

# Calculation of CO<sub>2</sub> Reduction Figures: a simple yardstick with many ways to be calculated

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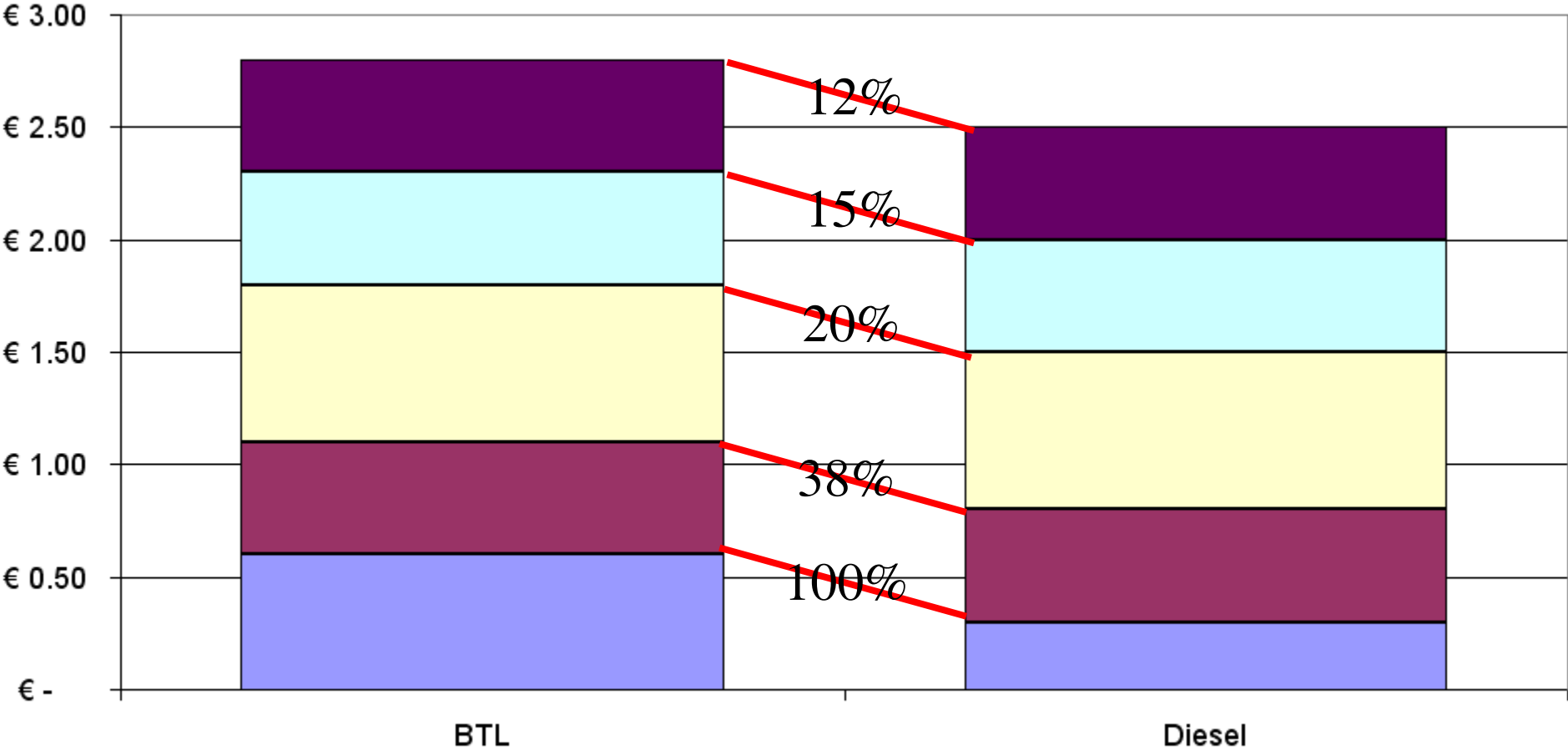


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## Questions to be answered

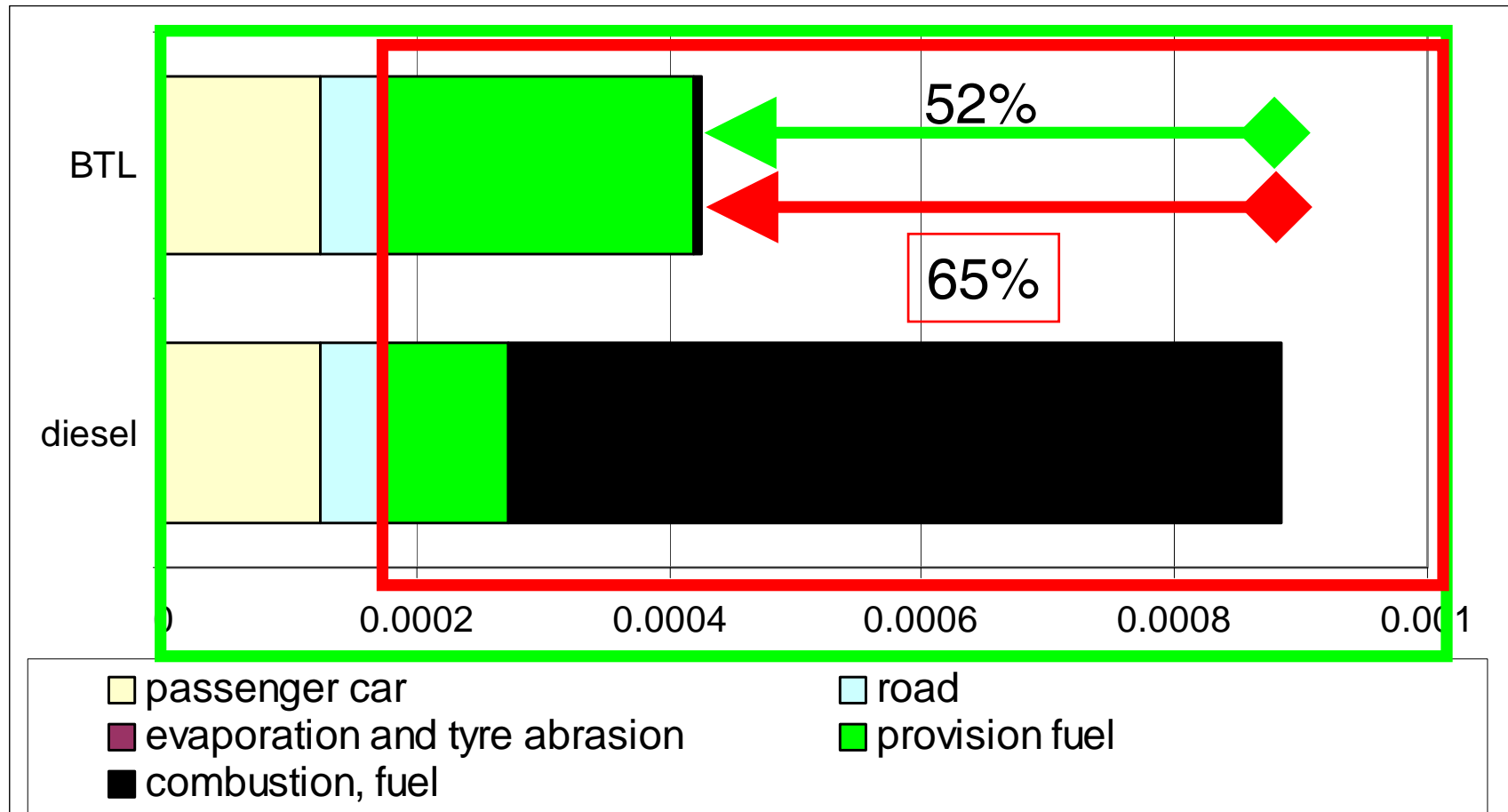
- Using BTL reduces the GWP by  $X\%$  compared to fossil fuel
- Using a specific amount (e.g. 1 MJ or 1 kg) of BTL reduces the GWP by  $Y$  kg (or another appropriate unit) compared to fossil fuel

# Calculations of potential reduction



■ fuel production  
 ■ fuel distribution  
 ■ fuel taxes  
 ■ costs of the car incl. maintenance  
 ■ taxes, car

# Example GWP of BTL-Diesel



➤ Neglecting parts of the life cycle leads to different conclusions concerning reduction potentials expressed as a percentage

## And again: How much better are biofuels?

- If we want an answer like „the use of biofuel has ???% lower GWP than fossil fuels“ than we have to include the all parts of the life cycle, e.g. for transports also cars and streets
- Neglecting certain parts of the life cycle, even if the same for both options, will bias the results
- System boundaries must be stated correctly if comparing reduction figures, e.g. well-to-wheel should include the wheel
- See [www.esu-services.ch/btl/](http://www.esu-services.ch/btl/) for background paper



# How much CO<sub>2</sub> can be compensated?

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# Catchwords

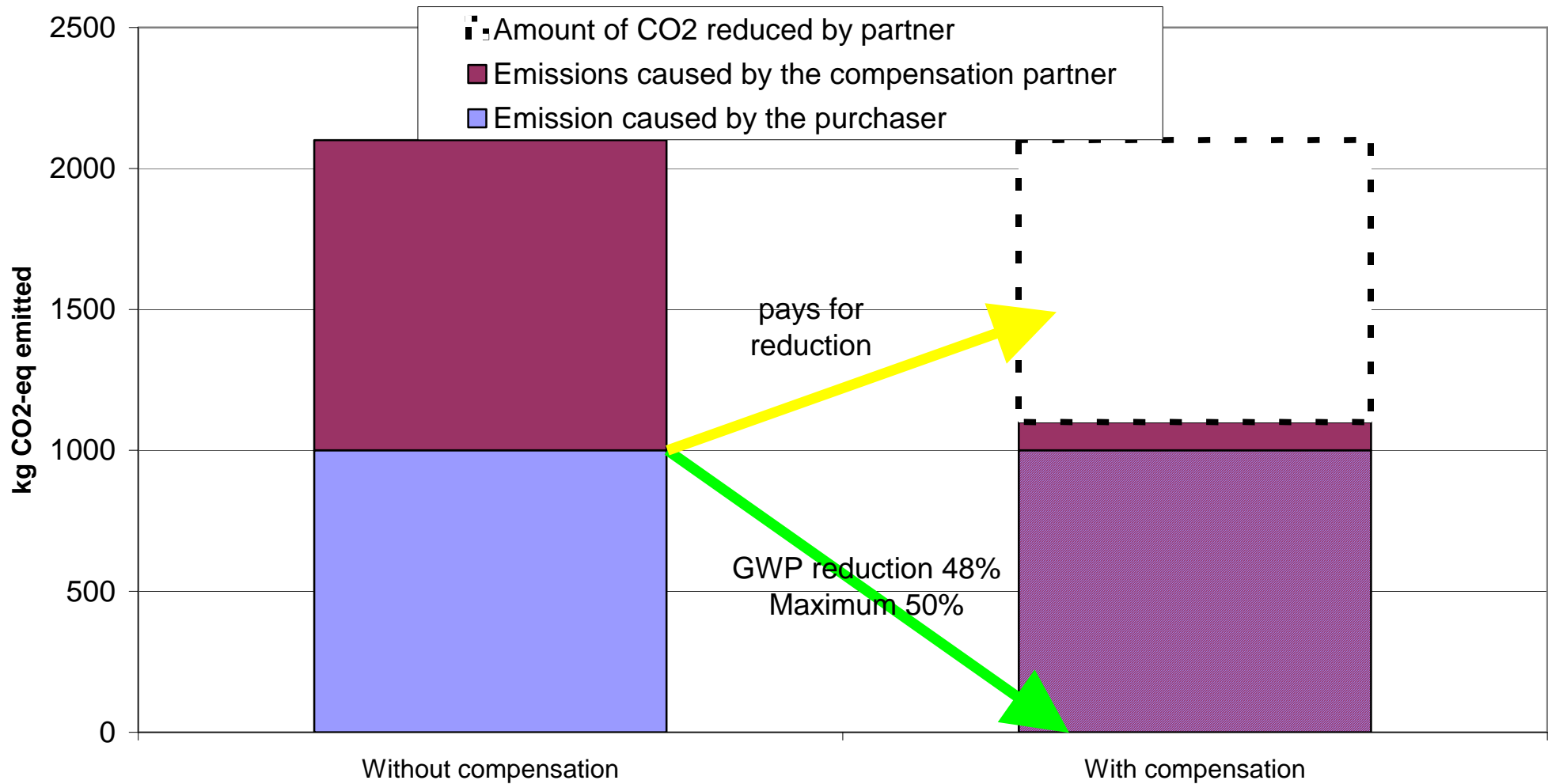
- Our company is CO<sub>2</sub> neutral
- We did carbon compensation
- You can be climate neutral
- By means of Climate Protection Projects
  
- How much can CO<sub>2</sub> emissions be reduced in reality by such claims?

## The Idea

- Reduction of greenhouse gas emissions by replacing fossil energy uses with renewable energy
- Support for energy efficient technologies and energy saving
- The polluter pays in order to compensate the own CO<sub>2</sub> emissions with external projects



# The impact

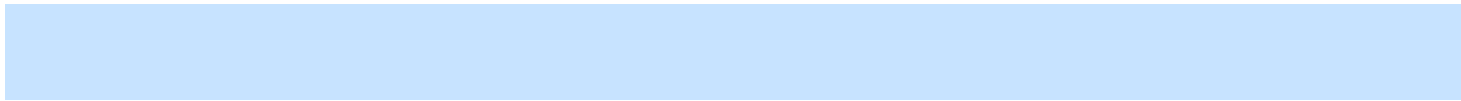


## Conclusion

- Maximum reduction of GWP is 50%
- CO<sub>2</sub> neutrality is not possible by means of compensation
- In reality many reductions will only be achieved in future and not today. Today emissions might even be the same
- Personal backpacks are just shifted but not removed from the atmosphere
- Double counting is possible if products from the compensation side are sold

➤ Such projects should be claimed as a green investment or donation rather than a neutralization or compensation

# Annexe





# How much are the additional costs of biofuels?

	BtL	Diesel	Cumulative Increase in %	Cumulative absolute Increase
Fuel Production	€ 0.60	€ 0.30	100%	€ 0.30
Fuel Distribution	€ 0.50	€ 0.50	38%	€ 0.30
Fuel Taxes	€ 0.70	€ 0.70	20%	€ 0.30
Costs of Car and Maintenance	€ 0.50	€ 0.50	15%	€ 0.30
Insurance	€ 0.50	€ 0.50	12%	€ 0.30
<b>Total</b>	<b>€ 2.80</b>	<b>€ 2.50</b>	<b>12%</b>	<b>€ 0.30</b>

Please note: These values are approximated for driving a certain amount of biofuel for illustration purpose. They do not reflect the reality.

# Interpretation of reduction

