executive of Arnhem, represented in this matter by Ms N. Kundic;

11. The municipal executive of Breda, represented in this matter by Mr P. Bakker;
12. The municipal executive of The Hague, represented in this matter by Mr A.J.F. Kapteijns;
13. The municipal executive of Eindhoven, represented in this matter by Ms W.C.F.M. Verhees;
14. The municipal executive of Harderwijk, represented in this matter by Mr M. Pijnenburg;
15. The municipal executive of 's-Hertogenbosch, represented in this matter by Mr R.J.J. Geers;
16. The municipal executive of Leiden, represented in this matter by Mr A.M. North;
17. The municipal executive of Nijmegen, represented in this matter by Mr H.M.F. Bruls;
18. The municipal executive of Rotterdam, represented in this matter by Mr A.A. van Prooijen;
19. The municipal executive of Tilburg, represented in this matter by Mr A.L.J. Sprangers;
20. The municipal executive of Utrecht,represented in this matter by Ms E.L. Oosters;

Each acting in their capacity as an administrative authority;

Parties 9 to 20 are hereafter jointly referred to as 'the municipalities';

Water authorities

21. The water authorities Aa en Maas, Amstel, Gooi en Vecht, Brabantse Delta, De Dommel, De Stichtse Rijnlanden, Delfland, Drents Overijsselse Delta, Fryslân, Hollands Noorderkwartier, Hollandse Delta, Hunze en Aa's, Limburg, Noorderzijlvest, Rijn en IJssel, Rijnland, Rivierenland, Scheldestromen, Schieland en de Krimpenerwaard, Vallei en Veluwe, Vechtstromen, and Zuiderzeeland, which for the purposes of signing this agreement have authorised the Dutch Water Authorities, represented in this matter by Mr V.E.C. Lokin, member of the executive board of De Dommel water authority and board member of the Dutch Water Authorities,

hereafter referred to as 'the water authorities';

Companies

22. ProRail B.V. (railway infrastructure manager), represented in this matter by Ms M.H. van Velthuizen-Lormans ('ProRail');
23. TenneT (transmission system operator), represented in this matter by Ms M.J.J. van Beek ('TenneT');
24. N.V. Nederlandse Gasunie (energy network operator), represented in this matter by Mr B.J. Hoevers ('Gasunie');

Parties 1 to 24 are hereafter jointly referred to as 'the commissioning bodies';

Business networks and industry bodies

25. Bouwend Nederland (building and infrastructure contractors association), represented in this matter by Mr A.P. Visser ('Bouwend Nederland');
26. Vereniging van Waterbouwers (hydraulic engineering sector association), represented in this matter by Ms A.A.M. Vollebregt ('Vereniging van Waterbouwers');
27. Cumela (trade association for landscaping, earthmoving and infrastructure companies), represented in this matter by Mr W.J. van Mourik ('Cumela');
28. MKB INFRA (association of civil engineering SMEs), represented in this matter by Mr P.W.M. van Nieuwenhuizen ('MKB INFRA');
29. Aannemersfederatie Nederland Bouw en Infra (federation of construction and infrastructure contractors), represented in this matter by Ms H.R. Siertsema ('AFNL');
30. Emissieloos Netwerk Infra (network of frontrunners in zero-emission construction), represented in this matter by Mr B.J. Möhlmann ('ENI');
31. Stichting Klimaatvriendelijk Aanbesteden en Ondernemen (green public procurement certification body), represented in this matter by Mr G. Termeer ('SKAO');
32. Betonhuis (cement and concrete industry association), represented in this matter by Mr M.A. Dutrée ('Betonhuis');
33. Bouwen met Staal (steel construction institute), represented in this matter by Mr F. Maatje ('Bouwen met Staal');
34. Koninklijke Nederlandse Vereniging 'De Rijwiel- en Automobielindustrie' (Royal RAI Association), represented in this matter by Mr O.C.M. de Bruijn ('RAI');
35. Brancheorganisatie van importeurs en leveranciers van Bouwmachines, Magazijninrichtingen, Wegenbouwmachines en Transportmaterieel (trade association of importers and suppliers of machinery for the construction industry, warehouses, roadworks and transport), represented in this matter by Mr J. Hommes ('BMWT');
36. Transport en Logistiek Nederland (transport and logistics sector association), represented in this matter by Ms E.F.J. Rijs ('TLN');
37. Vereniging voor aannemers in de sloop (association of demolition companies), represented in this matter by Mr K.J. de Groot ('VERAS');
38. Koninklijke Vereniging van Nederlandse Reders (Royal Association of Netherlands Shipowners), represented in this matter by Ms A. Koster ('KVNR');
39. ElaadNL (knowledge and innovation centre on EV charging), represented in this matter by Mr O. Caron ('ElaadNL');

40. Netbeheer Nederland (association of energy network managers), represented in this matter by Mr H. Oskam ('Netbeheer Nederland');
41. Nederlandse Vereniging van Leasemaatschappijen (association of car lease companies), represented in this matter by Mr M.F.M. Spijkers ('NVL');
42. Vereniging Verticaal Transport (association of companies that rent and operate cranes, forklifts, aerial platforms, etc.), represented in this matter by Mr P.H.P. Sierat ('VVT');
43. Fedecom (federation for the agricultural machinery and equipment sector), represented in this matter by Ms C.B. Bekkering ('Fedecom');
44. Nederlandse Vereniging Aannemers Funderingswerken (association of foundation works companies), represented in this matter by Mr J. Estié ('NVAF');
45. Koninklijke OnderhoudNL (royal association of property maintenance companies), represented in this matter by Mr H.W. den Boer ('Koninklijke OnderhoudNL');

Parties 25 to 45 are hereafter jointly referred to as 'business networks and industry bodies'.

Parties 1, 2, 3, 7, 9, 10, 11, 12, 13, 15, 17, 18, 19, 20 and 22 are hereafter jointly referred to as 'frontrunners'.

Parties 1 to 45 are hereafter jointly referred to as 'the Parties'.

Whereas:

Social objectives and ambitions

1. Ongoing efforts to make the construction industry, including machinery used, more sustainable are indispensable for the transition to a healthier natural environment and improved climate and public health.
2. Non-road mobile machinery, road vehicles and floating equipment used in construction, maintenance and demolition projects ('construction equipment') are sources of harmful emissions for the environment (nitrogen), climate (carbon dioxide) and public health (fine particulates and nitrogen dioxide).
3. The construction industry is vitally important for the Netherlands' economy and prosperity – building new homes to alleviate the housing shortage, maintaining infrastructure and helping to achieve the energy transition, among other things.
4. Objectives and ambitions aimed at reducing the harmful emissions from construction equipment have been formulated in the Nitrogen Reduction and Nature Restoration

Programme[1], the Clean Air Agreement[2], the National Climate Agreement[3] and the Strategy for Climate-neutral and Circular Infrastructure Projects.[4]

5. Construction industry emission trends are monitored by the Netherlands Environmental Assessment Agency (PBL). Its annual Climate and Energy Outlook offers insight, for instance, into the industry's progress towards the 60% NOx emission reduction target compared to 2018, laid down in the Nitrogen Reduction and Nature Restoration Programme.

Lead-up to the voluntary agreement

6. Central government, in conjunction with the provinces, municipalities, water authorities, industry bodies and knowledge institutions, designed the Clean and Zero-Emission Construction (SEB) Programme[5] to achieve the objectives and ambitions relating to the natural environment, climate change and public health.
7. The SEB programme focuses on the sustainability of machinery used in the construction industry. This industry comprises companies engaged in the building, maintenance, conversion or demolition of immovable property or parts thereof, as well as civil engineering companies and companies engaged in landscaping of public spaces in the immediate vicinity of immovable property, but excludes companies that perform routine green maintenance in public spaces. This voluntary agreement divides the construction industry into the following sectors: civil and hydraulic engineering, rail, housing and non-residential construction, coastal maintenance, fairway maintenance, and energy (energy generation and infrastructure). For the purposes of this voluntary agreement, the energy sector is currently limited to those parties involved in onshore energy projects and undersea cable-laying (offshore).
8. The SEB programme includes a Roadmap for Clean and Zero-Emission Construction.[6] With a view to providing clarity to market parties and public authorities, the roadmap presents a multiannual approach for incrementally reducing construction industry emissions in the years to 2030. It specifies and describes measures that can be taken under the SEB programme to achieve emissions reduction in effective, feasible and affordable ways. Where possible, efforts will be aligned with other measures aimed at reducing emissions in the construction industry and with the Parties' existing knowledge and information in this area.

[1] www.aanpakstikstof.nl.
[2] www.schoneluchtakkoord.nl.
[3] www.klimaatakkoord.nl.
[4] House of Representatives 2019-2020, 32 813, no. 535.
[5] See https://www.opwegnaarseb.nl (in Dutch only).
[6] See https://www.opwegnaarseb.nl (in Dutch only).

9. The roadmap was commissioned by central government and drafted jointly with the construction industry, knowledge organisations and public authorities.
10. In her letter to parliament of 25 November 2022,[7] the Minister for Nature and Nitrogen wrote that the government intended to set up a Taskforce for Clean and Zero-Emission Construction, comprising representatives from subnational authorities, market parties and knowledge institutions. This voluntary agreement fulfils that intention.
11. Besides the measures set out in the roadmap and in this voluntary agreement, prevailing rules and regulations such as those concerning working conditions are fully applicable to the Parties' use of construction equipment. The Netherlands Labour Authority supervises and enforces the rules on exposure to diesel engine emissions on the basis of the DME basic inspection module.[8]

Purpose of the voluntary agreement

12. Article 7.19a of the Physical Environment (Structures) Decree (BBL), which will take effect when the Environment and Planning Act comes into force, provides that adequate measures must be taken to limit nitrogen emissions during construction and demolition work. The explanatory memorandum to the decree (Bulletin of Acts and Decrees 2021, no. 287) states that the term 'adequate measures' will be fleshed out further in the roadmap. The roadmap sets out three tiers of emission requirements (see consideration 17). The adequate measures obligation under Article 7.19a of the BBL can be partially satisfied by applying the minimum tier to mobile machinery. The competent authority can also use this tier to assess compliance with that obligation. Other possible measures include restricting the number of vehicle movements on construction sites, or using prefabricated components to reduce onsite construction time (see SEB roadmap). The emission reduction obligation applies to construction and demolition activities subject to permitting (construction) or notification (construction and demolition). This voluntary agreement does not contain provisions on how exactly the emission reduction obligation is to be achieved.
13. In this voluntary agreement the Parties set out how they will implement the other roadmap elements, thus jointly contributing towards a more sustainable construction industry. Among other things, the Parties agree on a timetable for reducing emissions from construction equipment and on measures and actions to achieve this reduction. This will result in a joint multiannual strategy on improving the sustainability of construction equipment, providing

[7] Parliamentary Papers, House of Representatives, 2022-2023, 34 682, no. 108.

[8] https://www.nlarbeidsinspectie.nl/publicaties/richtlijnen/2019/10/15/basisinspectiemodule-bim-blootstelling-aan-dieselmotoremissies-dme (in Dutch only).

clarity to the industry about the agreed targets and a basis for their decisions on investments, procurement and innovation.

14. The Parties are aware that deploying clean and zero-emission construction equipment to achieve the emission reduction targets will likely entail additional costs.
15. In signing this voluntary agreement, the Parties commit to its implementation. The roadmap provides a more comprehensive history and explanation of how these commitments came about.

Approach

16. This voluntary agreement sets out provisions on more sustainable use of mobile machinery, road vehicles and floating equipment in construction, maintenance and demolition projects. Mobile machinery, road vehicles and floating equipment are defined as follows:
    - Mobile machinery: machinery designed to perform specific operations in non-road environments, which can be moved by means of, for example, towing or lifting, or which is self-propelled. The primary purpose of mobile machinery is not the transport of people or goods on public roads. Examples of mobile machinery include excavators, wheel loaders, generators, bulldozers, transportable stationary machinery and mobile cranes. This category also includes specialist equipment for railway construction and maintenance;
    - Vehicles: goods vehicles, including vans, small lorries, articulated lorries, used to transport construction materials;
    - floating equipment: waterborne vessels used for construction or maintenance at sea or on inland waters, and for activities relating to coastal maintenance and fairway maintenance. Examples in the context of this voluntary agreement are crane ships, cable-laying ships and barges and dredgers, as well as vessels used in construction projects relating to the offshore energy grid (e.g. power cable laying).
17. One way to make construction equipment more sustainable is to lay down emission requirements for construction equipment in the years ahead. Like the roadmap, this voluntary agreement defines three tiers of emission requirements for construction equipment:
    - Minimum tier. See consideration 12.
    - Basic tier. This tier contains slightly more stringent requirements. Public commissioning bodies must apply this tier to calls for tender for construction, maintenance and demolition projects (it is optional for other clients). All construction equipment should satisfy the requirements of the basic tier.

- Ambitious tier. This tier is intended for frontrunners – parties pursuing a higher standard of sustainable performance than the basic tier. These frontrunners will strive to apply the requirements of this tier to a certain percentage of their construction, maintenance and demolition tenders, as specified in the annexe to this voluntary agreement. The basic tier will be applied to their remaining projects. Projects to which the ambitious tier applies are referred to as frontrunner projects.

18. Currently, the percentage of frontrunner projects is given as a bandwidth, which will be evaluated in 2025. The exemption, for certain construction projects, from the obligation to provide nitrogen deposition calculations for the construction stage has been repealed. This means that zero-emission machinery, which is still scarce, will have to be deployed strategically in the coming years.
19. The years up to 2030 are divided into four periods, during which the emission requirements applicable to construction equipment (according to the three tiers defined above) will become progressively more stringent. The four periods are:
    - Date of entry into effect up to and including 31 December 2024;
    - 1 January 2025 up to and including 31 December 2027;
    - 1 January 2028 up to and including 31 December 2029;
    - 1 January 2030 up to and including 31 December 2030.
20. The Parties to this voluntary agreement lay down whether they will apply only the basic tier to contracts for construction, maintenance and demolition projects, or whether they will also pursue more ambitious requirements. A Party that commits to the basic tier must in any case comply with the emission requirements that apply to this tier. A best efforts obligation applies to the ambitious tier.
21. A successful transition to clean and zero-emission construction equipment depends on a number of preconditions, such as the development of zero-emission equipment and charging infrastructure for the Dutch market. Targeted monitoring will ensure any bottlenecks in regard to fulfilling these preconditions are swiftly identified.
22. The National Charging Infrastructure Agenda offers a platform for exchanging knowledge and experience on charging infrastructure. Regional partnerships, grid operators and central government have signed cooperation agreements setting out their respective roles in implementing the public task. The Parties to this voluntary agreement are encouraged to work closely together with the aforementioned parties in order to jointly develop a charging infrastructure.

23. A study into the costs associated with the transition to sustainable construction equipment has been carried out as part of the SEB programme. The results have been published (in Dutch) on www.opwegnaarseb.nl. Financing options should be available to the Parties in order to achieve this transition. Central government will provide financial support for implementing this voluntary agreement through various instruments, aimed at both commissioning bodies and contractors.
24. The requirements defined in each tier are minimum requirements. If necessary, a commissioning body can opt to set stricter requirements than the tier to which it has committed itself under this voluntary agreement, for instance in the case of a project in an area with severe air pollution. Commissioning bodies can also challenge and encourage market parties, by making a contract award conditional on the deployment of zero-emission machinery or vehicles, for instance, or by taking other measures.
25. As parties to this voluntary agreement, the ministries of BZK and Defence commit to applying the emission requirements to tendering and procurement contracts relating to their properties. The Central Government Real Estate Agency is mandated to implement this commitment for the ministries of BZK and Defence. Rijkswaterstaat is mandated to implement the commitment of I&W under this voluntary agreement to apply the emission requirements to that ministry's tendering and procurement contracts.
26. Besides emission requirements for construction equipment, this voluntary agreement also contains provisions on process-related measures, knowledge development and providing information on clean and zero-emission construction, financial instruments, forms of organisation and cooperation, enforcement, monitoring and data sharing, evaluation and communication.
27. On 10 July 2023 the voluntary agreement was communicated to the Commission as a technical regulation (no. 2023/0426/NL) in accordance with Directive (EU) 2015/1535 of the European Parliament and the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services (OJ 2015, L 241/1).

The Parties agree as follows:

Article 1: Goal

The goal of the Parties to this voluntary agreement is to reduce the overall emissions associated with construction by reducing emissions from mobile machinery, road vehicles and floating equipment,

and thus make a meaningful contribution towards achieving the goals of Nitrogen Reduction and Nature Restoration Programme, the Clean Air Agreement, the National Climate Agreement and the Strategy for Climate-neutral and Circular Infrastructure Projects. Specifically:

- the ambition to reduce the construction industry's NOx emissions by 60% by 2030, compared to 2018, as part of the structural package of nitrogen reduction measures;[9]
- the goal to reduce the negative health impacts of mobile machinery used in the construction industry (due to, for example, NO2 and fine particulate emissions) by 75% by 2030, compared to 2016, and to phase out as quickly as possible the use of mobile machinery without soot filters and with high NO2 emissions;[10]
- the goal to reduce CO2 emissions from mobile machinery and construction logistics by 0.4Mt by 2030, compared to 2019;[11]
- the ambition for central government infrastructure projects to be in line with the principles of climate neutrality and circularity by 2030,[12] with this voluntary agreement focusing on construction equipment.

Article 2: Setting emission requirements in tendering

1. Commissioning bodies will as a minimum include the basic tier emission requirements (see tables 1, 3 and 6 in Annexe 1) as award criteria in public procurement for construction, maintenance and demolition projects.
2. The frontrunners will make every effort to set the emission requirements of the ambitious tier (tables 2, 4 and 7 in Annexe 1) as award criteria in a minimum percentage of construction, maintenance and demolition projects in their portfolio over a certain period of time. The relevant percentage of projects can be found in tables 2, 4 and 7 of Annexe 1.
3. ProRail will include relevant award criteria in its invitations to tender for railway construction, maintenance and demolition projects so as to achieve the emission requirements for railway construction equipment as set out in table 5 of Annexe 1. This will be laid down in ProRail's procurement policy.

[9] This ambition is set out in section 5.2 of the explanatory memorandum to the Decree of 14 June 2021 amending certain orders in council with a view to nitrogen reduction and nature restoration.

[10] The voluntary agreement specifies targets for this objective concerning mobile machinery used in construction, as laid down in chapter 2 of Annexe I of the Clean Air Agreement.

[11] Chapter C2.5 of the National Climate Agreement concerning a more sustainable logistics sector sets out that national and subnational authorities will strive for their civil and hydraulic engineering projects (including railway projects) to be carried out in line with the principles of climate neutrality and circularity to the greatest degree possible.

[12] House of Representatives 2019-2020, 32 813, no. 535.

4. TenneT will include relevant award criteria in its invitations to tender for offshore energy grid projects in the Netherlands' territorial sea so as to achieve the emission requirements set out in table 8 of Annexe 1. This will be laid down in TenneT's procurement policy.
5. In the first evaluation of this voluntary agreement, EZK will examine whether the emission requirements for construction, maintenance and demolition activities concerning offshore energy grid projects in the Netherlands' territorial sea (table 8) can also be applied to other offshore projects.
6. The commissioning bodies will apply the emission requirements set out in Annexe 1 to procurement relating to construction, maintenance and demolition projects, and to such projects in which their own construction equipment is used.
7. In the case of contract awards for construction, maintenance and demolition projects with a duration exceeding five years, the commissioning bodies will stipulate that if a new period with more stringent emission requirements begins during the course of the contract, these more stringent requirements will become applicable, provided the voluntary agreement has not yet expired at that time.
8. The emission requirements set out in Annexe 1 only apply to new contract awards, not to ongoing projects.
9. I&W will convert the emission requirements for the basic and ambitious tiers, set out in Annexe 1, into Sustainable Public Procurement criteria, which will be published on the Sustainable Public Procurement (MVI) website.[13] The commissioning bodies will be able to use these as award criteria in their procurement processes for construction, maintenance and demolition projects.

Article 3: Other contributions and activities

1. Where possible the commissioning bodies will initiate, stimulate and support measures relating to construction logistics and processes, aimed at reducing the number of transport movements to and from a building site.
2. In dialogue with European Union member states and European institutions, I&W will actively call for stricter EU rules on pollutant emissions from mobile machinery.
3. Via the EU and the United Nations Economic Commission for Europe (UNECE), I&W will call for EU emissions legislation to provide more scope for more ambitious national measures aimed at reducing mobile machinery emissions.

[13] https://www.mvicriteria.nl/en/.

4. The business networks and industry bodies will inform their members about this voluntary agreement and any associated developments, and promote its goals.
5. The business networks and industry bodies will organise events, for instance, to inform and encourage their members to make the necessary preparations in order to satisfy the emission requirements for construction equipment laid down in this voluntary agreement.
6. RAI will engage in dialogue with vehicle importers on the availability of vehicles and will continue to encourage them to ensure that zero-emission construction equipment and/or vehicles are allocated to the Dutch market.
7. RAI, BMWT, Bouwend Nederland, MKB INFRA, AFNL, TLN, Cumela, Vereniging van Waterbouwers and ENI will in so far as possible provide information on the latest technologies for clean and zero-emission construction equipment.
8. NVL sees leasing as a financial instrument to accelerate the transition and will encourage those of its members that lease construction equipment to upgrade more quickly to a clean and zero-emission fleet, in line with the emission requirements set out in Annexe 1.
9. To avoid lack of charging infrastructure posing an obstacle to the use of battery-powered construction equipment, the Parties will strive to work closely together with the National Charging Infrastructure Agenda on matters such as actively informing regional partnerships on future charging capacity needs, gaining experience with the rollout of charging infrastructure for construction equipment, and assessing innovative charging concepts and solutions.
10. Where possible the Parties will strive to take process-related measures in addition to the emission requirements, with a view to reducing emissions on construction sites and during transport to and from construction sites. Central government will share information about new insights and technologies by means of a knowledge base, as referred to in Article 4. Process-related measures will result in fewer and more fuel-efficient transport movements to construction sites and fewer hours during which machinery is operational (or idling) onsite. Examples of such measures include industrial construction, optimising construction freight loads, using IT to optimise construction logistics, or the requirement to establish and/or use a construction hub (‘bouwhub’). Other process-related measures, such as optimisation in design, circular building methods and maintenance to extend an asset’s useful life, are aimed at reducing the use of new building materials.
11. The commissioning bodies will adapt their procurement strategy in line with this voluntary agreement and ensure it is implemented throughout their organisation.

12. The Parties will endeavour to support and accelerate the implementation of this voluntary agreement within their organisations.
13. The Parties will implement this voluntary agreement with due regard to their own tasks and responsibilities, and agree to work with other Parties and third parties as necessary to ensure the agreement's implementation.

Article 4: Knowledge agenda and knowledge base

1. The Parties will work together on knowledge development and the provision of information on clean and zero-emission construction.
2. The Parties will seek to gain a better understanding of the issues identified in the knowledge agenda on clean and zero-emission construction, including but not limited to the use of clean and zero-emission construction equipment, power supply on building sites (including charging infrastructure and innovative charging concepts), safety, and efficient construction logistics (including construction concepts and insight into construction equipment emissions), both on-site and off-site.
3. With regard to the issues identified in the knowledge agenda, the Parties will carry out or commission studies, publish the results or share them by other means with each other and with third parties, and submit the studies to the knowledge base.
4. I&W holds the initiative for the knowledge base on opwegnaarseb.nl, which has been set up to share best practices, guidelines, study results, tools and answer questions. The knowledge base also features a map showing the locations of projects in which zero-emission construction equipment is used. The Parties can add such projects to the map.
5. Central government provides various instruments to support Parties that conduct studies into the issues presented in the knowledge agenda. These instruments include the knowledge and innovation programme, pilot projects and the grant scheme for clean and zero-emission construction equipment.
6. The Parties encourage research and innovation projects with a view to filling gaps in knowledge. The results should be shared, in any case through the knowledge base, so that all Parties can implement the solutions.

Article 5: Financial instruments and support

1. Central government has made €1 billion available until the end of 2030 for reducing construction industry emissions through measures aimed at mobile machinery, vehicles and floating equipment used in construction. Of this amount, €500 million has already been allocated to the instruments described in Article 5, paragraphs 2, 3 and 4.
2. I&W supports the industry's transition to more sustainable equipment through the grant scheme for clean and zero-emission construction equipment, which runs until 2030.
3. Central government provides Rijkswaterstaat, ProRail and the Central Government Real Estate Agency with structural funding so they can set award criteria in tenders for construction, maintenance and demolition projects, aimed at reducing emissions from mobile machinery, vehicles and floating equipment.
4. Through the Knowledge and Innovation Programme on Clean and Zero-emission Construction (K&I SEB), central government supports innovation in new construction concepts and logistics, including new types of building materials, construction hubs and prefab.
5. Central government will support the provinces, municipalities and water authorities in implementing this voluntary agreement. The details will be coordinated with the subnational authorities concerned. Support will be divided over two pillars. The first pillar will comprise support for carrying out the undertakings set out in the voluntary agreement, such as providing external expertise for organising and assisting with implementation, issuing guidelines, and sharing knowledge and other tools. The second pillar will comprise support for specific projects.
6. Central government also deploys other financial instruments, such as the grant scheme for the purchase of zero-emission trucks (AanZET), the grant scheme for the purchase or lease of zero-emission commercial vehicles (SEBA), the grant scheme for retrofitting inland vessels (SRVB), and the tax credit for environment-related investments (MIA).

Article 6: SEB Taskforce and secretariat

1. The Parties will establish a steering group entitled: SEB Taskforce.
2. The SEB Taskforce will have
   - a chair;

- members representing the Parties. The ministries of I&W, BZK, EZK and Nature & Nitrogen will be represented by one member each; the provinces will be represented by one member, the water authorities by one member, the municipalities by one member and the business networks and industry bodies by three members;
- a secretariat to carry out the day-to-day tasks.

3. The SEB Taskforce will convene as often as necessary but in any case four times a year.
4. The Taskforce SEB will be responsible for:
   a) promoting and monitoring progress towards the goals of this voluntary agreement;
   b) advising the Parties on implementing this voluntary agreement, and on ways of accelerating or removing obstacles to its implementation;
   c) establishing the monitoring method and reporting format;
   d) evaluating progress and making decisions, where opportune and necessary, on proposals to improve the agreement's effectiveness;
   e) advising on requests to amend the voluntary agreement.
5. The SEB Taskforce will appoint a number of ambassadors to put clean and zero-emission construction in the spotlight, encourage companies and others to sign up to the voluntary agreement, and promote and accelerate its implementation.
6. I&W will ensure the secretariat is staffed. The secretariat's tasks as referred to in paragraph 2 (c) include preparing the SEB Taskforce meetings.

Article 7: SEB sector committee and working groups

1. The SEB sector committee will be made up of representatives of the Parties, which will be represented where possible by their sector association or industry body. The committee will convene once or twice a year. Other government bodies, companies and knowledge institutions that are not party to this voluntary agreement may be invited to join the committee. The working groups referred to in Article 7, paragraph 2 may submit proposals to the committee for discussion. The SEB committee can in turn submit proposals to the SEB Taskforce, as referred to in Article 6, paragraph 1.
2. In addition to the SEB sector committee, there will be three working groups when this voluntary agreement enters into effect: 'Target' ('Doelbereik'), 'Knowledge agenda' ('Kennisagenda') and 'Communications' ('Communicatie').
3. The working groups will focus on linking up, developing and using initiatives, instruments, measures and studies that promote the greening of the construction industry and the implementation of this voluntary agreement.

4. The working groups will be made up of representatives of the parties on the SEB sector committee. Organisations that are not a party to the voluntary agreement can also join the working groups. A working group's products and proposals will be developed in a co-creation process.
5. A working group will be started up if the Parties consider it necessary for the implementation of this voluntary agreement, and concluded if the Parties consider its work done. Before a new working group is started up to explore a certain subject, the extent to which the subject is already being dealt with by an existing group within the SEB programme will be assessed.
6. The secretariat as referred to in Article 6, paragraph 2 (c) also acts as secretariat for the sector committee and the working groups.

Article 8: Monitoring

1. Central government will monitor progress towards the goals and ambitions listed in Article 1, partly on the basis of the Climate and Energy Outlooks published by PBL, and report on this to the SEB Taskforce via the working groups.
2. The Parties will annually submit information to the SEB Taskforce on progress made, obstacles encountered and best practices identified with regard to implementation of the voluntary agreement. The commissioning bodies will also provide information showing the extent to which they are applying the basic tier of emission requirements to their projects and the number of projects to which the ambitious tier applies. In consultation with the Parties, central government will examine what information should be requested and how. The SEB Taskforce ultimately decides on the monitoring method to be used. Information sharing will take place with due regard to Article 12.
3. The Parties will share practical experiences and obstacles concerning implementation of this voluntary agreement with the knowledge base, the working groups and the SEB Taskforce, and will help to find solutions.
4. The Parties will monitor the expansion of the clean and zero-emission construction equipment fleet under central government's direction, including as a proportion of the total construction equipment fleet in use. The monitoring reports will also give a growth forecast for the clean and zero-emission construction equipment fleet based on the expected availability of such machinery, and assess the key preconditions for this growth, such as the development of a good charging infrastructure. If growth lags behind, the Parties will take further coordinated action, as well as supplementary measures if necessary.

5. The business networks and industry bodies will request information from their members where necessary and feasible with regard to the implementation of paragraphs 1 to 4, in so far as this does not conflict with Article 12.
6. Central government will continue developing monitoring instruments, jointly with the Parties, in order to support the latter in monitoring emissions (and whether these are decreasing as projected), performance and progress. This will be aligned with other monitoring arrangements.
7. The Parties will be alert to any problems with implementation.
8. With regard to digitalisation and data sharing, the Parties will work with the Digital System for the Built Environment (DSGO) as soon as the Environment and Planning Act comes into force.

Article 9: Checking compliance with the emission requirements

1. The commissioning bodies will check that contractors comply with contract award criteria concerning the use and emissions of construction equipment on-site and of construction logistics (transport to and from the construction site).
2. Central government will consult with the Parties on ways of improving checks, in connection with public contracts and permitting, of the use and emissions of construction equipment on-site and during travel to and from the construction site. Due consideration will be given to the administrative burden on contractors.

Article 10: Progress and evaluation

1. Through the working groups, the SEB Taskforce, the knowledge base and annual monitoring, the Parties will inform the secretariat as referred to in Article 6, paragraph 6 on the use of clean and zero-emission construction equipment. Notably, they will provide information on their practical experiences with the emission requirements, the available charging infrastructure and the availability and development of clean and zero-emission construction equipment in sufficient quantities.
2. Central government will arrange independent evaluations of the roadmap and the voluntary agreement in 2025, 2027 and 2030. The Parties will be extensively consulted for these evaluations, which will examine the extent to which policy objectives for nitrogen, CO2 and fine particulate emissions are being achieved as effectively and efficiently as possible, the

extent to which the roadmap is functioning in accordance with its original purpose and the extent to which essential preconditions have been met, including sufficient charging and fuelling infrastructure, and the availability of zero-emission machinery in sufficient quantities.

3. The evaluations referred to in paragraph 2 will also examine the attainability and affordability of applying the emission tiers. The Parties acknowledge that achieving the ambitious tier may be difficult due to the extra costs and uncertainty about the availability of enough zero-emission machinery. If the evaluation shows that application of the ambitious tier cannot be attained due to a shortage of zero-emission construction equipment, or costs being significantly higher than anticipated at the time the agreement was signed, the Parties will reconsider the percentage of projects to which this tier must be applied and determine whether measures could be taken to increase attainability.
4. In 2023, the Clean Air Agreement in cooperation with the SEB programme will examine the possibility of extending the scope of this voluntary agreement to mobile machinery used in sectors other than construction.
5. If any Party does not comply with this voluntary agreement, the SEB Taskforce will discuss this with the Party concerned and seek to agree on an arrangement that will enable the Party to fulfil their undertakings after all. If necessary, a consultation will be organised at official level.

Article 11: Communications strategy

1. Central government will arrange stakeholder interviews and facilitate the Communications working group, which will in any case comprise a communications specialist in the civil service or externally contracted, a central government representative, and representatives of the other Parties. Organisations that are not a party to the voluntary agreement can also give input.
2. Parties can provide input on the joint communications plan during stakeholder interviews or by participating in the Communications working group. A common communications strategy will be developed on the basis of the plan.
3. The Parties will jointly implement the communications strategy and update it when necessary. For maximum effectiveness, the communications strategy will be optimised for the target group in question and aligned with the voluntary agreement's implementation stage. The Parties will also take part in periodic feedback sessions.

4. The Parties will actively promote the SEB programme among their members, by disseminating relevant messages and information about initiatives and practical uses. The Parties will actively request information from their members about the members' information requirements and any questions they may have. The Parties will share this information with other Parties in the Communications working group.

Article 12: Data sharing

1. The Parties will ensure that the agreements they make on the exchange and processing of personal and other data, including commercial data and competitively sensitive information, in the context of this voluntary agreement comply with the relevant requirements of Dutch and European Union law, such as the Open Government Act and the General Data Protection Regulation.
2. Information disclosure between the Parties must not result in the exchange of competitively sensitive information, either directly or indirectly through the involvement of the SEB Taskforce or the working groups, as referred to in Articles 6 and 7, nor result in any other arrangements that conflict with competition law.

Article 13: Compliance and resolution of disputes

1. The Parties agree that compliance with the provisions of this voluntary agreement is not legally enforceable.
2. The Parties will seek to resolve any disputes relating to this voluntary agreement in mutual consultation. Failing this, the Parties can present their dispute to the SEB Taskforce.
3. In seeking to resolve the dispute, the SEB Taskforce will give the Parties involved an opportunity to present their views. If after six months the dispute has not been resolved, the SEB Taskforce will issue an advisory opinion to the Parties involved.

Article 14: Implementation in accordance with Union law

The agreements set out in this voluntary agreement and their further elaboration will be implemented in accordance with international law, European Union law and Dutch law, in particular to the extent that the agreements are within the scope of the international, European and Dutch rules on procurement, competition, state aid and technical standards and regulations.

Article 15: Amendment to the voluntary agreement

1. The Parties acknowledge that new developments, insights or other information can lead to this voluntary agreement being amended.
2. If efforts need to be intensified to achieve the goal set out in Article 1, the Parties will if necessary make agreements on supplementary measures.
3. Any Party can request the other Parties in writing to amend the voluntary agreement. This request should be submitted to the secretariat as referred to in Article 6, paragraph 2.
4. Within four weeks of receipt the secretariat will inform the Parties in writing of the request to amend the voluntary agreement.
5. Any amendment requires the agreement of all the Parties.
6. No later than six weeks after receiving the request to amend the voluntary agreement, the Parties will inform the secretariat whether they agree to the requested amendment. A party that does not respond within this time period is assumed to agree to the amendment.
7. A request to amend Article 2 of this voluntary agreement must be discussed by the SEB Taskforce, as referred to in Article 6, paragraph 1.
8. Amendments to the agreement will be published in the Government Gazette and on opwegnaarseb.nl.
9. The amendment will be added as an annexe to the voluntary agreement.
10. Any amendment to the voluntary agreement will also be incorporated into the SEB roadmap.

Article 16: Annexes

The annexes are an integral part of the voluntary agreement.

Article 17: New signatories

1. New parties may join during the term of the voluntary agreement by submitting a request in writing to the secretariat as referred to in Article 6, paragraph 2.
2. A new party can only join the voluntary agreement if all Parties consent to the request. Parties will not withhold their consent without good reason.
3. The SEB Taskforce's secretariat will maintain an up-to-date list of parties, included as Annexe 2 to the voluntary agreement. Any amended versions of the annexe will be published every six months in the Government Gazette.

Article 18: Withdrawal and termination

1. Any Party can terminate its participation in this voluntary agreement in writing at any time subject to a two-month notice period. The party concerned will consult with the other Parties to ensure that existing obligations, agreements and commitments under the voluntary agreement are adequately rounded off.
2. The voluntary agreement can be terminated before the end of the term referred to in Article 19 with the unanimous, written agreement of all Parties.

Article 19: Duration and entry into effect

1. This voluntary agreement will enter into effect after it has been signed by all Parties and apply until 31 December 2030.
2. The Parties will begin implementation of this voluntary agreement as soon as possible but no later than six months after its entry into effect.
3. The duration of this voluntary agreement may be extended. The Parties will begin talks on the continuation of this agreement no later than six months before 31 December 2030.

Article 20: Publication

This voluntary agreement will be published in the Government Gazette and on www.opwegnaarseb.nl no later than four weeks after it has been signed.

Article 21: Signature in counterparts

Several copies of this voluntary agreement may be signed by the Parties, and these copies will together have the same effect as would a single copy signed by all the Parties.

Article 22: Short title

This voluntary agreement may be cited as the Voluntary agreement on Clean and Zero-Emission Construction.

ANNEXE 1 EMISSION REQUIREMENTS FOR CONSTRUCTION EQUIPMENT

Table 1 Basic tier, mobile machinery

	Period 1	Period 2	Period 3	Period 4
	1 January 2023 – 31 December 2024	1 January 2025 – 31 December 2027	1 January 2028 – 31 December 2029	1 January 2030 onwards
Light duty (power <19kW)	No requirements	No requirements	100% ZE	100% ZE
Light duty (19-37kW)	Stage IIIa	Stage IIIa	100% ZE	100% ZE
Light duty (37-56kW)	Stage IIIb	Stage IIIb	100% ZE	100% ZE
Medium duty (56-130kW)	Stage IIIb	Stage IV with soot filter [1]	Stage IV with soot filter [1]	Stage IV with soot filter [1] (2030) 100% ZE (2035)
Heavy duty (130-560kW)	Stage IIIb	Stage IV with soot filter [1]	Stage IV with soot filter [1]	Stage IV with soot filter [1] 100% ZE (2035)
Specialist (lifespan >15 years) Very heavy duty (>560kW)	No requirements	No requirements	Catalytic converter and soot filter [1]	Catalytic converter and soot filter [1] 100% ZE (2035-2040)
Stationary machinery (generators, pumps, tower cranes)	As for mobile machinery	As for mobile machinery	100% ZE <560 kW >560kW as for mobile machinery	100% ZE <560 kW >560kW same as requirements for mobile machinery

[1] 'Catalytic converter' means an effective SCR catalytic converter. 'Soot filter' means a properly functioning, closed diesel particulate filter (DPF) system.

Table 2 Ambitious tier, mobile machinery

	Period 1	Period 2	Period 3	Period 4
	1 January 2023 – 31 December 2024	1 January 2025 – 31 December 2027	1 January 2028 – 31 December 2029	1 January 2030 onwards
Share of frontrunner projects [1]	5-25%	25-50%	50-80%	75-95%
Growth in use of zero-emission machinery				
(percentage of operations done with ZE machinery, operating hours x power, in a project)	10-30%	30-70%	70-90%	90-100%

[1] As a percentage of commissioning body's project portfolio.

Table 3 Basic tier, construction logistics

	Period 1	Period 2	Period 3	Period 4
	1 January 2023 – 31 December 2024	1 January 2025 – 31 December 2027	1 January 2028 – 31 December 2029	1 January 2030 onwards
N1 - vans	Euro 5	Euro 6	100% ZE	100% ZE
N2 - light goods vehicles	Euro V	Euro VI	Euro VI	100% ZE
N3 - heavy goods vehicles	Euro V	Euro VI	Euro VI	Euro VI

Table 4 Ambitious tier, construction logistics

	Period 1	Period 2	Period 3	Period 4
	1 January 2023 – 31 December 2024	1 January 2025 – 31 December 2027	1 January 2028 – 31 December 2029	1 January 2030 onwards
Share of frontrunner projects [1]	5-25%	25-50%	50-80%	75-95%
Growth in use of ZE machinery				
N1 - vans	50% ZE	100% ZE	100% ZE	100% ZE
N2 - light goods vehicles	10% ZE	50% ZE	100% ZE	100% ZE
N3 - heavy goods vehicles	1% ZE	10% ZE	30% ZE	100% ZE

[1] As a percentage of commissioning body's project portfolio

Table 5 Emission requirements for specialist railway machinery

	Period 1	Period 2	Period 3	Period 4
	1 January 2023 – 31 December 2024	1 January 2025 – 31 December 2027	1 January 2028 – 31 December 2029	1 January 2030 onwards
Minimum requirements for the machinery used				
Light railway machinery (<56kW; mainly small mechanised equipment)	Autonomous development (ambition: 20% ZE)	Ambition: 80% ZE	100% ZE	100% ZE
Medium-sized railway machinery (56-130kW; including railway cranes)	Stage IIIb Stimulus for ZE	Stage IV + soot filter Ambition: 20% ZE	Stage IV + soot filter Ambition: 50% ZE	Growth to 100% ZE (by 2035 at the latest)
Specialist/heavy railway machinery	Study/develop sustainable options (retrofit/ZE/hybrid)	Start rollout of SCR + soot filter ZE ambition: at least 1 ZE tamping machine	Requirement: at least SCR + soot filter Growth in ZE: ambition 10-20% ZE	Requirement: at least SCR + soot filter ZE use increasing to 50-100% (2035-2040)
Road-rail machinery and construction logistics [1]				
Medium-sized road-rail buses (N1; mass<3,500kg)	Euro 5 Stimulus for increased use of ZE or hybrid	At least Euro 6, hybrid or ZE[1] + requirements for urban ZE zones	Requirement: 100% ZE	Requirement: 100% ZE
Medium-sized road-rail machinery (N2/3; mass>3,500kg)	Euro V Stimulus for increased use of ZE or hybrid	At least Euro VI, hybrid or ZE	At least Euro VI, hybrid or ZE	N2: 100% ZE N3: Euro VI (ZE no later than 2035)
Transporting materials to construction site using diesel locomotive	Study/develop sustainable options (retrofit/ZE/ hybrid) Process-related measures	Start use of SCR + soot filter Growth in use of hybrid/ZE Process-related measures	Use of SCR + soot filter Ambition: 20% ZE Process-related measures	Use of SCR + soot filter Ambition: >50% ZE Process-related measures

[1] As a percentage of commissioning body's project portfolio.

Table 6 Basic tier, floating equipment

	Period 1	Period 2	Period 3	Period 4
	1 January 2023 – 31 December 2024	**1 January 2025 – 31 December 2027**	**1 January 2028 – 31 December 2029**	**1 January 2030 onwards**
Transition pathway: coastal maintenance and fairway maintenance (maritime) Trailing suction hopper dredger, grab hopper dredger, grab dredger, cutter suction dredger, suction hopper dredger, water injection dredger	Emissions at least in accordance with Tier I [1,2] At least 10% renewable energy carriers	Emissions at least in accordance with Tier I [1,2] At least 20% renewable energy carriers	Emissions at least in accordance with Tier II [1,2] At least 40% renewable energy carriers	Emissions at least in accordance with Tier III [1,2] At least 60% renewable energy carriers
Transition pathway: coastal maintenance and fairway maintenance (fresh water) Hopper barge, silt pusher, auxiliary equipment (survey vessels, tugs and push boats), small cutter dredger [3], other small waterborne dredging equipment or floating machinery	No emission requirement At least 20% renewable energy carriers	No emission requirement At least 35% renewable energy carriers	Emissions at least in accordance with CCNR stage II [4] At least 60% renewable energy carriers	Emissions at least in accordance with CCNR stage II [4] At least 75% renewable energy carriers
Transition pathway: coastal maintenance and fairway maintenance (fresh water) Grab hopper dredger, grab dredger, cutter suction dredger, bucket wheel suction dredger, hopper barges, piling barge, support vessels, suction hopper dredger	No emission requirement At least 20% renewable energy carriers	No emission requirement At least 35% renewable energy carriers	Emissions at least in accordance with CCNR stage II [4] At least 60% renewable energy carriers	Emissions at least in accordance with Stage V (IWP-IWA) [4] At least 75% renewable energy carriers

[1] Certified compliant with Tier I, II or III as laid down by the International Maritime Organization (IMO MARPOL Regulation 13, Annex VI, 2005), or retrofit that meets Tier I, II or III emission standards

[2] Not including ships with more than 15,000m2 hopper capacity where this is demonstrably necessary for the work in question.

[3] Small cutter suction dredgers that are used exclusively in zone 4 waterways.

[4] Certified compliant with CCNR stage I or II as laid down by the Central Commission for Navigation on the Rhine, or retrofit that meets CCR stage I or II emission standards.

Certified compliant with Stage V (IWP-IWA) as laid down in Regulation (EU) 2016/1628, or retrofit that complies with Stage V emission limits (IWP-IWA).

In the context of clean and zero-emission construction equipment, the following are considered renewable energy carriers:

- Biofuels produced from feedstocks listed in Part A or B of Annex IX of the most recent EU RED Directive;
- Conventional biofuels;
- Renewable fuels of non-biological origin (RFNBOs), including green hydrogen and synthetic biofuels;[14]
- Renewable electricity (RE).

[14] Currently the Energy (Transport) Order does not provide for the use of synthetic fuels by ships. These fuels therefore do not count towards the annual obligation, nor can renewable energy units (HBEs) be awarded for their use.

Table 7 Ambitious tier, floating equipment

	Period 1	Period 2	Period 3	Period 4
	1 January 2023 – 31 December 2024	**1 January 2025 – 31 December 2027**	**1 January 2028 – 31 December 2029**	**1 January 2030 onwards**
Transition pathway: coastal maintenance and fairway maintenance (maritime) Trailing suction hopper dredger, grab hopper dredger, grab dredger, cutter suction dredger, suction hopper dredger, water injection dredger	Ambition: 20% in accordance with Tier III[1]; Ambition: 20% biofuels; Ambition: 1% RFNBOs or RE	Ambition: 50% in accordance with Tier III [1] Ambition: 40% biofuels; Ambition: 2% RFNBOs or RE	100% in accordance with Tier III [1] Ambition: 60% biofuels; Ambition: 5% RFNBOs or RE	100% in accordance with Tier III [1] Ambition: 90% biofuels; Ambition: 10% RFNBOs or RE
Transition pathway: coastal maintenance and fairway maintenance (fresh water) Hopper barge, silt pusher, auxiliary equipment (survey vessels, tugs and push boats), small cutter dredger [3], other small waterborne dredging equipment or floating machinery	Ambition: 20% biofuels; Ambition: 1% RFNBOs or RE	Ambition: 10% in accordance with Stage V (IWP-IWA-NRE) [3] Ambition: 40% biofuels Ambition: 2% RFNBOs or RE	Ambition: 40% in accordance with Stage V (IWP-IWA-NRE) [3] Ambition: 60% biofuels; Ambition: 5% RFNBOs or RE	Ambition: 70% in accordance with Stage V (IWP-IWA-NRE) [3] Ambition: 85% biofuels; Ambition: 15% RFNBOs or RE
Transition pathway: coastal maintenance and fairway maintenance (fresh water) Grab hopper dredger, grab dredger, cutter suction dredger, bucket wheel suction dredger, hopper barges, piling barge, support vessels, suction hopper dredger	Ambition: 20% biofuels; Ambition: 1% RFNBOs or RE	Ambition: 25% in accordance with Stage V (IWP-IWA-NRE) [3] Ambition: 40% biofuels; Ambition: 2% RFNBOs or RE	Ambition: 60% in accordance with Stage V (IWP-IWA-NRE) [3] Ambition: 60% biofuels; Ambition: 5% RFNBOs or RE	Ambition: 100% in accordance with Stage V (IWP-IWA-NRE) [3] Ambition: 85% biofuels; Ambition: 15% RFNBOs or RE

[1] Certified compliant with Tier I, II or III as laid down by the International Maritime Organization (IMO MARPOL Regulation 13, Annex VI, 2005), or retrofit that meets Tier I, II or III emission standards

[2] Small cutter suction dredgers that are used exclusively in zone 4 waterways.

[3] Certified compliant with CCNR stage I or II as laid down by the Central Commission for Navigation on the Rhine, or retrofit that meets CCR stage I or II emission standards.

Certified compliant with Stage V (IWP-IWA) as laid down in Regulation (EU) 2016/1628, or retrofit that complies with Stage V emission limits (IWP-IWA).

In the context of clean and zero-emission construction equipment, the following are considered renewable energy carriers:

- Biofuels as referred to in Table 7, produced from feedstocks listed in Part A or B of Annex IX of the most recent EU RED Directive;
- Conventional biofuels;
- Renewable fuels of non-biological origin (RFNBOs), including green hydrogen and synthetic biofuels;[15]
- Renewable electricity (RE).

[15] Currently the Energy (Transport) Order does not provide for the use of synthetic fuels by ships. These fuels therefore do not count towards the annual obligation, nor can renewable energy units (HBEs) be awarded for their use

Table 8 Floating equipment, energy sector (maritime)

	Period 1	Period 2	Period 3	Period 4
	1 January 2023 – 31 December 2024	1 January 2025 – 31 December 2027	1 January 2028 – 31 December 2029	1 January 2030 onwards
Cable laying vessel, dredging vessel, flexible fallpipe vessels, grab hopper dredger, grab dredger, crewtender, guard vessel	Average 30% reduction compared to IMO NO_x Tier II for all ships [1,2] On average, at least 10% renewable energy carriers [3]	Average 40% reduction compared to IMO NO_x Tier II for all ships [1,2] On average, at least 20% renewable energy carriers [3]	Average 45% reduction compared to IMO NO_x Tier II for all ships [1,2] On average, at least 40% renewable energy carriers [3]	Average 50% reduction compared to IMO NOx Tier II for all ships [1,2] On average, at least 60% renewable energy carriers [3]

[1] The reduction in NO_x emissions is an average for all ships used in a project, adjusted for energy consumption, in Dutch waters, compared to a scenario in which all ships are Tier II compliant. Tier II is the emission standard for diesel ship engines laid down by the International Maritime Organization (IMO) in Annex VI, Regulation 13 to MARPOL (2005).

2 Not including heavy-lift ships.

3 This is a percentage of the total energy consumption of all ships used in the project, in Dutch waters.

In the context of clean and zero-emission construction equipment, the following are considered renewable energy carriers:

- Biofuels as referred to in Table 7, produced from feedstocks listed in Part A or B of Annex IX of the most recent EU RED Directive;
- Conventional biofuels;
- Renewable fuels of non-biological origin (RFNBOs), including green hydrogen and synthetic biofuels;[16]
- Renewable electricity (RE).

[16] Currently the Energy (Transport) Order does not provide for the use of synthetic fuels by ships. These fuels therefore do not count towards the annual obligation, nor can renewable energy units (HBEs) be awarded for their use