

Overzicht CO<sub>2</sub> doelstellingen

|                     |   |                   |                 |         |
|---------------------|---|-------------------|-----------------|---------|
| To Be Defined       | OK  | latere uitvoering | geen uitvoering | gepland |
| Niet Van Toepassing | Iemants, Willems, Smulders Projects, Spomasz, Group |                   |                 |         |

| Doelstellingen:  | Site   | scope                 | 2015        | 2016    | 2017    | 2018 | 2019 | tbd |
|--|--------|-----------------------|-------------|---------|---------|------|------|-----|
| Scope 1-2 emissies omzetten naar "per werkuur"                   | G      | 1+2                   | G           |         |         |      |      |     |
| Selectie van scope 1-2 reducerende maatregelen                   | I/W/SP | 1+2                   | G           |         |         |      |      |     |
| Local content  | G      | 3                     |             | SPU     |         |      |      |     |
| LED verlichting  | I/W/SP | 2                     | I/W/SPB     |         |         |      |      |     |
| Perslucht  | I/W/SP | 2                     |             | I/W/SPB |         |      |      |     |
| Ontwikkelingstraject ICE onder poederdek lassen                  | I/SP   | 2                     | I/SPB       |         |         |      |      |     |
| Reductieprogramma RTO  | SP     | 2+3 (1 <sup>▲</sup> ) | SPB         |         |         |      |      |     |
| Laag-energetisch kantoorgebouw                                   | I      | 1                     | I           |         |         |      |      |     |
| Ontwikkelingstraject ECO Design                                  | G      | 3                     | pré-traject | G       |         |      |      |     |
| Toolbox zuinig rijden  | G      | 1                     |             | G       | G       |      |      |     |
| CO <sub>2</sub> in onthaal nieuwe werknemers                     | G      | nvt                   |             | G       | G       |      |      |     |
| Driemaandelijke monitoring brandstofverbruik                     | I/W/SP | 1                     |             | I/W/SPB |         |      |      |     |
| ISO 50.001   | G      | 1+2                   |             | Spo     | I/W/SPB |      |      |     |
| Warmte-krachtkoppeling   | SP     | 1+2                   |             | SPB     |         |      |      |     |
| Eigen kade binnenvaart   | W      | 3                     |             | W       |         |      |      |     |
| Isolatie spuithal  | W      | 1                     |             | W       |         |      |      |     |
| Maandelijkse controle bandenspanning machines                    | I/W/SP | 1                     |             |         | I/W/SPB |      |      |     |
| Drankverpakking: PET vs. glas                                    | G      | 3                     |             |         |         |      |      | G   |
| Uitbreiding CO <sub>2</sub> -rapportering naar MVO-rapportering  | G      | nvt                   |             |         | G       |      |      |     |
| Uitbreiding vragenlijst leveranciers m.b.t. CO <sub>2</sub> /MVO | G      | nvt                   |             |         | G       |      |      |     |
| Factory of the future (Agoria)                                   | G      | nvt                   |             |         |         |      |      | G   |

cummulative scope 1-2 CO<sub>2</sub> savings (tons) : 8382,97

cummulative scope 3 CO<sub>2</sub> savings (tons) : 7369

| location | item                     | scope | 2014    | 2015    | 2016    | 2017  | 2018  | 2019  | TOTAL upto 2016 |
|----------|--------------------------|-------|---------|---------|---------|-------|-------|-------|-----------------|
| SPB      | test LED Albert Hall     | 1-2   |         | 26      | 26      | 26    | 26    | 26    | 52,0            |
| SPB      | LED Tital Hall (partial) | 1-2   |         |         | 88,41   | 88,41 | 88,41 | 88,41 | 88,4            |
| SPB      | LED Albert Hall          | 1-2   |         |         |         | 529   | 529   | 529   | 0,0             |
| W        | test LED Hall H          | 1-2   |         |         | 9,28    | 9,28  | 9,28  | 9,28  | 9,3             |
| W        | LED full relighting      | 1-2   |         |         |         | 123   | 123   | 123   | 0,0             |
| I        | LED 2016                 | 1-2   |         |         |         |       |       |       | 0,0             |
| I        | LED 2017                 | 1-2   |         |         |         |       |       |       | 0,0             |
| G        | ECO Design               | 1-2-3 |         | 5382    | 1987    |       |       |       | 7369,0          |
| G        | ICE welding              | 1-2   |         |         | 6,58    |       |       |       | 6,6             |
| I/W/SPB  | green energy supplier    | 1-2   | 2912,42 | 3435,56 | 1878,72 |       |       |       | 8226,7          |
| W        | insulation painting hall | 1-2   |         |         |         | 76,8  | 76,8  | 76,8  | 0,0             |
| SPB      | RTO                      | 1-2-3 |         |         |         | 221,4 | 221,4 | 221,4 | 0,0             |
| SPB      | WKK                      | 1-2   |         |         |         |       | 613   | 613   | 0,0             |

cummulative scope 1-2 CO<sub>2</sub> savings (tons) : 8383

cummulative scope 3 CO<sub>2</sub> savings (tons) : 7369

## Positioning of the firm in the sector

*related document:     Maatregellijst\_PDF\_Versie1 1\_report 2016  
                              Maatregellijst\_report 2017*

The Smulders company is a relatively new player on the field of CO<sub>2</sub>-calculation and – reduction. It is however a distinguished player in its sector, offering more than 50 years' experience in the engineering, construction, supply and assembly of steel constructions.

Hence it's position is two-sided.

On the one hand, the firm is taking its first steps in a structural tackling of the CO<sub>2</sub>-emissions. Actions have been taken in the past, e.g. solar panels at Iemants, but not with a long term vision in mind. This has drastically changed over the last few years.

For the first time in 2014, the scope 1 and 2 emissions have been charted and clear goals have been set. The planned actions are at the moment very basic, focussing mainly on compressed air, LED lighting and insulation. The goal is to steadily grow from this basic level to a more CO<sub>2</sub>-mature stance, in which the current actions are regarded as evident by all parties concerned.

On the other hand, Smulders has a very well developed position in the sector of steel constructions. It has already come a long way to stay competitive in a struggling market. The Engineering and Production departments are top class.

The possibilities for some scope 1, 2 or 3 emission reductions are therefore top class and leading in the sector. We are talking about developing new welding techniques (ICE), ameliorated waste treatment designs (RTO) and recalculating customer designs (ECO Design).

We can conclude the following.

- Related to the general aspect of CO<sub>2</sub> emission reduction, Smulders is still taking its first steps and is a follower.
- With regards to CO<sub>2</sub> emission reduction projects linked to its core business, the company is a leader.

## Energy management plan 2015

| site       | scope | topic   | detail   | target value<br>(related to site) | unit | value (ton CO <sub>2</sub> ) | responsible                 | result                   | value | unit'          | value (ton CO <sub>2</sub> )'  | annotation |
|------------|-------|---|--|-----------------------------------|------|------------------------------|-----------------------------|--------------------------|-------|----------------|--|------------|
| G          | 1+2   | improving inventory   | reporting related to working hours (incl. reference year 2014)   | relative to working hours         |      |                              | CO <sub>2</sub> responsible | OK                       |       |                |  |            |
| I/W/SP     | 2     | green energy supplier                                       | raise the percentage of green energy (kWh) through a new supplier of electricity   | 40                                | %    | 416<br>(-11,43%)             | Purchase Manager            | 42,67                    | %     | 10             | Relative drop of 10 tons compared to year before, due to small rise in green energy. Absolute rise of 75 tons due to larger consumption.<br>Projected drop of 416 tons was based on Eneco (2013). This was corrected to Scholt 2014, which is the same supplier as 2015. |            |
| I/Spo      | 1     | improving inventory   | division of diesel fuel consumption into company car, collective transport and transport of goods  | in inventory                      |      |                              | CO <sub>2</sub> responsible |                          |       |                |  |            |
| I/W/SP     | 1     | improving inventory   | calculating CO <sub>2</sub> emissions from gas consumption based on the correct caloric value  | in inventory                      |      |                              | CO <sub>2</sub> responsible |                          |       |                |  |            |
| I/W/SP     | 1     | improving inventory   | registration of refrigerants   | in inventory                      |      |                              | CO <sub>2</sub> responsible |                          |       |                |  |            |
| I/W/SP/Spo | 1     | improving inventory   | registration of private car fuel consumption for business travel   | in inventory                      |      |                              | CO <sub>2</sub> responsible |                          |       |                |  |            |
| I          | 1     | CO <sub>2</sub> reduction related to heating OR electricity | selection of viable investments/actions for the reduction of heating (gas+fuel oil), based on the energy audit 2015, execution during 2016 | -10                               | %    | 86,7<br>(-2,38% in 2016)     |                             |                          |       |                |  |            |
| I          | 2     | CO <sub>2</sub> reduction related to heating OR electricity | selection of viable investments/actions for the reduction of electricity, based on the energy audit 2015, execution during 2016            | -5                                | %    | 81,4<br>(-2,23% in 2016)     |                             | compressed air, LED, ICE |       |                | LED: numbers available but not yet recalculated<br>ICE: estimated 3000kWh per welding machine, exact numbers available in 2016<br>Air: tbd, based on energy audit  |            |
| I          | 2     | electricity: compressed air                                 | reducing the air pressure from 9 to 7 bar (after further analysis of potential production risks)   |                                   |      |                              | maintenance dep.            |                          |       |                | delayed to 2016  |            |
| I/W/SP     | 2     | electricity: compressed air                                 | introducing a periodical leak detection of the air pressure system + first execution in 2015 and repairing detected leaks                  |                                   |      |                              | maintenance dep.            | OK                       |       |                | monthly inspection by internal maintenance department  |            |
| I          | 2     | electricity: compressed air                                 | including the air nozzles into the preventive maintenance plan   |                                   |      |                              | maintenance dep.            |                          |       |                | delayed to 2016  |            |
| I/W/SP     | 2     | electricity: compressed air                                 | timer on air compressors (night, weekend)  |                                   |      |                              | maintenance dep.            |                          |       |                | delayed to 2016  |            |
| SP         | 1     | CO <sub>2</sub> reduction related to heating OR electricity | selection of viable investments/actions for the reduction of heating (gas+fuel oil), based on the energy audit 2015, execution during 2016 | -10                               | %    | 112,3<br>(-2,57% in 2016)    |                             | RTO, WKK                 |       |                | RTO installation 2016<br>WKK installation 2017<br><br>RTO is going to give a significant downfall in scope 3 emissions, which will largely shift to scope 1 emissions... See RTO project summary.  |            |
| SP         | 2     | CO <sub>2</sub> reduction related to heating OR electricity | selection of viable investments/actions for the reduction of electricity, based on the energy audit 2015, execution during 2016            | -5                                | %    | 389,8<br>(-8,92% in 2016)    |                             | compressed air, LED, ICE |       | LED: 78,82 ton | LED: Already installed in 2015: 10,21kW, projected 2016: 30kW, 2017 tbd<br>ICE: after successful tests lemans, reduction based on numbers lemans<br>Air: tbd, based on energy audit  |            |
| W          | 1     | CO <sub>2</sub> reduction related to heating OR electricity | selection of viable investments/actions for the reduction of heating (gas+fuel oil), based on the energy audit 2015, execution during 2016 | -5                                | %    | 54,8<br>(-2,65% in 2016)     |                             | insulation painting hall |       | 76,8           | based on energy audit execution 2017   |            |
| W          | 2     | CO <sub>2</sub> reduction related to heating OR electricity | selection of viable investments/actions for the reduction of electricity, based on the energy audit 2015, execution during 2016            | -5                                | %    | 41,1<br>(-1,98% in 2016)     |                             | compressed air, LED      |       |                | LED: planned 2017<br>Air: tbd, based on energy audit   |            |
| Spo        | 1+2   | energy audit  | executing an energy audit on the Spomasz site  | audit executed                    |      |                              |                             |                          |       |                | delayed to 2016 (ISO 50.001)   |            |
| Spo        | 1     | improving inventory   | back-up check: other sources of heating (fuel, gas, ...)?  | checked                           |      |                              |                             | municipal heating        |       |                | waiting for energy consumption numbers to be added to emission inventory   |            |

## Energy management plan 2016

| site       | scope | topic                         | detail   | target value<br>(related to site) | unit | value (ton CO <sub>2</sub> ) | responsible                 | result value           | unit' | value (ton CO <sub>2</sub> )' | annotation   |
|------------|-------|-------------------------------|--|-----------------------------------|------|------------------------------|-----------------------------|------------------------|-------|-------------------------------|--|
| I/Spo      | 1     | improving inventory           | division of diesel fuel consumption into company car, collective transport and transport of goods                              | in inventory                      |      |                              | CO <sub>2</sub> responsible |                        |       |                               |  |
| I/W/SP     | 1     | improving inventory           | calculating CO <sub>2</sub> emissions from gas consumption based on the correct caloric value                                  | in inventory                      |      |                              | CO <sub>2</sub> responsible |                        |       |                               |  |
| I/W/SP     | 1     | improving inventory           | registration of refrigerants   | in inventory                      |      |                              | CO <sub>2</sub> responsible | not applicable anymore |       |                               | no longer required in handboek 3.0 due to minimal impact   |
| I/W/SP/Spo | 1     | improving inventory           | registration of private car fuel consumption for business travel   | in inventory                      |      |                              | CO <sub>2</sub> responsible | on hold                |       |                               |  |
| I          | 2     | electricity: compressed air   | reducing the air pressure from 9 to 7 bar (after further analysis of potential production risks)                               | tbd                               |      |                              | maintenance dep.            | no, production related |       |                               |  |
| I          | 2     | electricity: compressed air   | including the air nozzles into the preventive maintenance plan   | tbd                               |      |                              | maintenance dep.            |                        |       |                               |  |
| I/W/SP     | 2     | electricity: compressed air   | timer on air compressors (night, weekend)  | tbd                               |      |                              | maintenance dep.            | not applicable anymore |       |                               | due to production needs, activities have practically gone up to 24/7.                                      |
| I/W/SP     | 2     | electricity: compressed air   | switching from pneumatic to electric gear if possible  | tbd                               |      |                              | production and HSE dep.     | no, safety related     |       |                               |  |
| I/W/SP     | 2     | electricity: compressed air   | introducing vacuum-cleaner in stead of blowing   | tbd                               |      |                              | production and HSE dep.     |                        |       |                               |  |
| I          | 2     | electricity: LED              | gradually replacing old light fixtures by LED  | tbd                               |      | 50                           | site manager                |                        |       |                               | 2017: no agreement on CAPEX yet  |
| SP         | 2     | electricity: LED              | replacing 30 fixtures to LED in Titan Hall   | -221944                           | kWh  | 88,41                        | site manager                | -221944                | kWh   | 88,41                         | 2017: relighting Albert Hall = -1327306 kWh = 529 ton CO <sub>2</sub>                                      |
| W          | 2     | electricity: LED              | replacing 48 fixtures to LED in hall H (+ 9 extra)   | -23285                            | kWh  | 9,28                         | project manager             | -23285                 | kWh   | 9,28                          | 2017: no agreement on CAPEX yet  |
| I          | 2     | electricity: ICE              | use of new ICE welding technique in projects   | -3000                             | kWh  | 1                            | project manager             | -16520                 | kWh   | 6,58                          | Beatrice project, overflow from 2016 into 2017. 2017: Walney   |
| G          | 1     |                               | toolbox Defensive driving  | yes                               |      |                              | HSE dep.                    | on hold                |       |                               |  |
| G          |       |                               | educating new employees  | yes                               |      |                              | HSE dep.                    | ongoing                |       |                               | HR department also working on new induction document   |
| Spo        | 1+2   | energy audit                  | executing an energy audit on the Spomasz site  | audit executed                    |      |                              | site manager                | OK                     |       |                               |  |
| SP         | 2+3   | Regenerative Thermal Oxidizer | replacing AK filters by RTO for removal of solvents in guided emissions  |                                   |      | 221,4                        | project manager             | ongoing                |       |                               | Further optimization of proper operation needed before making final conclusions and external communication |
| I/W/SP     | 1     |                               | 3-monthly monitoring of fuel consumption by company cars   | yes                               |      |                              | bookkeeping dep.            | no                     |       |                               |  |
| I/W/SP/Spo |       | ISO 50.001                    | management system is ISO 50.001 certified  | yes                               |      |                              | CO <sub>2</sub> responsible | ongoing                |       |                               | certification audit 09/2017<br>SPO OK in 2016  |
| G          | 3     | ECO Design                    | evaluation of potential reduction in steel and paint or substitution of aluminium in Civil and Industrial Engineering Projects | 80                                | %    |                              | Engineering manager         |                        |       |                               | Investigating the possibilities in 80% of projects, not reducing by 80%...                                 |

**Reduction scope 1/2 :** 370,0856286 ton CO<sub>2</sub> / year  
2,6 % of baseyear

**Reduction scope 3 :** 0 ton CO<sub>2</sub> / year  
0% % of baseyear

### Energy management plan 2017

2  
0  
1  
6

| site        | scope | topic                         | detail   | target value (related to site) | unit | value (ton CO <sub>2</sub> ) | responsible                 | result  | value | unit' | value (ton CO <sub>2</sub> )' | annotation   |
|-------------|-------|-------------------------------|--|--------------------------------|------|------------------------------|-----------------------------|---------|-------|-------|-------------------------------|--|
| I/Sp        | 1     | improving inventory           | division of diesel fuel consumption into company car, collective transport and transport of goods                              | in inventory                   |      |                              | CO <sub>2</sub> responsible |         |       |       |                               |  |
| I/W/SP      | 1     | improving inventory           | calculating CO <sub>2</sub> emissions from gas consumption based on the correct calorific value                                | in inventory                   |      |                              | CO <sub>2</sub> responsible |         |       |       |                               |  |
| I           | 2     | electricity: compressed air   | including the air nozzles into the preventive maintenance plan   | tbd                            |      |                              | maintenance dep.            |         |       |       |                               |  |
| I/W/SP      | 2     | electricity: compressed air   | introducing vacuum-cleaner in stead of blowing   | tbd                            |      |                              | production and HSE dep.     |         |       |       |                               |  |
| G           | 1     |                               | toolbox Defensive driving  | yes                            |      |                              | HSE dep.                    | on hold |       |       |                               |  |
| G           |       |                               | educating new employees  | yes                            |      |                              | HSE dep.                    | ongoing |       |       |                               | HR department also working on new induction document   |
| SP          | 2+3   | Regenerative Thermal Oxidizer | replacing AK filters by RTO for removal of solvents in guided emissions  |                                |      | 221,4                        | project manager             | ongoing |       |       |                               | Further optimization of proper operation needed before making final conclusions and external communication |
| I/W/SP/S po |       | ISO 50.001                    | management system is ISO 50.001 certified  | yes                            |      |                              | CO <sub>2</sub> responsible | ongoing |       |       |                               | certification audit 09/2017<br>SPO OK in 2016  |
| I/W/SP      | 2     | electricity: ICE              | real life use of ICE technique   | -15000                         | kWh  | 6                            | project manager             |         |       |       |                               | Walney approved, GeoSea projects pending   |
| W           | 3     | new quay                      | constructing new quay  | yes                            |      |                              | project manager             |         |       |       |                               |  |
| SP          | 1+2   | WKK                           | installing WKK   | balance of electricity / gas   |      | 613                          | project manager             |         |       |       |                               | no agreement on CAPEX yet  |
| W           | 1     | fuel for heating              | insulation of painting hall  | 38355L propaan + 3352L mazout  |      | 76,8                         | project manager             |         |       |       |                               |  |
| I/W/SP      | 1     | fuel for transport            | monthly inspection of tires on machinery   | yes                            |      |                              | maintenance dep.            | no      |       |       |                               | largest part of machinery tires are solid and not air pressurized  |
| I           | 2     | electricity: LED              | general relighting   | tbd                            | kWh  |                              | project manager             |         |       |       |                               | no agreement on CAPEX yet  |
| SP          | 2     | electricity: LED              | relighting Albert Hall   | -1327306                       | kWh  | 529                          | project manager             |         |       |       |                               |  |
| W           | 2     | electricity: LED              | general relighting   | -308961                        | kWh  | 123                          | project manager             |         |       |       |                               | no agreement on CAPEX yet  |
| G           | 3     | ECO Design                    | evaluation of potential reduction in steel and paint or substitution of aluminium in Civil and Industrial Engineering Projects | 90                             | %    |                              | Engineering manager         |         |       |       |                               | Investigating the possibilities in 90% of projects, not reducing by 90%...                                 |
| G           | 3     | ECO Design                    | reduction of needed amount of steel and paint or substitution of aluminium in Civil and Industrial Engineering Projects        | 2                              | %    | 156                          | Engineering manager         |         |       |       |                               | Investigating the possibilities in 90% of projects, not reducing by 90%...                                 |

**Reduction target scope 1/2 :** 612 ton CO<sub>2</sub> / year (736 ton no agreement on CAPEX yet)  
4 % of 2016

**Reduction target scope 3 :** 156 ton CO<sub>2</sub> / year