Introduction to the Carbon Reduction Strategy Support Tool

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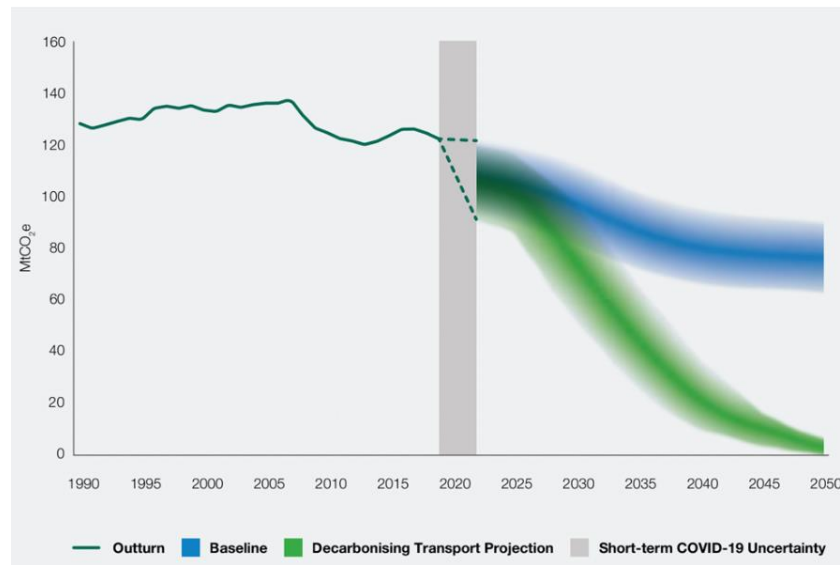
Contents

Purpose of the Carbon Reduction Strategy Support Tool

- ❑ Urban mobility accounts for between about 25% and 40% of total urban GHG emissions.
- ❑ Cities need to react and reduce GHG emissions from urban mobility.

- ❑ The transition to achieve net-zero carbon targets by 2050 requires radical and urgent change to existing policies.

  - • EU targets for transport

    - i. 55% reduction in CO_2 (vs 1990 levels) by 2030

    - ii. 90% reduction in CO_2 (vs 1990 levels) by 2050

- ❑ How does a city achieve these targets?

Legend: — Outturn ▪ Baseline ▪ Decarbonising Transport Projection ▪ Short-term COVID-19 Uncertainty

Purpose of the Carbon Reduction Strategy Support Tool

- The Carbon Reduction Strategy Support Tool has been developed to help cities understand the carbon impacts of policy strategy options

  - quantify the relative impacts of one strategy compared to another,

  - visualise the combinations required to reach the end goal or vision (net-zero carbon),

  - can be used iteratively with groups of stakeholders, trying out different combinations to find the most effective and acceptable mix of strategies.
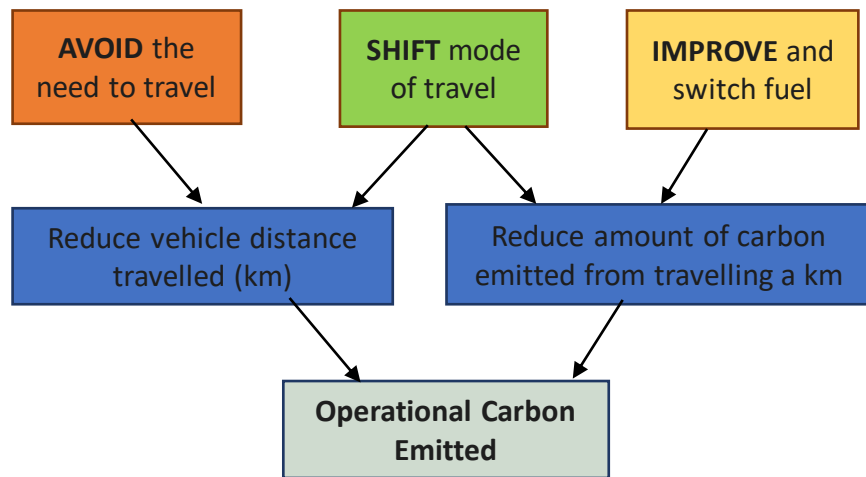
Carbon Reduction Strategy Support Tool

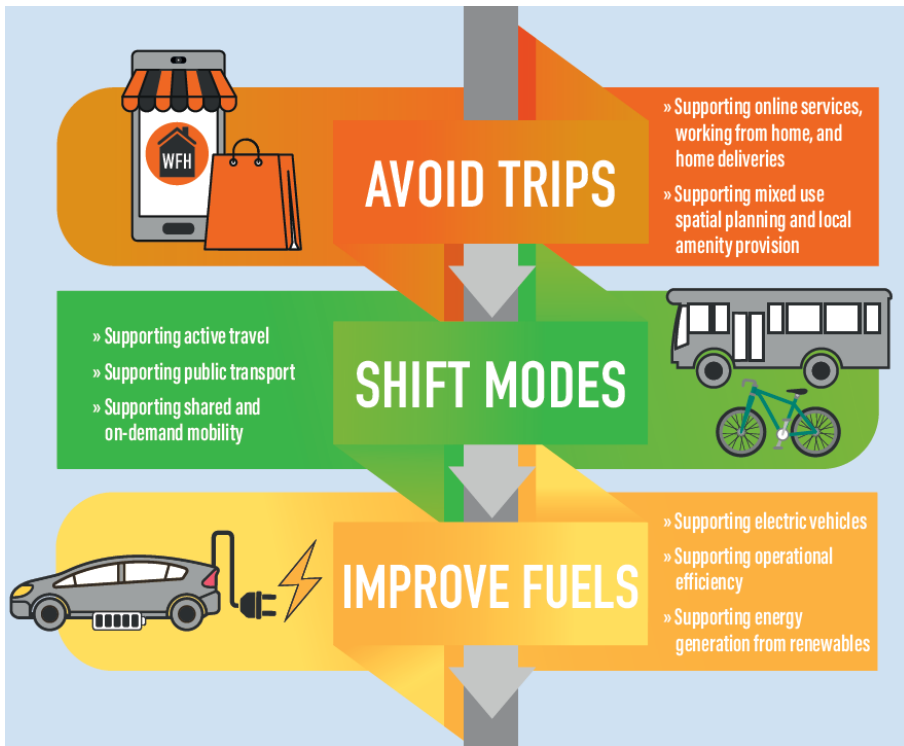Framed around the A-S-I policy areas

Reducing operational carbon requires

- ❑ **Avoiding** the need to travel,
- ❑ **Shifting** mode of travel from car to more sustainable alternatives,
- ❑ **Improving** engine efficiency/carbon intensity of fuel for the vehicle used

AVOID the need to travel	SHIFT mode of travel	IMPROVE and switch fuel

Reduce vehicle distance travelled (km)	Reduce amount of carbon emitted from travelling a km

Operational Carbon Emitted

Carbon Reduction Strategy Support Tool

For a number of strategies related to these **Avoid / Shift / Improve** policy areas

The tool allows cities to explore

- different options (level of ambition / timings of delivery) to gauge their likely effectiveness in reducing emissions.

Carbon Reduction Strategy Support Tool - Inputs

INPUT PARAMETERS		
Background data		
Default data for baseline conditions can be changed in 'Configurations Settings' worksheet		
Current Country Selected for default data: **Ireland**		
Enter % change in car surface transport carbon emission from 1990 to 2019	-5%	
Enter forecast % change in population from 2020 to 2050	10%	
What type of area best describes your city / authority area	Urban	
% mode share of car driver trips (as % of all trips)	54%	
% mode share of car driver trips (as % of commuter trips)	67%	
(the values for the above mode share parameters can be changed in 'Configuration Settings')		

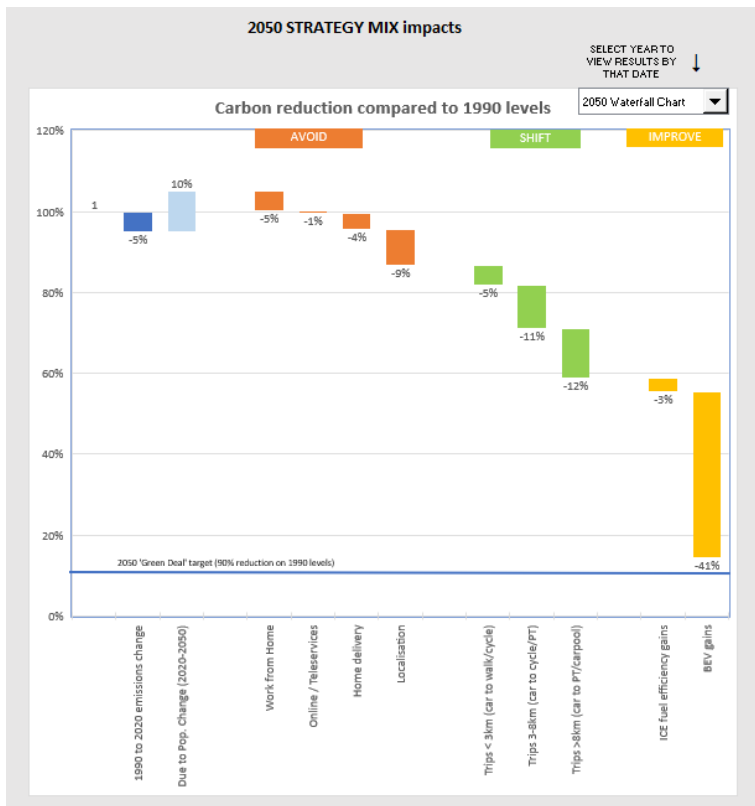|		Date by which strategy will start to take effect	Date by which strategy will take full effect
AVOID strategies			
Enter the % point increase in working from home by year of full effect (from 2019 base case)	20%	2021	2050
Enter the % point increase in personal trips (e.g. banking, health) that are digitised or become telephone consultation by year of full effect (from 2019 base)	20%	2021	2050
Enter the % point increase in shopping delivered to the home by year of full effect(from 2019 base)	40%	2025	2050
education localised within a 15 minute walk from home by year of full effect (from 2019 base)	40%	2030	2050
SHIFT strategy			
Trips < 3km: Enter the % point shift from car driver mode share to alternative modes by year of full effect (from 2019 base case)	20%	2021	2050
Trips 3 to 8km: Enter the % point shift from car driver mode share to alternative modes by year of full effect (from 2019 base case)	15%	2025	2050
Trips > 8km: Enter the % point shift from car driver mode share to alternative modes by year of full effect (from 2019 base case)	10%	2025	2050
IMPROVE strategy			
% of electricy generated from renewables (including nuclear) 2019 base	38%	*Can be changed in Configuration*	
Enter the % of electricy generated from renewables (including nuclear) by year of full	80%	2021	2050
Enter the % improvement in ICE fuel efficiency of conventional cars on the road by year of full effect (from 2019 base case) - [expected to be 30%]	30%	2021	2037
Enter the % improvement in electric battery efficiency by year of full effect (from 2019 base case) - [expected to be 40% by 2050]	20%	2021	2050
Electric vehicle takeup by year of full effect	80%	2022	2050

User can adjust the level of ambition associated with each strategy

- select from a range of uptake scenarios (%-point increases) or improvement scenarios (% change) that they wish to explore.

- define the start year and year at which strategy becomes fully effective

Default and background data defined in configuration settings. User can adjust with own city specific data.

Carbon Reduction Strategy Support Tool - Outputs

A 'waterfall' diagram, showing the contribution of each strategy to the overall carbon reduction, at a given target date (e.g. 2050)
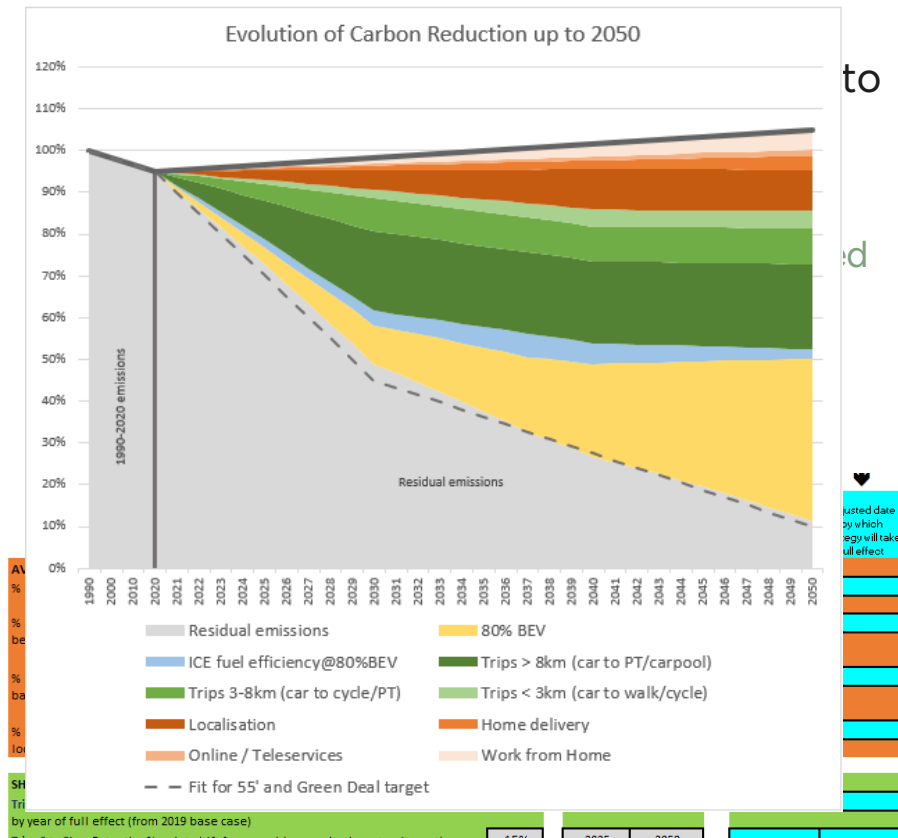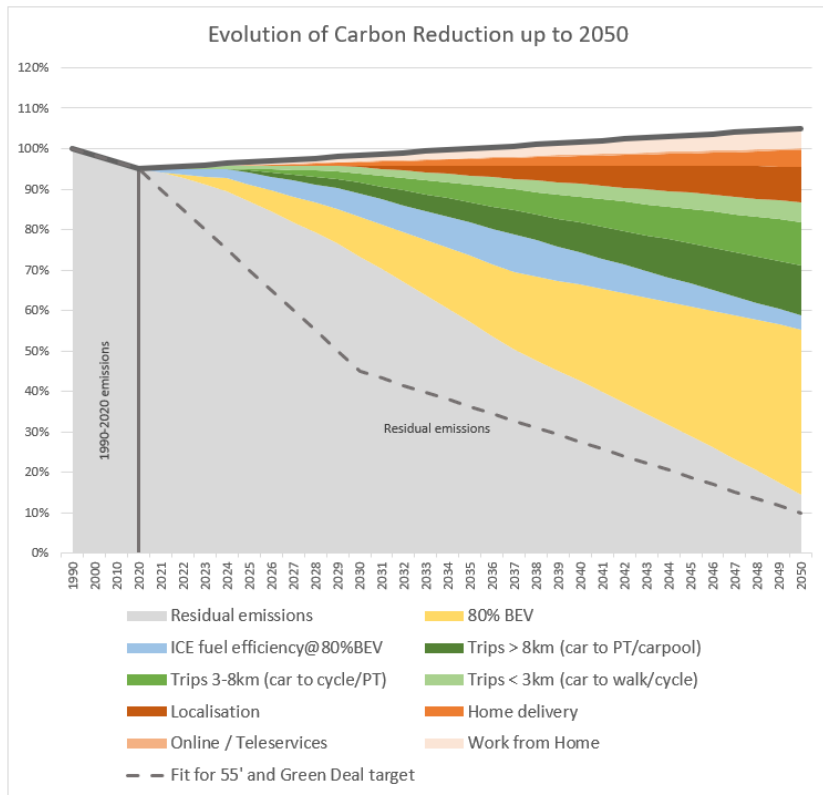
In this example, baseline conditions show carbon emissions to have decreased by 5% from 1990 to 2020, but are expected to increase by 10%, due to population growth by 2050.

Based on the user input scenarios:

- four chosen 'Avoid' strategies contribute an 19% carbon reduction,

- three 'Shift' strategies a 28% reduction (mainly though a modal shift from car use among trips over 3km), and

- two 'Improve' strategies a 44% reduction

End result is 86% reduction in CO2 relative to 1990 levels

Carbon Reduction Strategy Support Tool - Outputs
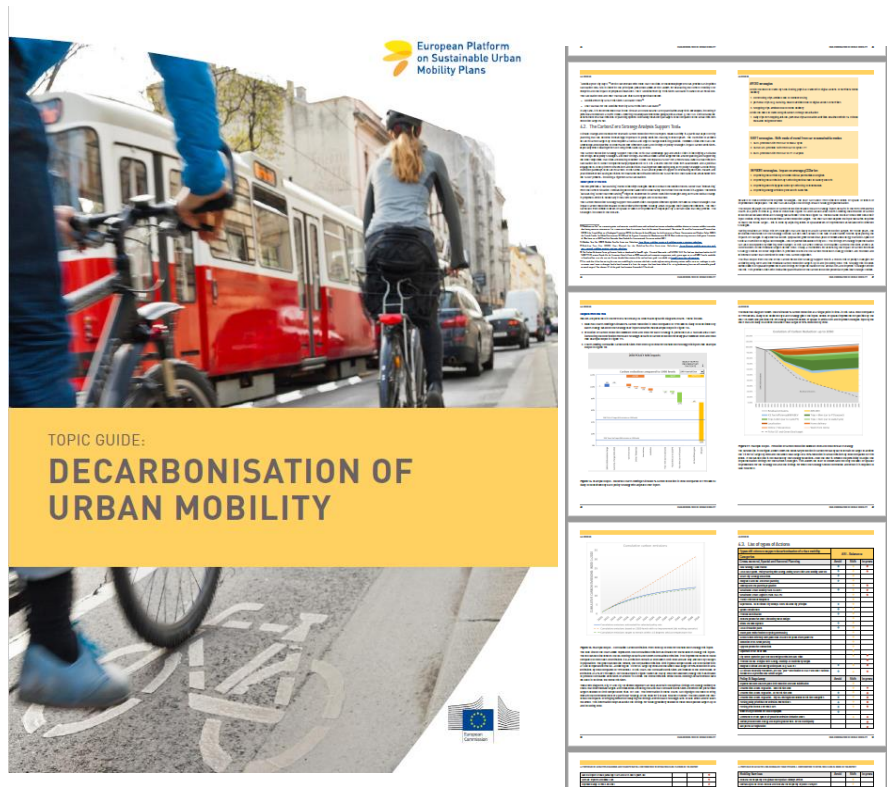
Making use of the tool outputs

- Carbon neutrality represents a fixed end goal
  - but there are different mixes of policy strategies to achieve that common end goal.
  - suitability depends on local conditions and capabilities.
  - the process of establishing the most suitable strategy mix requires extensive stakeholder engagement among many sectors.

The Tool supports this stakeholder and political engagement, helping inform workshop discussions and decision making when developing long-term policy strategies that align with a transition to net-zero carbon.

Making use of the tool outputs

The Tool is recommended to Cities

"to support the relevant professionals in the development of a long-term decarbonisation strategy (i.e. transition strategy), and identify which strategies can be translated into specific sets of measures and successfully implemented within the next SUMP cycle."

Where to access the tool

Developed by Vectos (part of SLR) within the CIVITAS SUMP-PLUS Project

(funded from the European Union's Horizon 2020 Research and Innovation programme, under grant agreement no 814881)

https://sump-plus.eu/

- Available free to use by any city.
  - https://sump-plus.eu/resources   A more detailed description of the tool and user guide is also provided.

  - Further queries: steve.wright@slrconsulting.com

Making Sustainability Happen

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