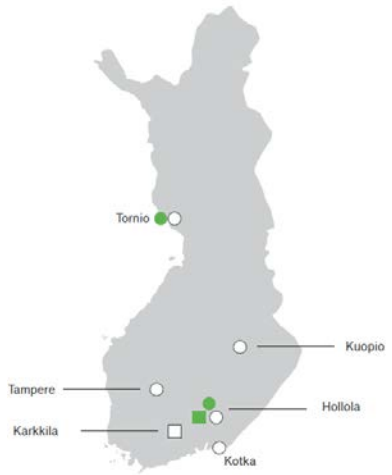
SEW Industrial Gears Oy

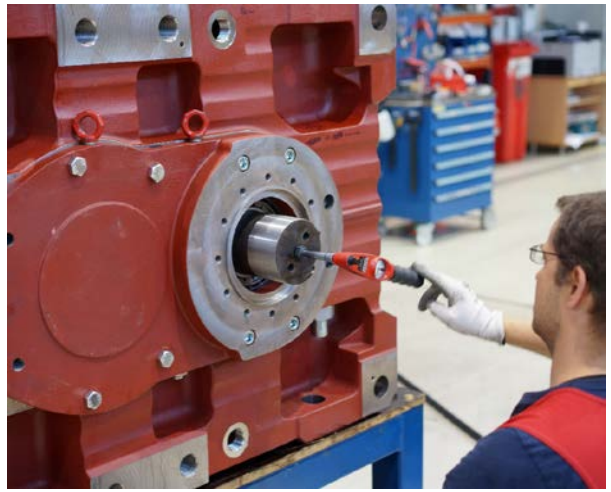
Production Plant and Technology Hub, Karkkila Finland

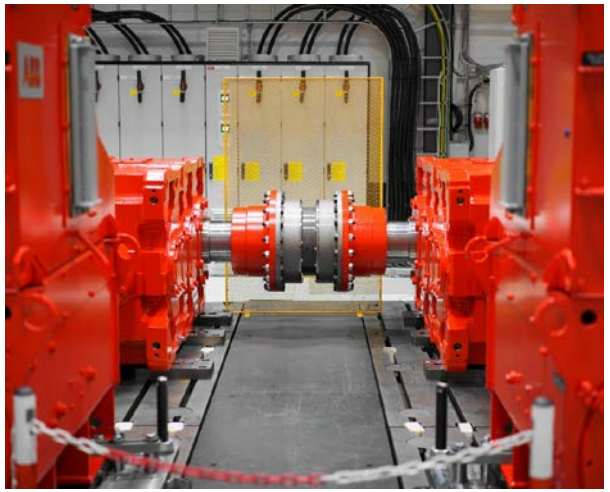
Operations in Finland



- **Production Plant and Technology Hub in Karkkila**
- **Service Centers in Hollola and Tornio,** SEW-EURODRIVE Oy
- **Drive Technology Center in Hollola,** SEW-EURODRIVE Oy
- More than 250 employees

Production Plant and Technology Hub

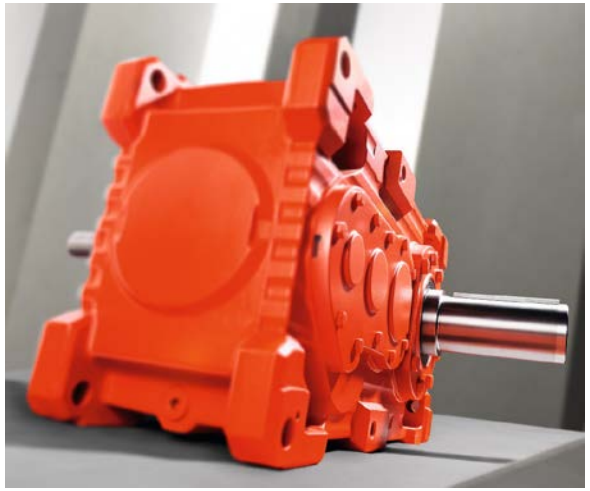




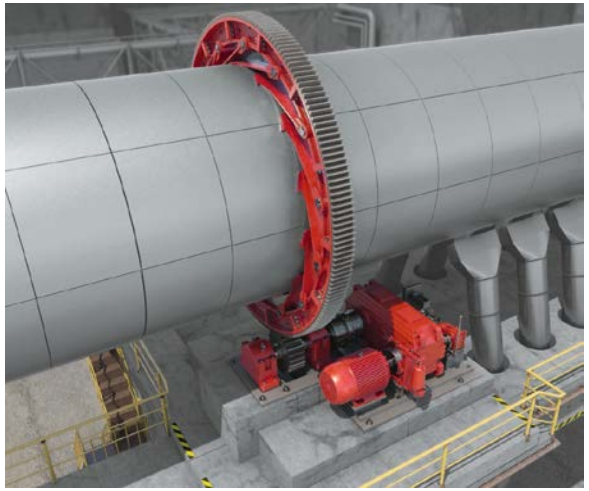
Design and manufacturing of industrial gear unit solutions.

- Sales, design and manufacture of industrial gears.
- Part of SEW-EURODRIVE Group's industrial gear unit production network.
- Turnover ca. 40 M€
- Personnel 160 persons
- Quality Management System ISO 9001

Standardized products



Application know-how

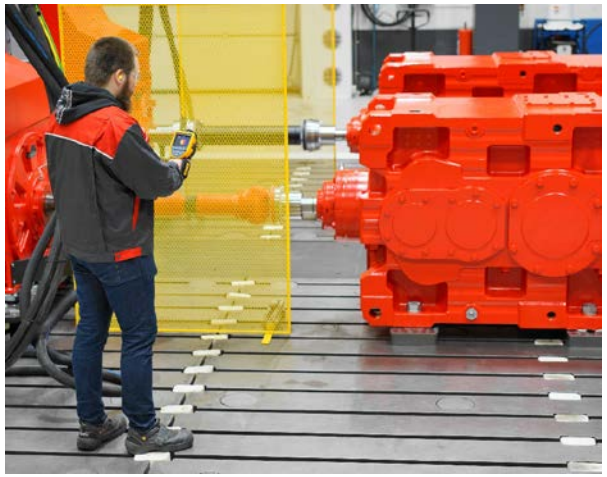


Full scope deliveries

Support services

Replacement gear units

Technology know-how



SEW GREEF project

SEW Industrial Gears Oy

SEW GREEF - towards carbon neutral production

Study of gear unit efficiency measuring and improvement

- ✓ Accurate energy efficiency measuring system of a industrial gear unit
- ✓ Efficiency analysis of a product hand print

Develop concepts and processes for supporting ongoing investment program

- ✓ Investment program support of 8 production machines and processes
- ✓ New quality deviation handling process with root cause analysis (QLIK)
- ✓ Quality defects decreased 10% and quality costs 15%
- ✓ Fast delivery consepts piloted and launched to markets
- ✓ Conseptual design of digital transformation in ERP system project

Carbon footprint calculator for industrial use

- ✓ CO2 calculator for GHG scope 1,2,3 since 2021
- ✓ Cut-off CO2 emissions 3400 tCO2ekv
- ✓ Cut-off 25% of all CO2 emissions (y 2023)

Project key goals

- ✓ Support profitable and sustainable growth of SEW Industrial Gears Oy
- ✓ Study concepts and processes for supporting ongoing investment program
- ✓ Create sustainability targets and KPI:s for carbon neutral production system

Marketing study and analysis of importance of sustainability in target markets

- ✓ Digital integration to SEW-EURODRIVE global sales network
- ✓ Sustainability selected for a new strategical focus area
- ✓ Goal: Best industrial place to work

Heat recovery systems of production facility and production machines

- ✓ Modernization and optimization of systems
- ✓ Factory energy consumption cut-off 5-10%/y
- ✓ Energy efficiency and CO2 neutrality roadmap with investment planning

Experiences working in GREEF ecosystem

Collaboration with universities and other companies

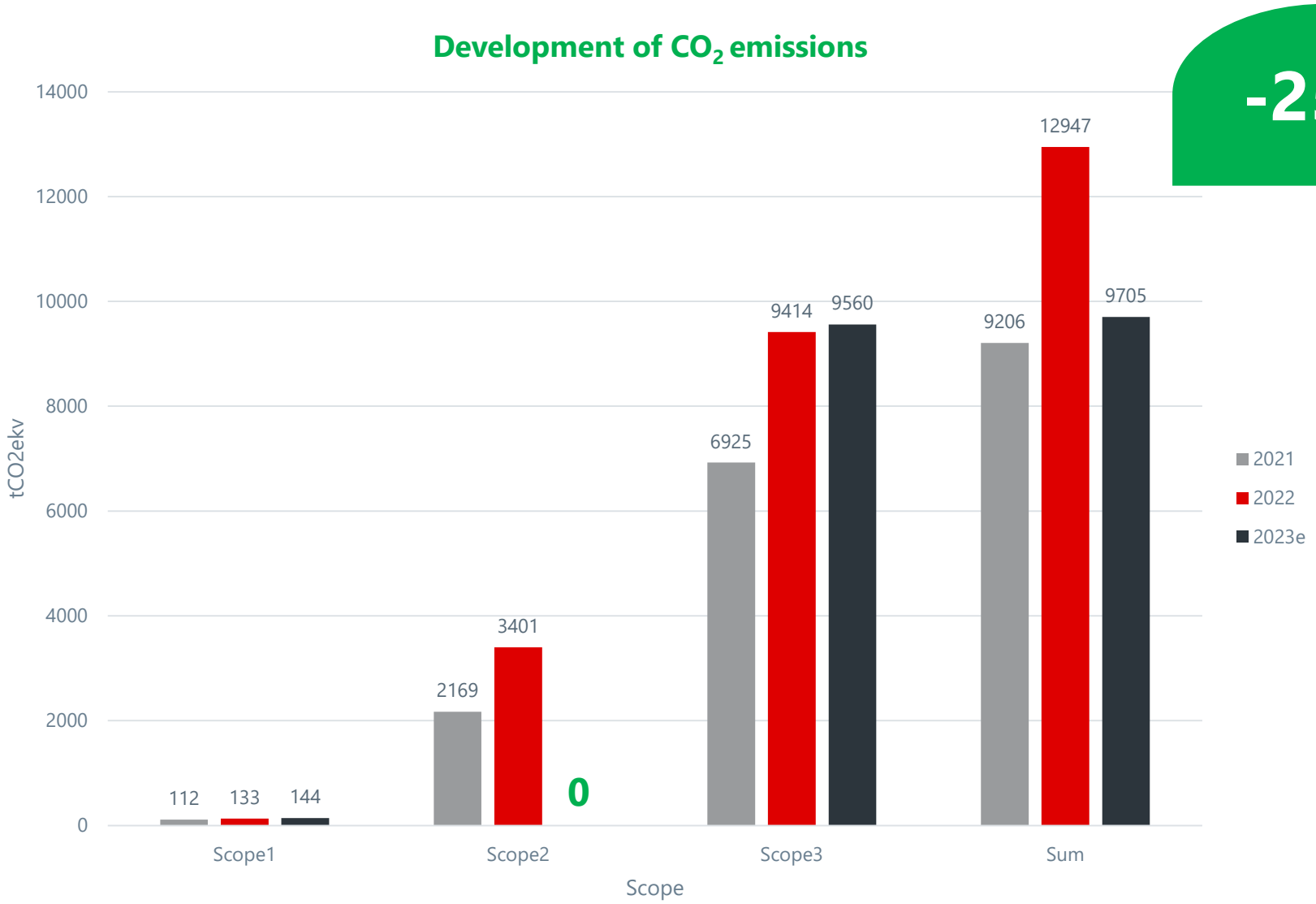
- Helps small and middle size companies to increace knowledge with small amount of own recources
- Enables latest information sharing among partners
- Makes possible to utilize specialists of various research areas and industries
- Makes possible to share and test ideas to increase knowledge

Other experiences

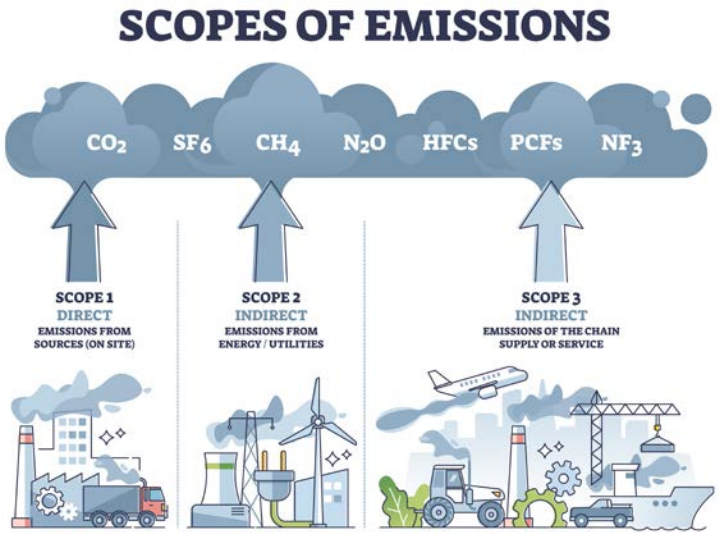
- Sustainability unifies companies and universities in different industries
- World, business environment and companies are constantly changing, which can not be predicted, when starting 3 year projects. Adaptation needed
- Made publications at universities could be utilized better

Green House Gas Protocol – Scope 1,2,3

Development of CO_2 emissions



-25%



Findings and recommendations

- No actions yet
- Action strated
- Action ready

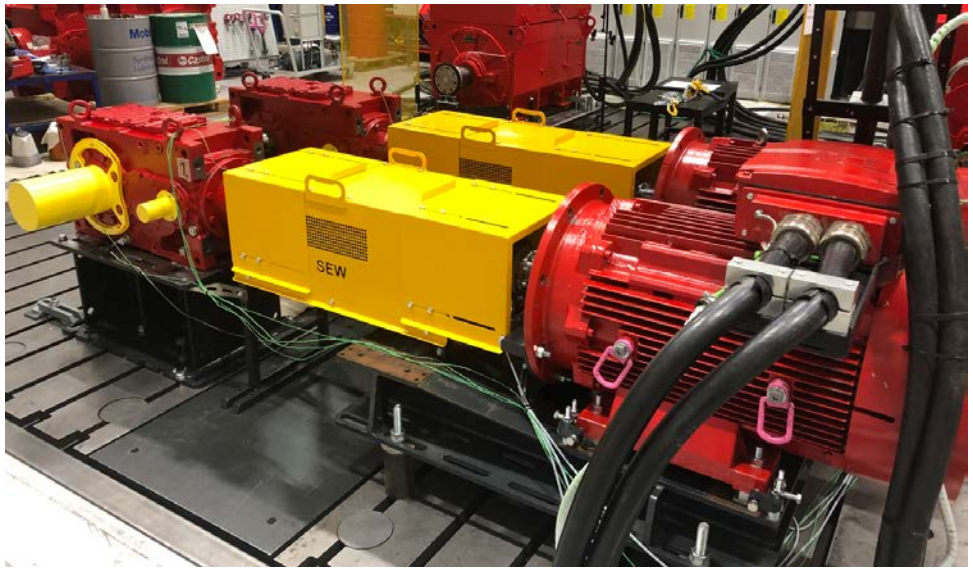
- **Scope 1**
  - Fuels with lower emissions will be used, if possible
  - Compensation of emissions

- **Scope2**
  - The electricity contract will be changed to carbon neutral
  - The district heating contract will be changed to carbon neutral

- **Scope3**
  - Continue to increase the use of steel quality made from recycled steel (lower emission factor)
  - Encourage to choose steel suppliers who are committed to reduce their carbon emissions and are able to report on their progress
  - Increase the use of European or Finnish foundries. Compared to China, emissions of the above mentioned foundries are lower. In this way, emissions caused by transportation can be avoided
    - Main suppliers are required to improve and report regularly on their carbon emissions
  - Whenever possible, components with lower carbon emissions are chosen
  - Transportation lengths and air transportation are minimized. Maximizing train and ship transportation

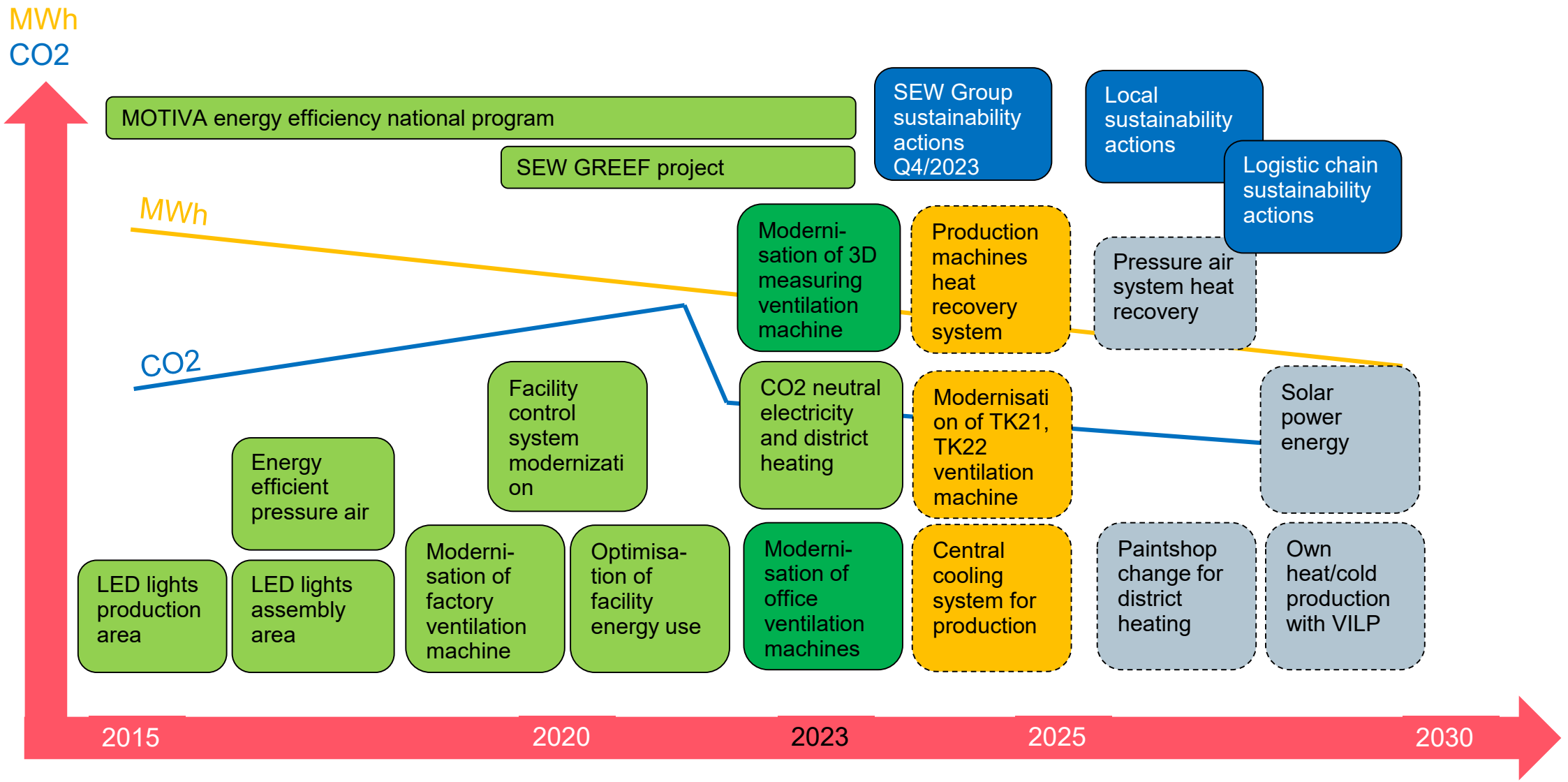
Gear unit efficiency improvement

- **Developed a method for measuring industrial gear unit efficiency**
  - Based on torque loss in drive train
  - Benefits with this measurement are: measurement precision (+/- 1%, theoretical) and measurement response time compared to method based on gear unit temperature
  - Completely new method at SEW
  - Standard gear unit efficiency was measured (highest precision in SEW IG Oy history)
- **Accurate and instant measurement enables study of parameters which were not easily measurable earlier**
  - For example effect of: lip seals, oil height, oil viscosity or bearing pre-load
  - ➔ This gives us guideline of which changes are most effective in improving efficiency
- **Analysis of results**
  - Comparison between CO2 emissions during manufacturing and usage phase was calculated. Manufacturing of the product is only 2-3% of the CO2 emissions
  - CO2 emission decreasing potential in use phase of the product is very high



Kuva 5. Vaihteen elinkaaren päästöt ilman loppukierrätystä

Roadmap energy efficiency and CO2 emissions



Thank you for your interest!