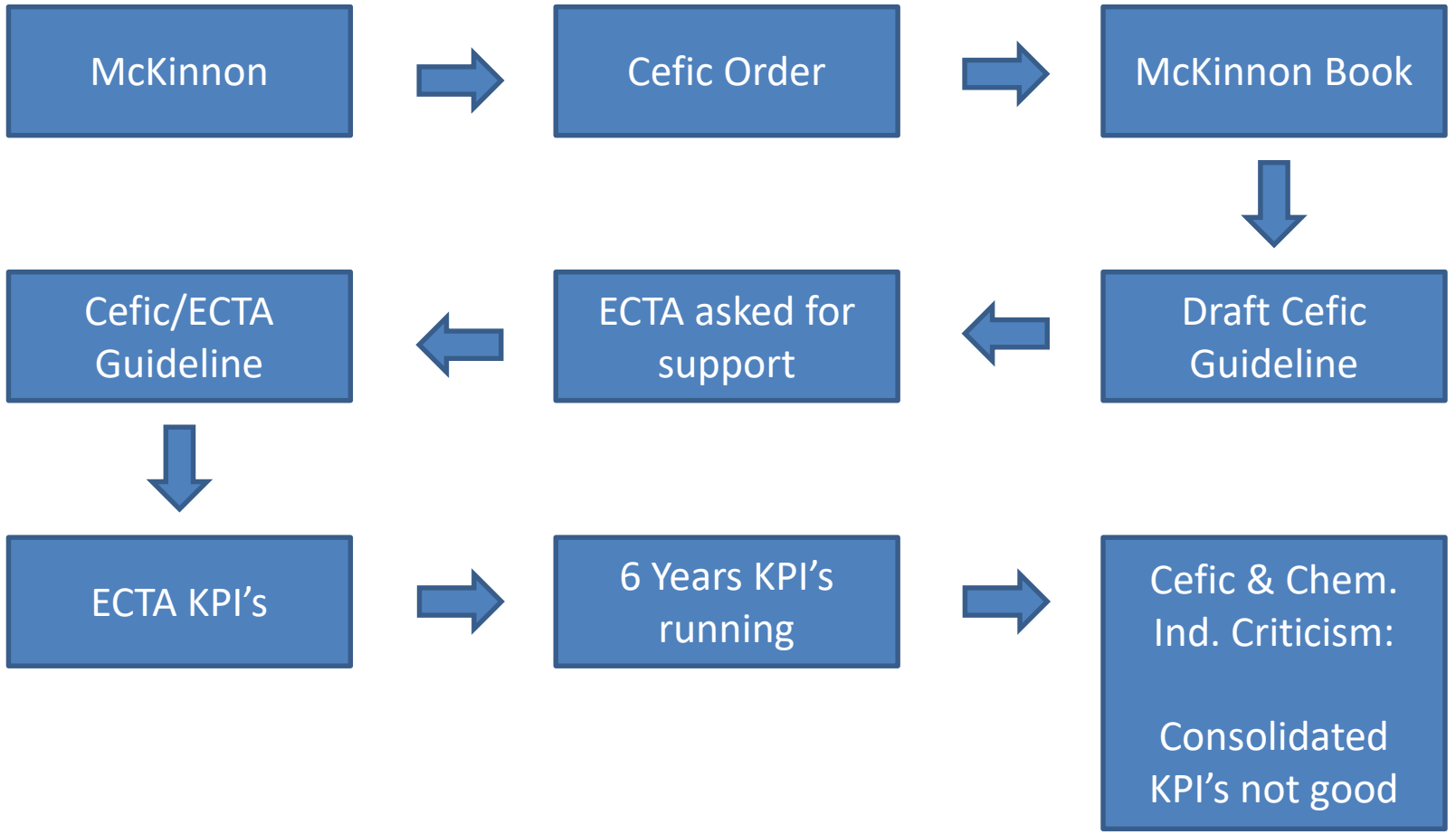
ECTA
The Chemical Logistics Association

CO2 CALCULATION METHODS

Evert de Jong

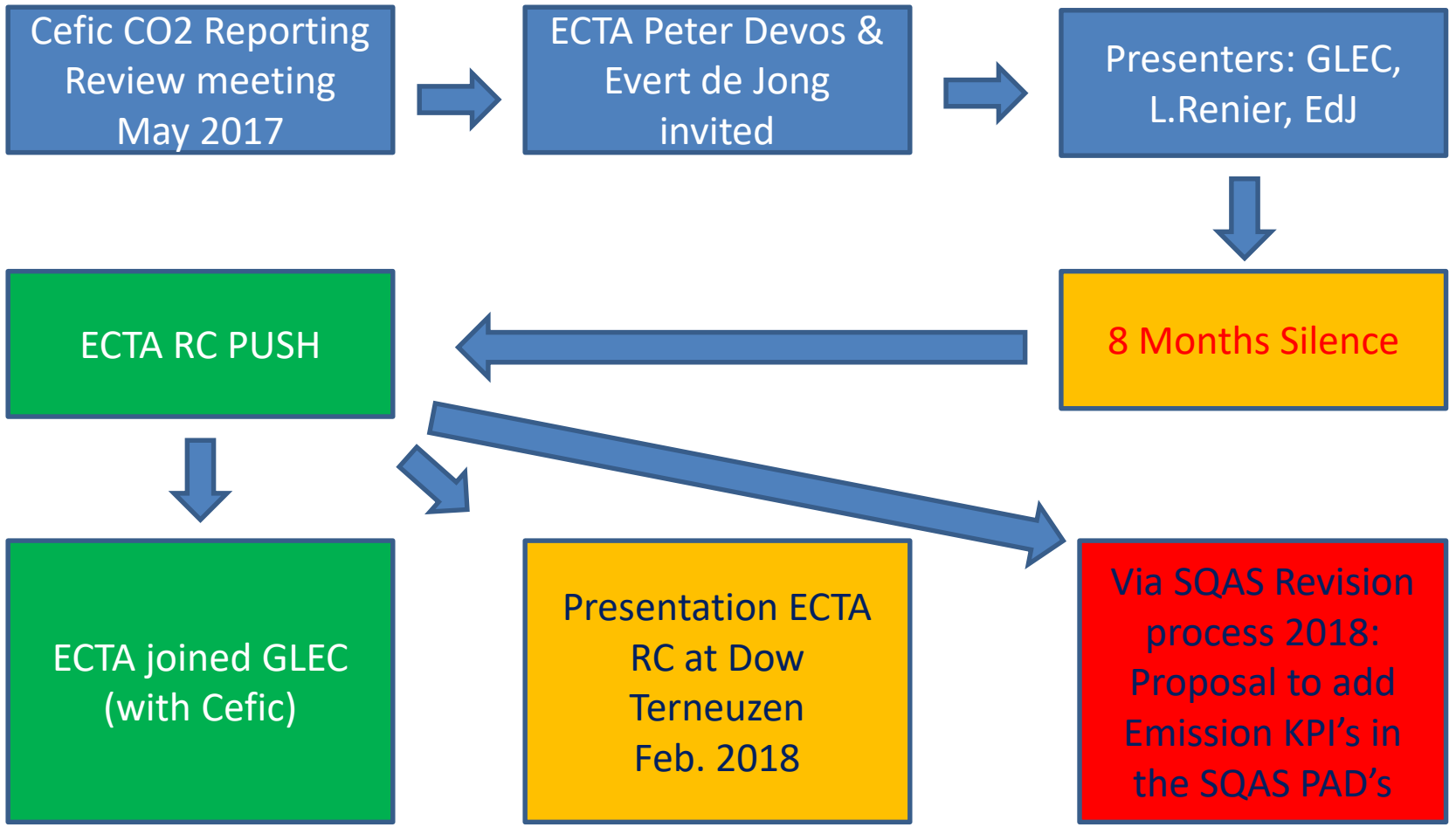
CO2 Calculation Methods

Carbon Footprint methodology changes (history)



CO2 Calculation Methods

Carbon Footprint methodology changes



CO2 Calculation Methods

- Meetings May/June, Wiebe Schipper (LyondellBasell), Jos Verlinden (Cefic), Evert de Jong, Peter Devos
  1st decisions:
  - Revision of current guideline in 2018
  - No GHG KPI's in new SQAS PAD

- Issue was integrated in a meeting (20 Sep 18) of
  Cefic Network of Sustainable Logistics:
  Cefic / Dow / Ineos / Covestro / Sabic / Yara / FECC / LyondellBasell / Federchimica / UIC / Borealis

  EDJ/PDV Invitees

CO2 Calculation Methods (test results)

Table 2
Carbon emission factors (gCO_2/tonne-km) for 40-44 tonne trucks with varying payloads and levels of empty running

Payload tonnes	% of truck-kms run empty									
	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%
10	81.0	84.7	88.8	93.4	98.5	104.4	111.1	118.8	127.8	138.4
11	74.8	78.2	81.9	86.1	90.8	96.1	102.1	109.1	117.3	127.0
12	69.7	72.8	76.2	80.0	84.3	89.2	94.7	101.1	108.6	117.5
13	65.4	68.2	71.4	74.9	78.9	83.4	88.5	94.4	101.3	109.5
14	61.7	64.4	67.3	70.6	74.2	78.4	83.2	88.7	95.1	102.7
15	58.6	61.0	63.8	66.8	70.3	74.2	78.6	83.7	89.7	96.8
16	55.9	58.2	60.7	63.6	66.8	70.5	74.6	79.5	85.1	91.7
17	53.5	55.7	58.1	60.8	63.8	67.2	71.2	75.7	81.0	87.2
18	51.4	53.5	55.8	58.3	61.2	64.4	68.1	72.4	77.4	83.3
19	49.6	51.5	53.7	56.1	58.8	61.9	65.4	69.5	74.2	79.8
20	48.0	49.8	51.9	54.2	56.8	59.7	63.0	66.9	71.4	76.7
21	46.6	48.3	50.3	52.5	54.9	57.7	60.9	64.5	68.8	73.9
22	45.3	47.0	48.8	50.9	53.3	55.9	59.0	62.5	66.5	71.4
23	44.2	45.8	47.6	49.6	51.8	54.3	57.2	60.6	64.5	69.1
24	43.2	44.7	46.4	48.3	50.5	52.9	55.7	58.9	62.7	67.1
25	42.3	43.8	45.4	47.3	49.3	51.7	54.3	57.4	61.0	65.2
26	41.5	42.9	44.5	46.3	48.3	50.5	53.1	56.0	59.5	63.6
27	40.8	42.2	43.7	45.4	47.3	49.5	52.0	54.8	58.1	62.1
28	40.2	41.5	43.0	44.6	46.5	48.6	51.0	53.7	56.9	60.7
29	39.7	41.0	42.4	44.0	45.7	47.8	50.1	52.7	55.8	59.5

Source: Alan McKinnon, based on data from Coyle, 2007

A very limited test, in a not very scientific way.

Still it provides some indications.

23 positions, of which 9 linked to single results (orange) and 14 linked to multiple results (yellow). All results were showing deviations of a lower nature, i.e. the calculated results of real tests showed lower factors than the table in the guideline. The deviations ranged from -6% to -16%.

CO2 Calculation Methods – ECTA revision work

Opportunities	*Description*	*Considerations for implementation*	*Parties involved*
A. Modal shift	**Shift to 'greener' transport modes**	**Prepare for connected multi-modal transport**	
1. Shift from Bulk Road to Single Wagon (SW) Rail Transport	Bulk road transport is replaced by transport in single wagon rail tank cars.	Availability of a direct rail connection at despatching and receiving location. Availability of sufficient storage capacity at dispatching and receiving location and that are fit for use to store & handle Chemicals DG and non DG goods. Willingness of customer to receive bigger quantities. Frequency and reliability of SW rail service. Transit time and alignment of opening hours between (Un)loading Sites, Terminals and shuttle services Cost. Product constraints. First Mile and last mile transport service	- Shipper - Consignee - LSP
2. Switch from road to intermodal short sea transport (SS)	Road transport is replaced by intermodal short sea/road transport (road-SS-road) whereby the goods are transported over the major part of the distance by sea in ro-ro ferries or container ships. The transfer from road to SS and vice-versa is carried out at intermodal sea terminals. If a rail connection is available, the first and last mile can also be done by rail instead of road.	Availability of an intermodal sea terminal close to the point of origin and the point of destination. Frequency and reliability of intermodal SS service. Availability of sufficient intermodal SS capacity. Transit time. Cost. Product constraints First Mile and last mile transport service	- Shipper - Consignee - LSP
3. Switch from road to intermodal barge/road transport	Road transport is replaced by intermodal barge/ road transport (road-barge-road) whereby the goods are transported over the major part of the distance by barge in containers. The transfer from road to barge and vice-versa is carried out at intermodal barge/road terminals.	Availability of intermodal barge/road terminals that are fit for use to store & handle Chemicals DG and non DG goods and sufficiently close to the point of origin and the point of destination. Frequency and reliability of intermodal barge service. Availability of sufficient intermodal barge capacity. Transit time and alignment of opening hours between (Un)Loading Site, Terminal and shuttle services. Cost Product constraints First Mile and last mile transport service	- Shipper - Consignee - LSP

CO2 Calculation Methods

We expect:

- The current guideline data will remain unchanged for some time!

- As mentioned before: The CO2 emissions calculations and totals will no more be consolidated in the Annual ECTA Report.