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# DEG – more than finance
# Climate strategy & climate advisory

KFW DEG

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DEG - Deutsche Investitions- und
Entwicklungsgesellschaft mbH

1 DEGs impact and climate strategy

Net zero & climate advisory

2 Climate advisory and Business Solution Service (BSS)

Supporting strategy and creating business

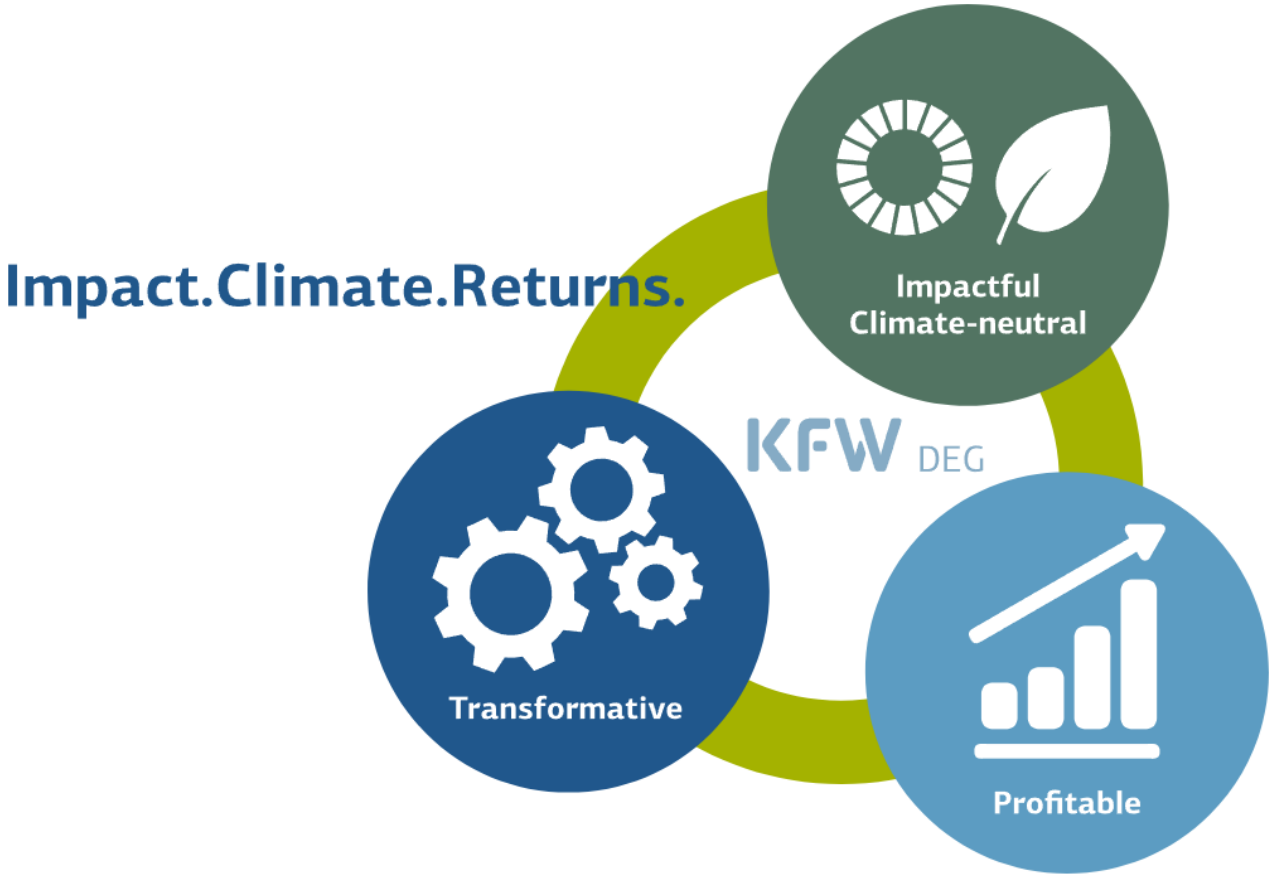
3 Resource & Energy Efficiency Check

Important basis for a start

# 1

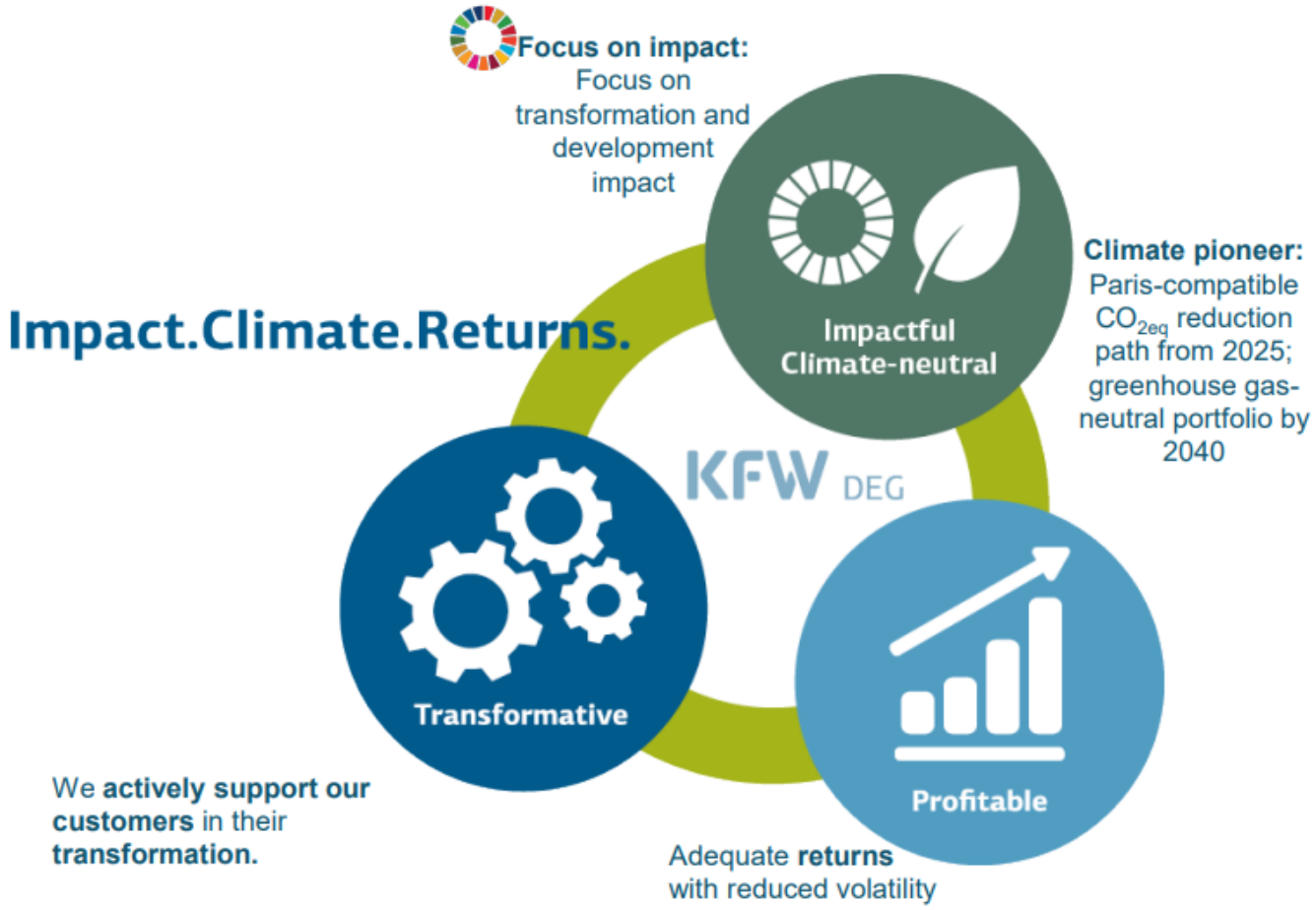
# DEGs impact and climate strategy

Net zero & climate advisory



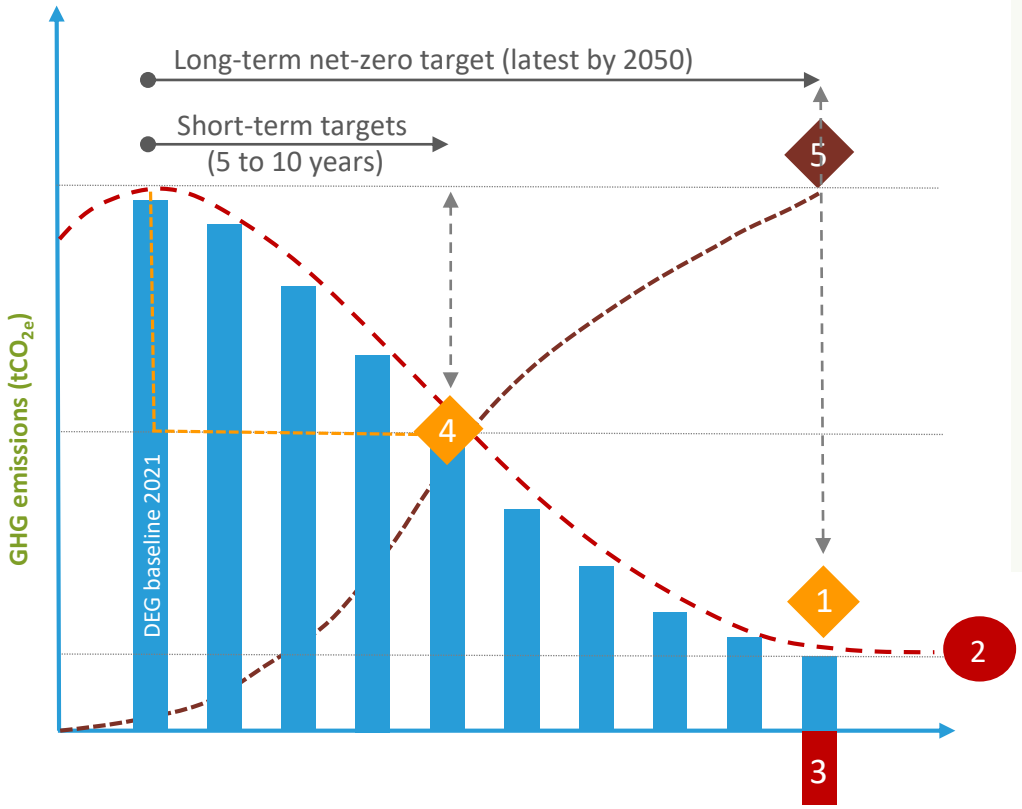
# DEG‘s strategy: Impact. Climate. Returns

We shape transformation with the private sector in emerging countries



# DEG´s net-zero strategy

## Net-zero target on portfolio level




**Opportunities of Carbon Markets / Carbon Certificates**

1. Net-zero portfolio target by 2040
2. Reduction of the GHG intensity of direct business activities by 2/3 in 2040 based on FY2021 financed emissions
3. Neutralization of the remaining (financed emissions) from net-zero-target year (2040) onwards
4. Comprehensive short-and mid term target(s)
5. Mid-to-long-term: Measure and manage financing quota (% of portfolio) in compliance with Paris Accord (1,5°degree goal)

# Cross-functional climate expertise within DEG

## Cross-functional climate/impact expertise

* Impact and climate are equally important topics. Impact topics are evaluated within the Development Effectiveness Rating (DERa 2.0).

### Senior Manager Impact and Climate (SMIC) in market divisions

- Embedding I/C in market divisions
- Day-to-day project evaluation
- Focal point for clients
- Re-Calibration strategy with clients
- Knowledge sharing within market divisions

### Senior climate specialist in Sustainability / ESG department

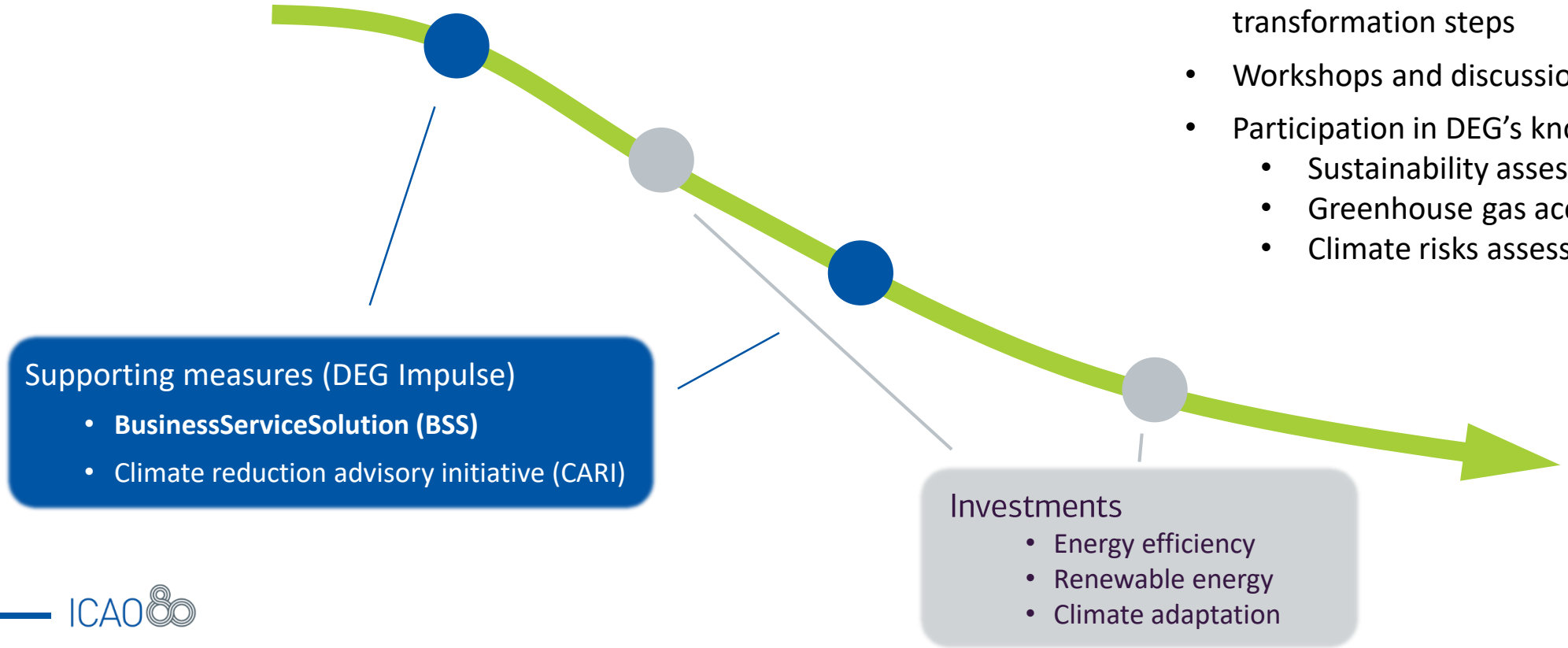
- Strategic development
- Procedural frameworks and processes
- Support SMIC / market division
- Harmonisation with EDFI / MDB
- Trend scouting for regulatory aspects

### Technical climate experts at DEG Impulse

- Trend scouting for investment options
- Market support in origination
- Technical help desk for clients
- Development and execution of TA´s
- Consultant / LTA coordination

# Net Zero transformation

## Joint pathway development




Net Zero transformation development (DEG)

- Basic data analysis
- Joint development of a customized transformation strategy with definition of transformation steps
- Workshops and discussions
- Participation in DEG's knowledge and data
  - Sustainability assessment
  - Greenhouse gas accounting
  - Climate risks assessment

# 2
# Climate advisory & Business Solution Service (BSS)

Supporting strategy and creating business

# Business Solution Service (BSS)

DEG offers grants and support for projects that help companies / investments enhance sustainability

- Creation & implementation of Climate Policies aligned with Paris Accords
- Understand and mitigate climate risks
- Capitalize climate opportunities


- Measure and manage sustainable development goals (SDG)
- Increase positive development impacts for all major stakeholders (shareholder, employees, communities, etc)

- Establish a competitive and economically resilient business model

KFW DEG Impulse

# DEG's Business Support Services in a Nutshell

- We cover up to 50% of the costs with a DEG contribution of maximum EUR 200k;
- Project duration ~ two years

**Develop New Markets**

**Feasibility Study Support**:
- Studying concrete investment opportunities for innovative sustainable technologies or services in new markets
- Reimbursement of external advisory or structured project implemented by internal staff

**Improve Business Performance**

**Standardized Projects**
- Existing framework contracts with best in class advisors (quickly deployable)
- Standardized approach for topics like E&S management, energy efficiency,

**Tailor Made Projects**
- Projects addressing your individual topics in all areas of business performance
- Joint tender for advisors or reimbursement of costs for your advisor of choice

**Work with your Community**

**Qualification and Training Initiatives:**
- Qualification and training Initiatives for your workforce
- If project has **effects on the wider** community -> potentially eligible for **develoPPP** program; DEG contribution of up to 2 Mio.; 50% of the costs; e.g. large scale training initiative (national or regional) quarterly idea competitions; available in ~70 countries

# Business Solution Service (BSS)

Selection of possible topics

- Greenhouse Gas Accounting
- Climate Risk Assessment
- Climate Strategy Development
- **Resources and Energy Efficiency Check (REC)**
- Carbon Credit Advisory
- Carbon Capture and Storage
- Carbon Border Adjustment Mechanism (CBAM) Advisory
- Sustainability Reporting Training
- Environmental and Social Risk Mitigation
- Corporate Governance Assessment and Advisory
- Green, Social and Sustainability (-linked) Loans & Bonds Advisory
- Battery Energy Storage System (BESS)Advisory
- Financial Modelling Advisory & Capacity Building
- Grid Impact Studies
- Feasibility Studies for innovative technologies and/or new markets

# 3

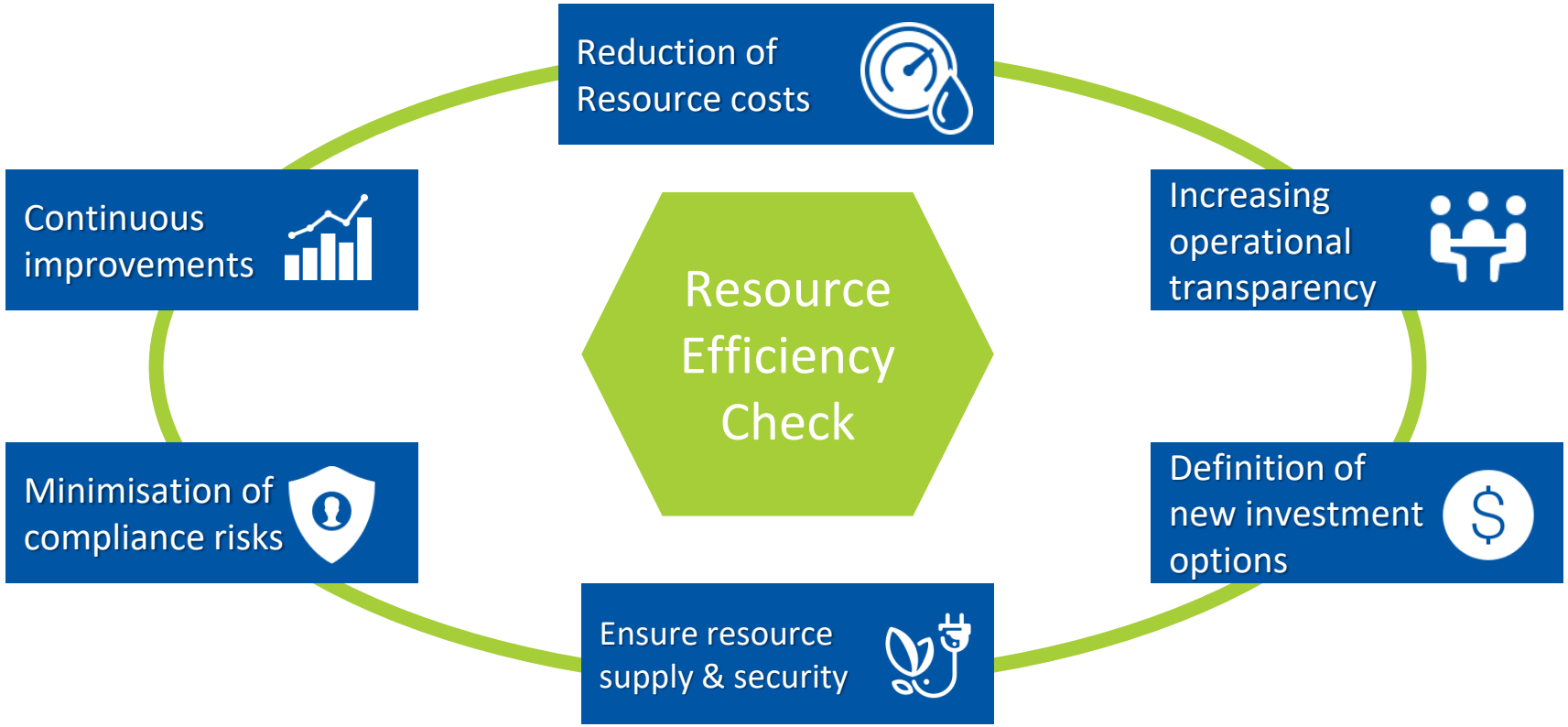
# Resource & Energy Efficiency Check

Important basis

for a start

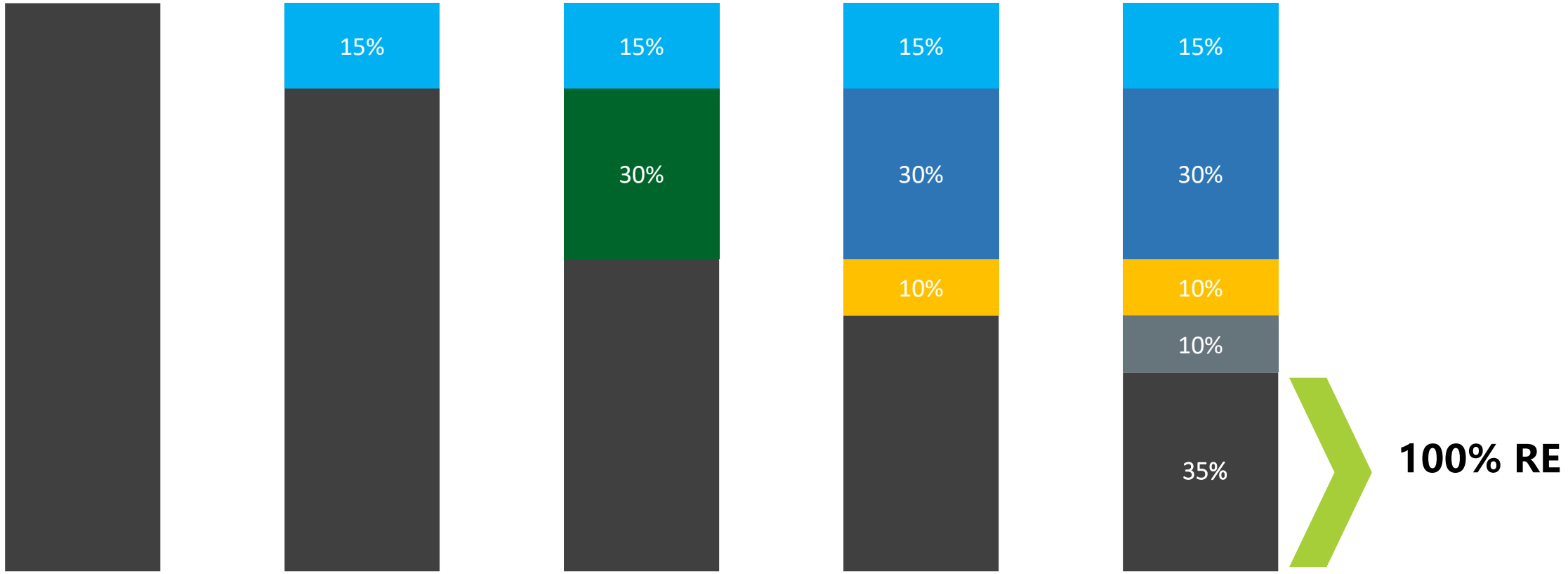
# Resource and Energy Efficiency Checks (RECs)

Transformative elements of REC: carbon accounting, net-zero target setting, E&S monitoring, impact management



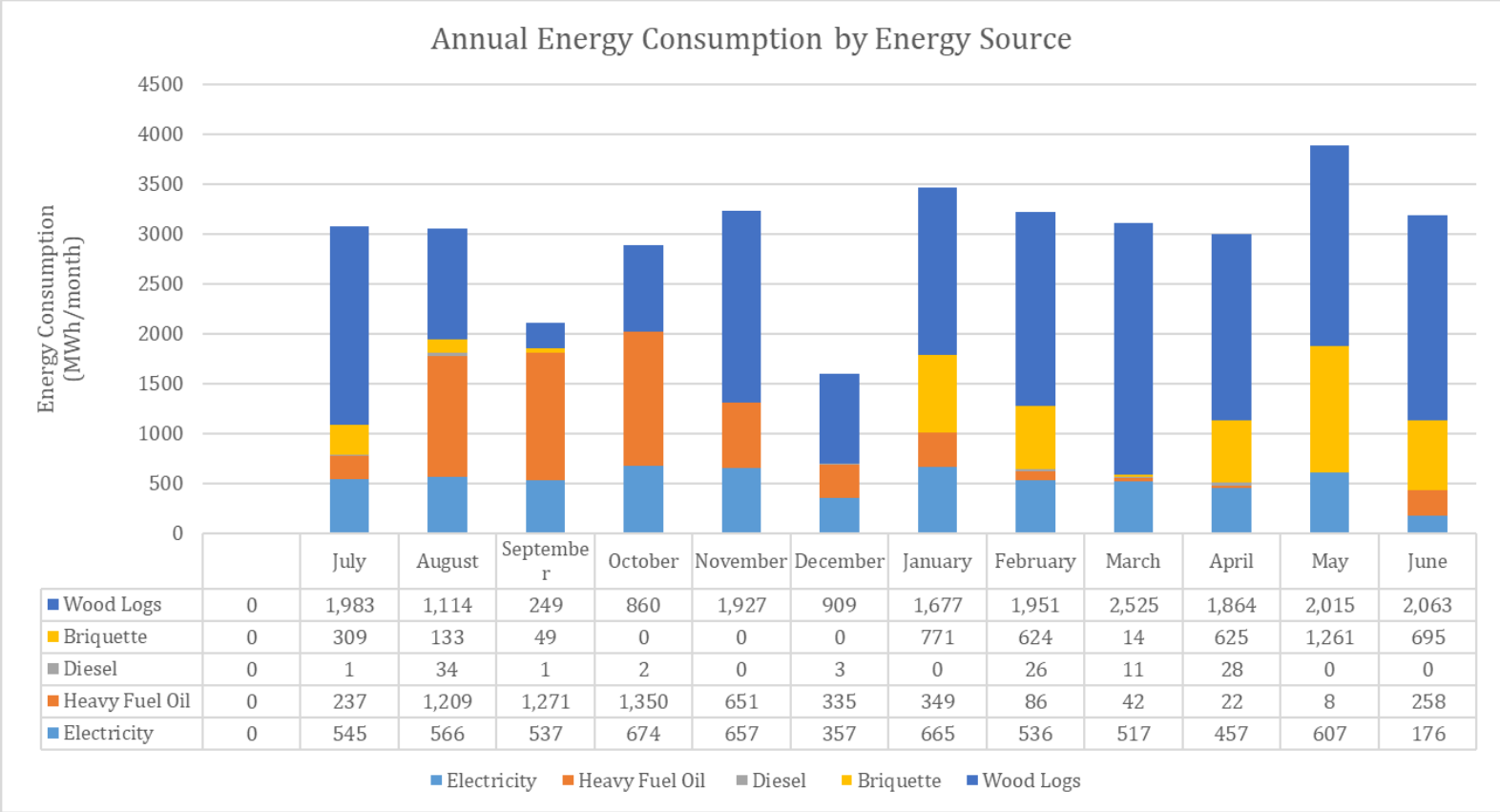
# Process of energy saving and conversion to renewable energy

Reduction of energy consumption to the minimum necessary, recover the rest with Renewable Energies



# REC as Transformation tool

## Starting point: Review of physical activity data

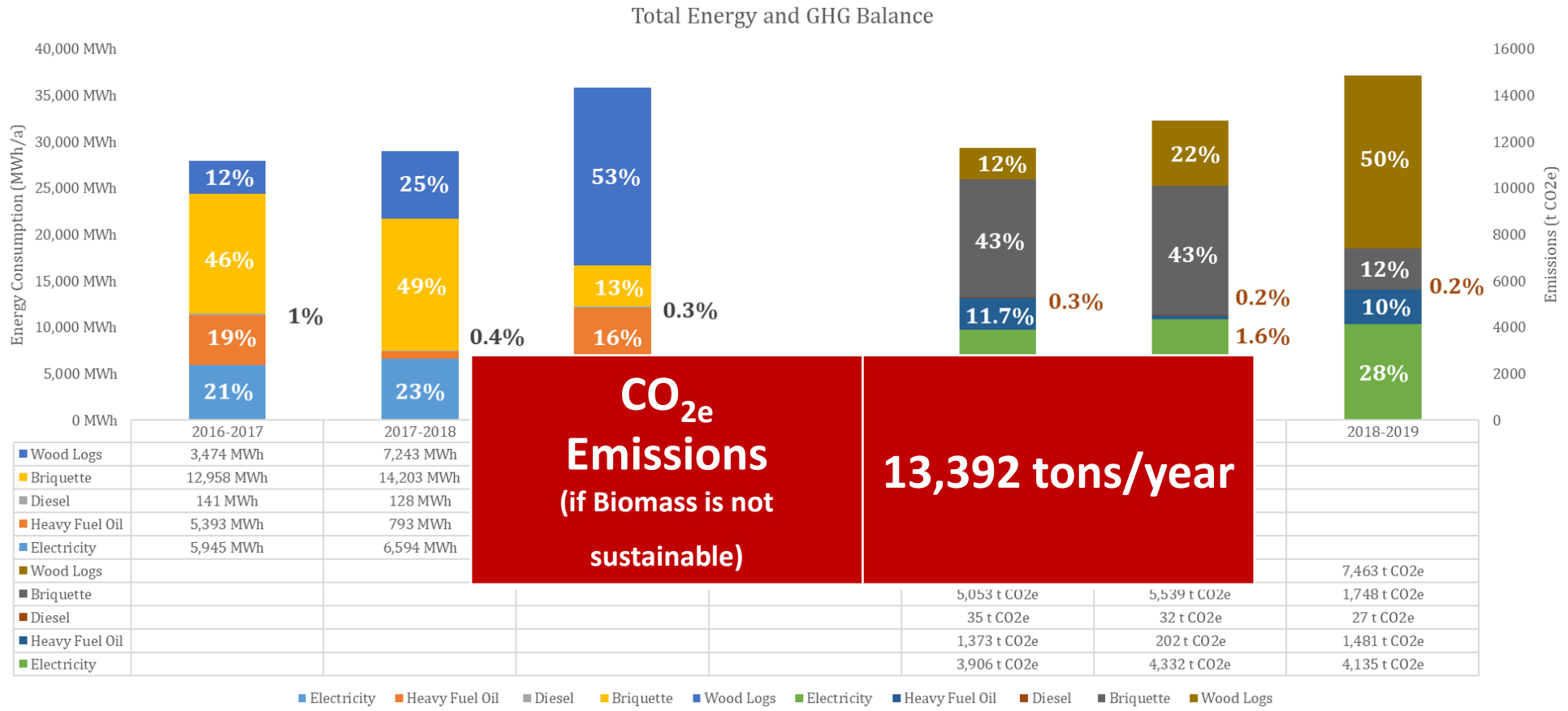



| | | July | August | September | October | November | December | January | February | March | April | May | June |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wood Logs | 0 | 1,983 | 1,114 | 249 | 860 | 1,927 | 909 | 1,677 | 1,951 | 2,525 | 1,864 | 2,015 | 2,063 |
| Briquette | 0 | 309 | 133 | 49 | 0 | 0 | 0 | 771 | 624 | 14 | 625 | 1,261 | 695 |
| Diesel | 0 | 1 | 34 | 1 | 2 | 0 | 3 | 0 | 26 | 11 | 28 | 0 | 0 |
| Heavy Fuel Oil | 0 | 237 | 1,209 | 1,271 | 1,350 | 651 | 335 | 349 | 86 | 42 | 22 | 8 | 258 |
| Electricity | 0 | 545 | 566 | 537 | 674 | 657 | 357 | 665 | 536 | 517 | 457 | 607 | 176 |

Example on food producer in Kenya

# REC as Transformation tool

## Starting point: Transfer into GHG starting balance




**$CO_{2e}$ Emissions (if Biomass is not sustainable)**

**13,392 tons/year**

Example on food producer in Kenya

# REC as Transformation tool

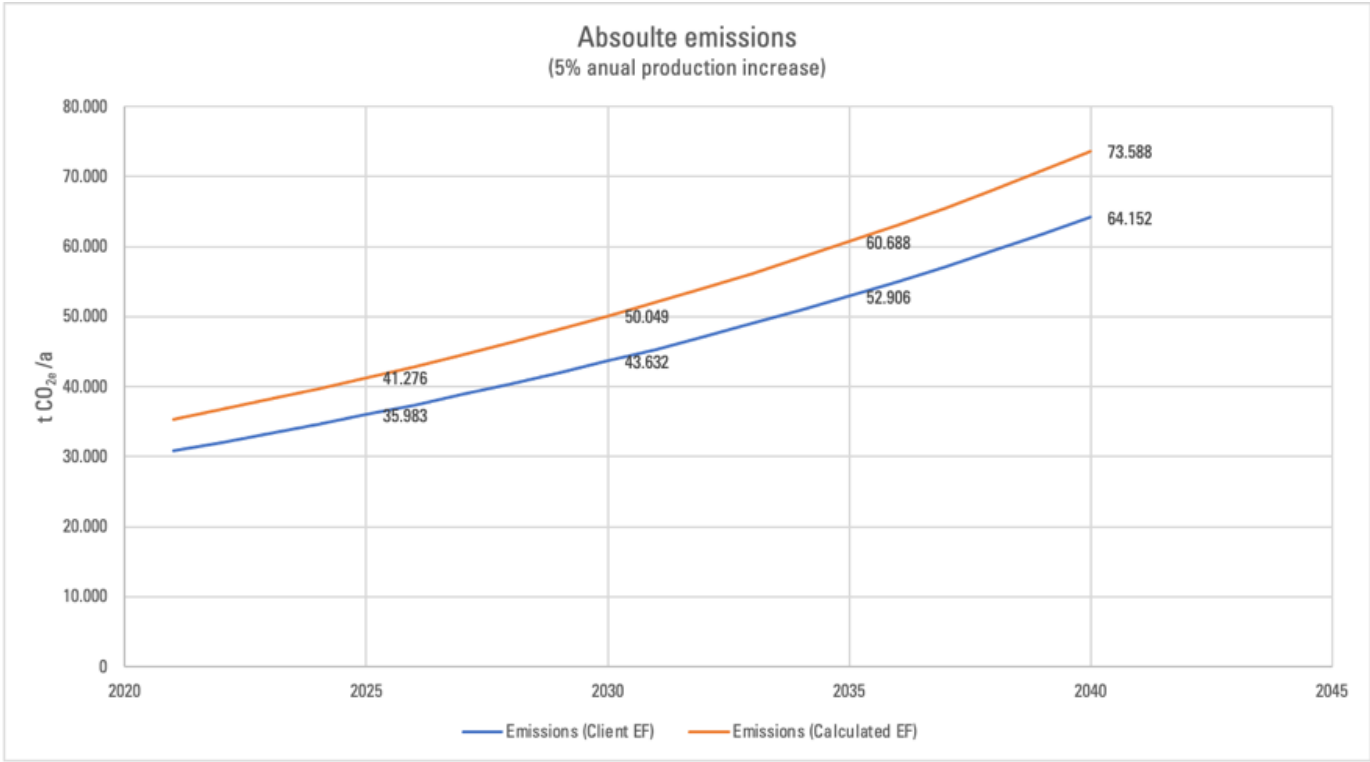
## Establish baseline scenario (Business as usual with growth pathway)

| BAU | | |
|---|---|---|
| Total Production in baseline year | 3.381.724 | hl |
| Production growth | 3,93% | /a |

| Beverage emission factor (Total production) - kg $CO_2$/hl) | | |
|---|---|---|
| Client value | 9,12 | kg $CO_{2e}$/hl |
| Calculated (Total Scope 1 and 2) | 10,46 | kg $CO_{2e}$/hl |

| Year | Emissions (Client EF) | Emissions (Calculated EF) |
|---|---|---|
| 2021 | 30.841 | 35.378 |
| 2022 | 32.053 | 36.768 |
| 2023 | 33.313 | 38.213 |
| 2024 | 34.622 | 39.715 |
| 2025 | 35.983 | 41.276 |
| 2026 | 37.397 | 42.898 |
| 2027 | 38.867 | 44.584 |
| 2028 | 40.394 | 46.336 |
| 2029 | 41.982 | 48.157 |
| 2030 | 43.632 | 50.049 |
| 2031 | 45.346 | 52.016 |
| 2032 | 47.128 | 54.061 |
| 2033 | 48.981 | 56.185 |
| 2034 | 50.906 | 58.393 |
| 2035 | 52.906 | 60.688 |
| 2036 | 54.985 | 63.073 |
| 2037 | 57.146 | 65.552 |
| 2038 | 59.392 | 68.128 |
| 2039 | 61.726 | 70.806 |
| 2040 | 64.152 | 73.588 |

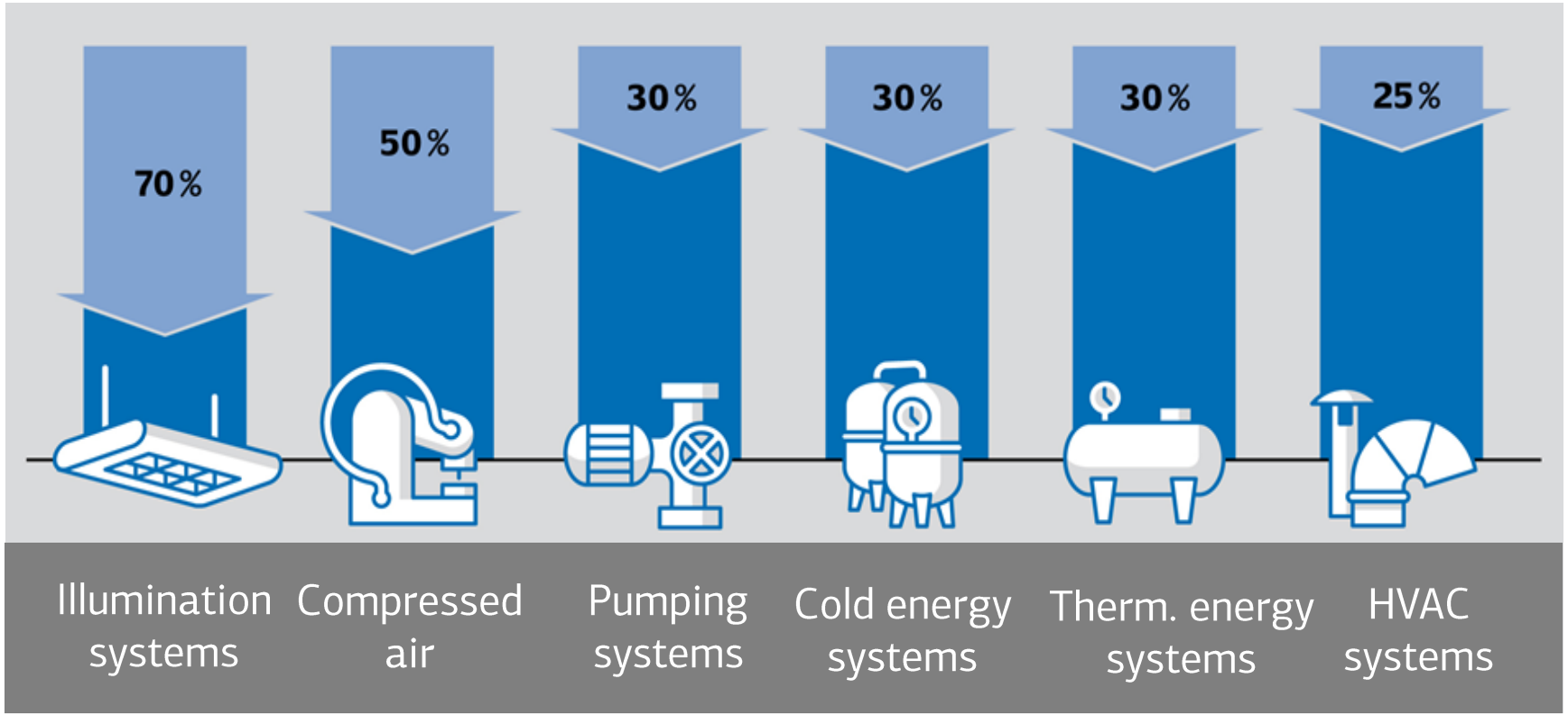
- **Extrapolating business strategies in environmental dimensions**
- **KPI: Doubling the production until 2040 by CAGR of 3,9 %/y**




Example on beverage producer in LATAM

# REC as Transformation tool – capitalizing efficiency potentials

## Cross Cutting Technology Check




Own illustration

# REC as Transformation tool

## Cross Cutting Technology Check – Example Lighting

| High bay Illumination (Distribution Center) | | |
|---|---|---|
| **Parameter** | **[Unit]** | **Value** |
| Installed capacity of luminaire (incl. Ballast) | W | 80 |
| Quantity | x | 50 |
| Total installed Capacity | kW | 4.000 |
| Average annual operating time | h/a | 3,588 |
| Annual electricity consumption | kWh/a | 14,352 |
| LED High bay capacity (incl. LED driver) | W | 40 |
| LED High bay electricty consumption | kWh/a | 7,176.00 |
| Energy savings | kWh/a | 7,176.00 |
| Cost savings | USD/a | 1,207.03 |
| Price per LED luminarie | USD/lamp | 55 |
| Total invest | USD | 2750.00 |
| Static PBP | a | 2.3 |
| GHG Abatement | t CO2e/a | 4.71 |

Example on food producer in Kenya

# REC as Transformation tool

## Cross Cutting Technology Check – AHU / HVAC

- **Air handling units are the hidden efficiency champions**
- **Modern systems with multi-stage evaporative cooling and cold-recovery system provide up to 60% thermal efficiency gains and 35-40% electrical energy saving**
- **Increasing thermal comforts support industrial production and real estate value conservation**

Example on food producer in Kenya

# REC as Transformation tool

## Cross Cutting Technology Check – PV Potential Analysis


| Assumption - Renewable Energy (RE) Potentials | | |
|---|---|---|
| Total roof top area | 17.000 | m2 |
| Discount factor (Roof-top light panels, etc) | 15 | % |
| Available roof top potential for RE | 14.450 | m2 |
| Area-Capacity-Ratio (Conservative) | 7,00 | m2/kWp |
| Total theoretical PV potential | 2.064 | kWp |
| Potential power generation per kWp (Source: Pvsol) | 1.623 | kWh/kWp |
| Total power generation potential | 3.350 | MWh/a |
| Total power consumption (2018) | 5.790 | MWh/a |
| **Solar power coverage ratio** | **58** | **%** |
| **Photovoltaic - Optimsed own consumption scenario** | | |
| Installed capacity formaximised own consumption | 704 | kWp |
| Potential power generation per kWp | 1.623 | kWh/kWp |
| Total power generation potential | 1.143 | MWh/a |
| Total power consumption (2018) | 5.790 | MWh/a |
| **Solar power coverage ratio** | **20** | **%** |

Example on food producer in Kenya

# REC as Transformation tool

## Cross Cutting Technology Check – PV Potential Analysis

| Performance Table | |
|---|---|
| WACC | 7,50% |
| NPV [$US] | 832.219 |
| IRR | 23,18% |
| Equity Value [$US] | 2.594.346 |
| Payback Period [a] | 7,00 |

- Interesting ticket size of USD 720.000 (- 15% since 2018)
- Competitive Levelised Cost of Energy (LCoE) of 0,093 USD/kWh
- Total cash flow positive at all times with DC-CF-Ratio of average 1.5
- Supporting different operative KPI´s (e.g. plant availability)
- GHG abatement potential of 3.200 tCO2e/a

| Cashflow Statement | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EBITDA | 180.355 | 178.103 | 175.832 | 173.541 | 171.227 | 168.891 | 166.529 | 164.142 | 161.726 | 159.281 | 156.804 | 154.294 | 151.748 |
| Tax | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Δ Net Working Capital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **CF f. Operations** | **180.355** | **178.103** | **175.832** | **173.541** | **171.227** | **168.891** | **166.529** | **164.142** | **161.726** | **159.281** | **156.804** | **154.294** | **151.748** |
| **CF f. Investment** | **-894.588** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Free CF** | **-714.233** | **178.103** | **175.832** | **173.541** | **171.227** | **168.891** | **166.529** | **164.142** | **161.726** | **159.281** | **156.804** | **154.294** | **151.748** |
| Equity | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dividend | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Loan | 894.588 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Redemption | -48.556 | -52.198 | -56.113 | -60.321 | -64.845 | -69.709 | -74.937 | -80.557 | -86.599 | -93.094 | -100.076 | -107.582 | 0 |
| Interest | -67.094 | -63.452 | -59.538 | -55.329 | -50.805 | -45.942 | -40.713 | -35.093 | -29.051 | -22.556 | -15.574 | -8.069 | 0 |
| **CF f. Financing** | **778.938** | **-115.650** | **-115.650** | **-115.650** | **-115.650** | **-115.650** | **-115.650** | **-115.650** | **-115.650** | **-115.650** | **-115.650** | **-115.650** | **0** |
| **Total CF** | **64.704** | **62.453** | **60.182** | **57.890** | **55.577** | **53.240** | **50.879** | **48.491** | **46.076** | **43.631** | **41.154** | **38.644** | **151.748** |
| **Debt Capital - Cash Flow Coverage Ratio** | | **1,5** | **1,5** | **1,5** | **1,5** | **1,5** | **1,4** | **1,4** | **1,4** | **1,4** | **1,4** | **1,3** | |

Example on food producer in Kenya

# REC as Transformation tool

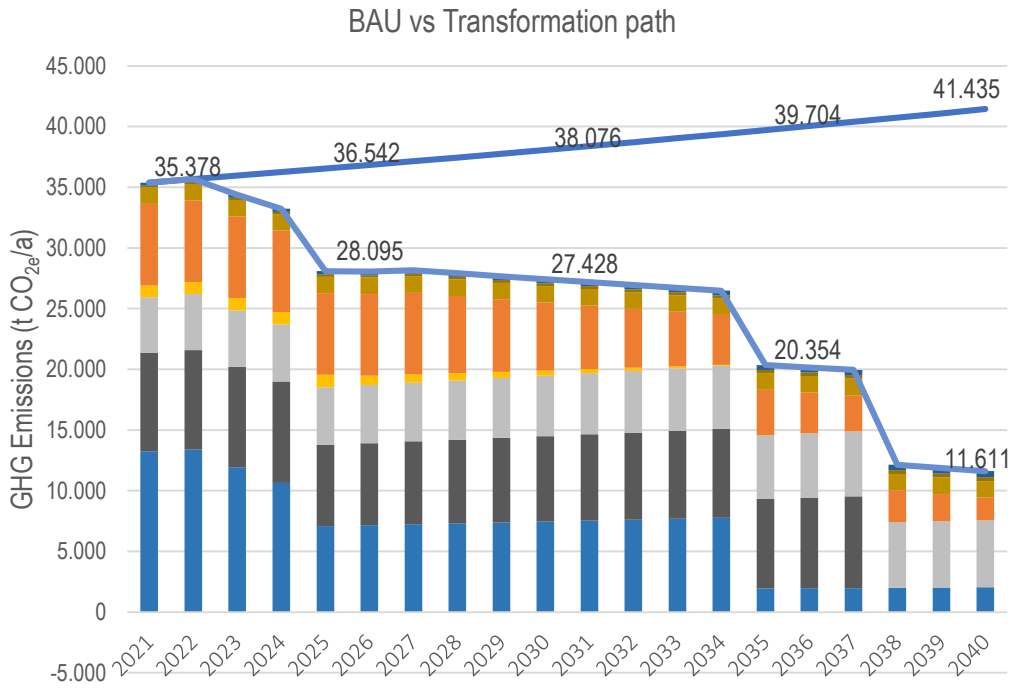
## KPI Summary of all Recommended Actions for Energy Efficiency Optimization

| Project | Energy savings [MWh/a] | Cost savings [$/a] | $CO_{2e}$ savings [t/a] | CAPEX [$] | PBP [a] | Rating |
|---|---|---|---|---|---|---|
| Heat recovery from ammonia cooling | 3,200 | 190,000 | 770 | 200,000 | 1.0 | A |
| Steam saving potential through insulation of tubes | 75 | 40,000 | 210 | 63,000 | 1.4 | A |
| Replacement of Pumps | 146 | 22,000 | 101 | 56,000 | 2.7 | A |
| High-Quality LED Lighting | 150 | 23,000 | 105 | 162,000 | 2.7 | A |
| Kieselgur Recycling | n.a. | 37,500 | 22 | 100,000 | 8 | B |
| Waste Water Management | 11,554 | 542,000 | 2,740 | 7,300,000 | 14 | C |
| Total | 15,125 | 854,500 | 3,948 | 7,881,000 | Ø 4.9 | |

# REC as Transformation tool

## Decarbonisation / transformation pathway based on economic feasible projects

- **Long-term CAPEX planning with different ticket sizes**
- **Absolute GHG reduction of 73.588 tCO2e and carbon intensity reduction of 84%**




Example on beverage producer in LATAM

| Transformation actions | | |
|---|---|---|
| **Year(s)** | **Action/ Improvement** | **Savings (%)** |
| 2023 - 2025 | Motor and Pump efficiency | 10%<br>annual savings |
| 2023 - 2025 | Improved Illumination | 2.55%<br>Over three years |
| 2025 | 1 MWp PV system | 10%<br>Solar fraction |
| 2025 | 1.5 MW Biogas (1,500 hours full load operation) | 14.2%<br>RE supply |
| 2025 | Reduce HFO use for Stem | 20%<br>from rapid stem generation |
| 2025 | Rapid steam generation | -2%<br>from electricity |
| 2026 | LPG savings due to<br>E - Forklifts | 25%<br>Savings in 2026 |
| 2026 - 2035 | LPG savings due to<br>E - Forklifts | 100%<br>over 9 years (LPG ZERO) |
| 2028 - 2040 | Fuel savings in Transport | 70%<br>Over 12 years time |
| 2035 | 10 MW Wind and PV | 75% of Grid electricity |
| 2038 | HFO Zero – By green $H_2$ | 100% HFO consumption |

# REC as Transformation tool

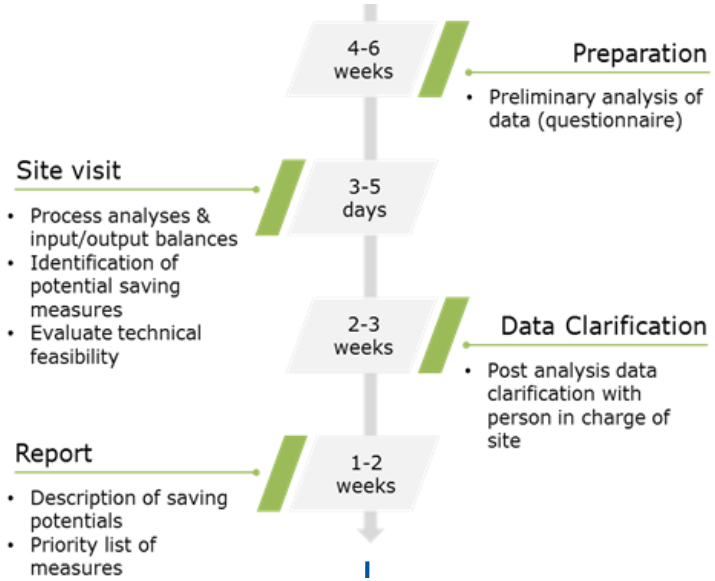
## Time schedule

### Stage 1: REC

- 4-5 day On-site visit by an experienced consultant
- Analysis of the company's practices and identify resource & energy savings potential.
- Presentation of findings and recommendations to the company
- Draft/final report and discussion.
- List of improvement options, incl. quick-wins and estimates of costs and benefits.

### Stage 2: Individual Follow-up measure

- implementation support of REC recommendations.
- Typical follow up measures are:
  - ✓ in-depth feasibility analysis of options identified in the REC
  - ✓ introduction of an energy management system
  - ✓ pilot projects for climate friendly solutions.
- The specifics are discussed on case by case basis with each company




**Our Goal**

Initiate REC
Follow-up measure

# Conclusion

Partnership with DEG

- Long-term cooperation beyond financing
- Climate advisory offers an additional benefit by a jointly developed climate transformation strategy
- Business Solution Service (BSS) offers further advantages and supports you with comprehensive and independent advisory
- Resource and Energy Efficiency Check (REC) is a target-orientated and tried-and-tested instrument for deriving practical steps
- This makes DEG not only a partner for the financing of new projects but also a partner for financing transformation

# Thank You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