unione energie per la mobilità

CARS CO_2 COMPARATOR

Una piattaforma digitale per valutare e confrontare le emissioni di CO_2 nel ciclo di vita delle autovetture e dei fuel

Conferenza stampa 30 novembre 2022

L'utilità di un «comparatore» sulle emissioni di CO_2

- **Le politiche volte al «net zero emissions» hanno come obiettivo finale quello di non aumentare la concentrazione di CO_2 in atmosfera e dunque hanno bisogno di soluzioni che siano climaticamente neutre a livello globale considerato che la CO_2 prescinde dal luogo in cui viene emessa.**

- **Nei trasporti ciò che dovrebbe contare è pertanto l'impronta carbonica complessiva delle vetture per poter valutare il reale beneficio ambientale delle diverse opzioni tecnologiche.**

- **È pertanto fondamentale valutare con precisione tale impronta lungo l'intero ciclo di vita delle vetture e non solo allo scarico, in quanto il controllo esclusivo in questa fase, oltre a trascurare un gran numero di altre emissioni climalteranti generate durante la vita del veicolo, è parziale in quanto assimila la CO_2 riciclata (quella che cioè non genera alcuna aumento delle concentrazioni in atmosfera e dunque è climaticamente neutra), a quella fossile alterando i risultati in termini di effettiva decarbonizzazione dei trasporti.**

- **Lo strumento messo a punto dal Concawe, che presentiamo oggi, è stato costruito per misurare e confrontare in modo interattivo le emissioni di gas serra nel ciclo di vita delle autovetture in base a diversi parametri: *powertrains*, *fuels* utilizzati, profilo di guida, intensità carbonica nella produzione di elettricità o di fuels, condizioni ambientali.**

- **Tutti i parametri inseriti in questo modello interattivo, modulabili in funzione del confronto scelto, derivano da analisi specifiche e dalla letteratura prevalente in materia.**

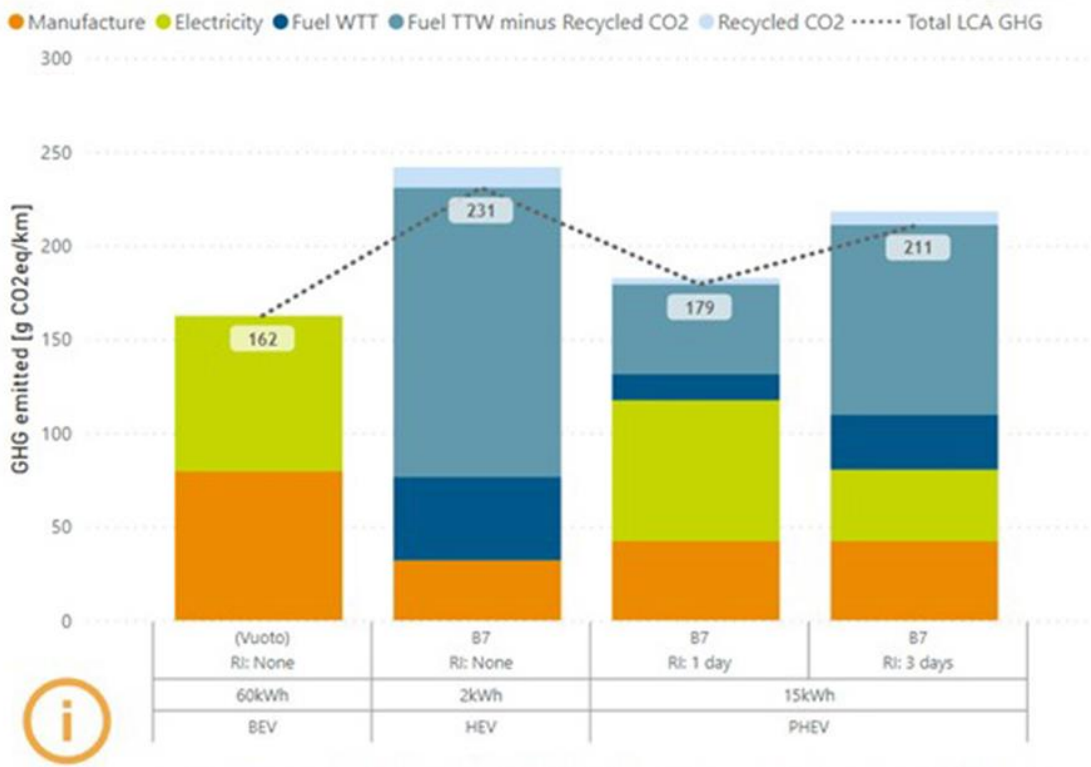
Come si presenta il «Comparatore»

Tests, modeling & design by

ifp Energies nouvelles

Life cycle assessment (LCA) of greenhouse gas emissions from passenger cars in real-world conditions

A function of electrification level, end-user behavior, fuel, industrial and energy sector key parameters



Concawe

As powertrains diversify in their electrification levels – Hybrids (HEV), Plug-in Hybrids (PHEV) and Battery Electric Vehicles (BEV) – along with the fuel production pathways – fossil and renewable routes – the carbon footprint over their life cycle heavily depends on their use cases (e.g. driving profile) and context of use (e.g. carbon intensity of electricity). This interactive tool allows to design several scenarios combining these parameters and to compare their environmental performance.

To reset to default parameters, please use the page refresh button of your browser

Vehicles

Electrification level: HEV | PHEV | BEV

Battery capacity [kWh]: 2 4 6 8 10 | 2 4 6 8 10 15 20 30 | 20 40 60 80 100 120 140

Battery production [kgCO2eq/kWh]: 120

Total lifetime mileage [km]: 125000 150000 187500 250000

Usages

Recharge interval (RI) for PHEVs [days]: 0.5 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0

Daily vehicle mileage scenarios: Short | Average | Long | Certification

Climate: Cold | Temperate | Hot

Energies

Electricity carbon intensity gCO2eq/kWh: 335

Mostly fossil, available today
- B7 - fossil diesel blended with 7% renewable biodiesel
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100% renewable Diesel, available today
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100% renewable, available today
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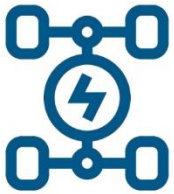
I profili dei parametri «veicolo»

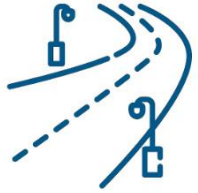


I valori indicano i livelli di elettrificazione della vettura in base alla capacità della batteria in funzione del modello scelto (BEV, HEV e PHEV) e delle percorrenze secondo le configurazioni prevalenti (da 125.000 a 250.000 km nella vita dell'auto)

I valori indicano le emissioni di CO_2 per la produzione delle batterie e derivano dalla letteratura raccolta dall'International Council on Clean Transportation da cui emerge un valore mediano di 120 $kgCO_2eq/kWh$ (min 30 – max 494)

I profili dei parametri «utilizzo»

I valori indicano l'intervallo di ricarica per le PHEV (in giorni, da 1 a 10) che è funzione dei km percorsi in modalità elettrica (brevi, medi, lunghi)



I valori indicano i km giornalieri percorsi in base ad una distribuzione statistica e a diversi scenari derivati dalla letteratura

I valori indicano le condizioni climatiche durante l'uso in base ad una distribuzione statistica delle temperature e gli effetti sui consumi (freddo, temperato, caldo)

I profili dei parametri «energie»

I valori indicano l'intensità carbonica nella produzione di energia elettrica nei diversi Paesi europei derivata dalla letteratura da cui emerge un valore mediano di 335 gCO_2eq/kWh (min 30, Svezia – max 805, Polonia)

I valori indicano le emissioni di CO_2 dei possibili combustibili già disponibili e in fase di sviluppo (gasolio, benzina, biocarburanti liquidi derivati da diverse materie prime rinnovabili, carburanti sintetici per un totale di 25 tipologie)

Analisi LCA veicoli leggeri – caso base con gasolio B7

Tests, modeling & design by

ifp Energies nouvelles

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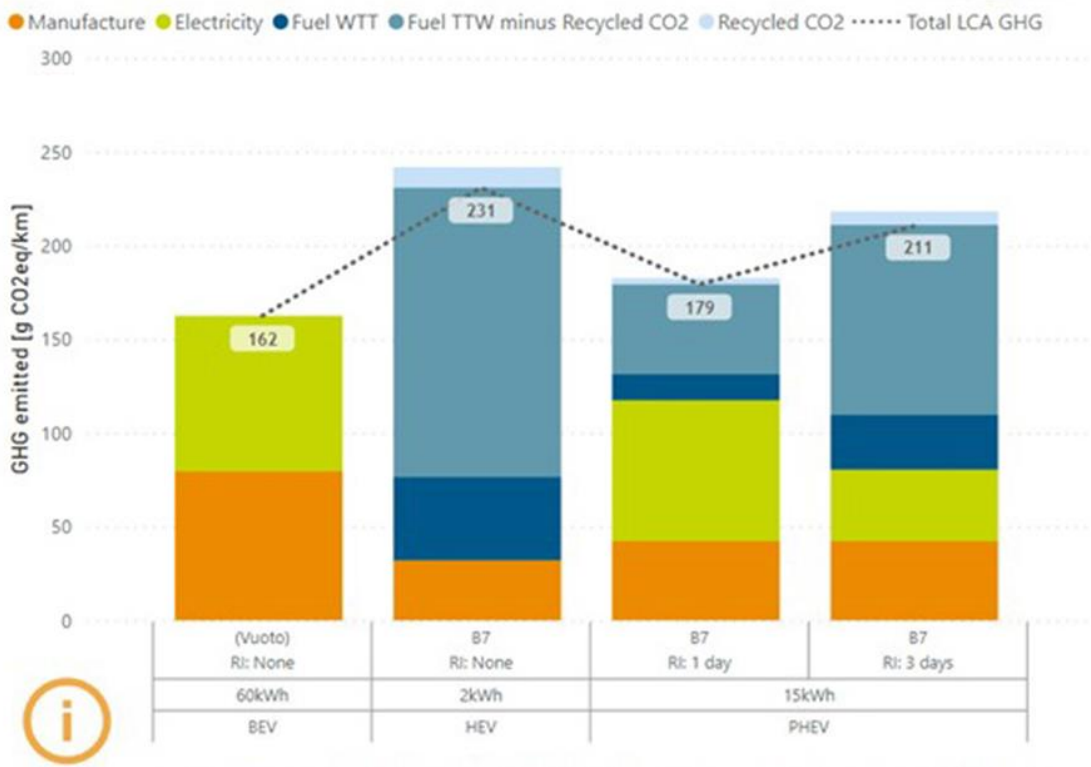

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Concawe

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Vehicles

Electrification level: HEV | PHEV | BEV

Battery capacity [kWh]: 2 4 6 8 10 | 2 4 6 8 10 15 20 30 | 20 40 60 80 100 120 140

Battery production [kgCO2eq/kWh]: 120

Total lifetime mileage [km]: 125000 | 150000 | 187500 | 250000

Usages

Recharge interval (RI) for PHEVs [days]: 0.5 | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0

Daily vehicle mileage scenarios: Short | Average | Long | Certification

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Energies

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Analisi LCA veicoli leggeri – caso con HVO

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IFP Energies nouvelles

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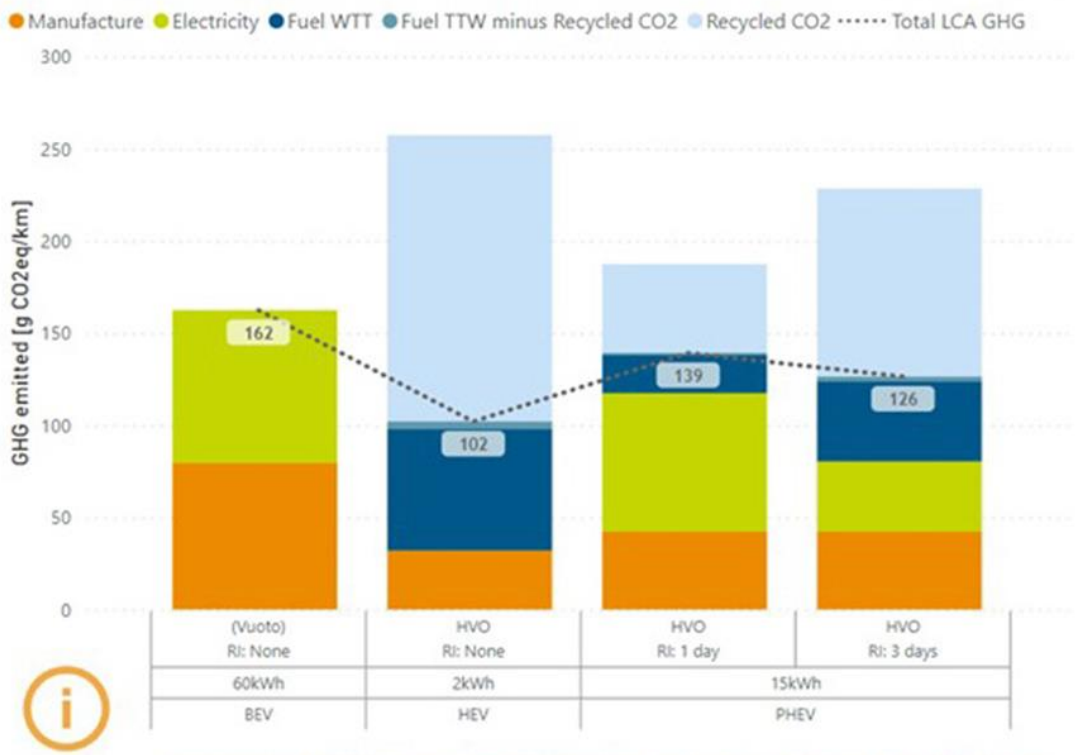

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Concawe

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Vehicles

Electrification level: HEV | PHEV | BEV

Battery capacity [kWh]: HEV 2 4 6 8 10 | PHEV 2 4 6 8 10 15 20 30 | BEV 20 40 60 80 100 120 140

Battery production [kgCO2eq/kWh]: 120

Total lifetime mileage [km]: 125000 | 150000 | 187500 | 250000

Usages

Recharge interval (RI) for PHEVs [days]: 0.5 | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0

Daily vehicle mileage scenarios: Short | Average | Long | Certification

Climate: Cold | Temperate | Hot

Energies

Electricity carbon intensity gCO2eq/kWh: 335

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Analisi LCA veicoli leggeri – caso con e-fuels

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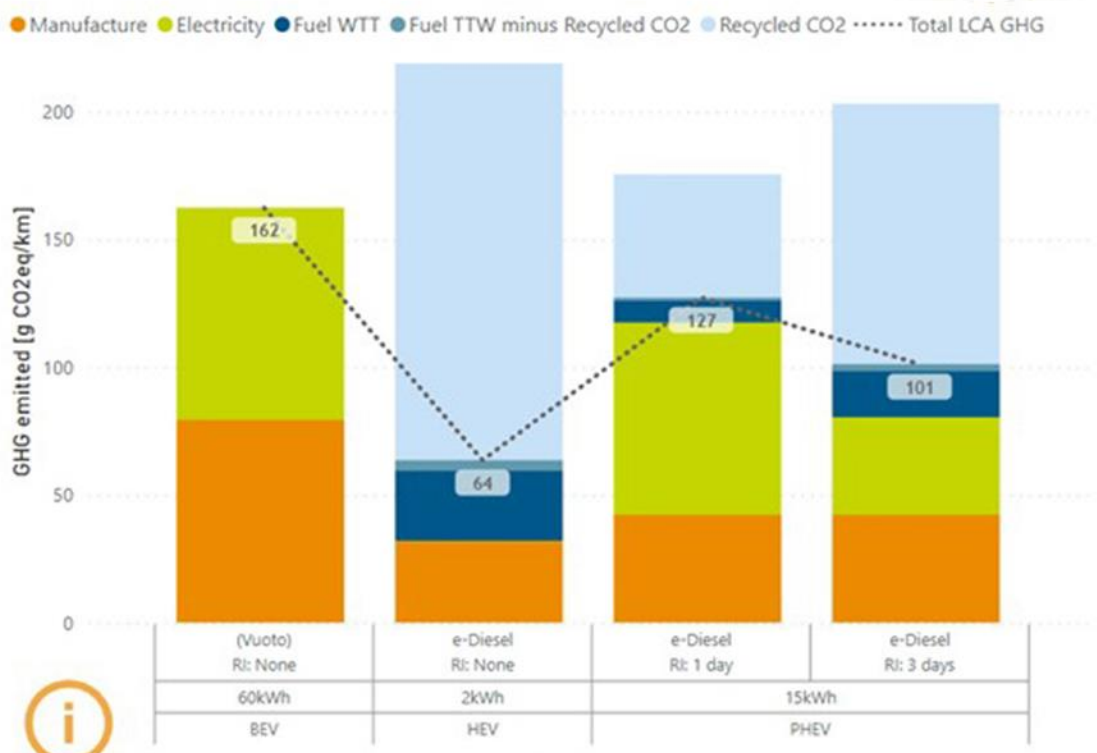

Concawe

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Vehicles

Electrification level: HEV | PHEV | BEV

Battery capacity [kWh]: HEV: 2 | 4 | 6 | 8 | 10 — PHEV: 2 | 4 | 6 | 8 | 10 | 15 | 20 | 30 — BEV: 20 | 40 | 60 | 80 | 100 | 120 | 140

Battery production [kgCO2eq/kWh]: 120

Total lifetime mileage [km]: 125000 | 150000 | 187500 | 250000

Usages

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Daily vehicle mileage scenarios: Short | Average | Long | Certification

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Energies

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Analisi LCA veicoli leggeri – caso e-fuels ed e.e. 100% rinnovabile

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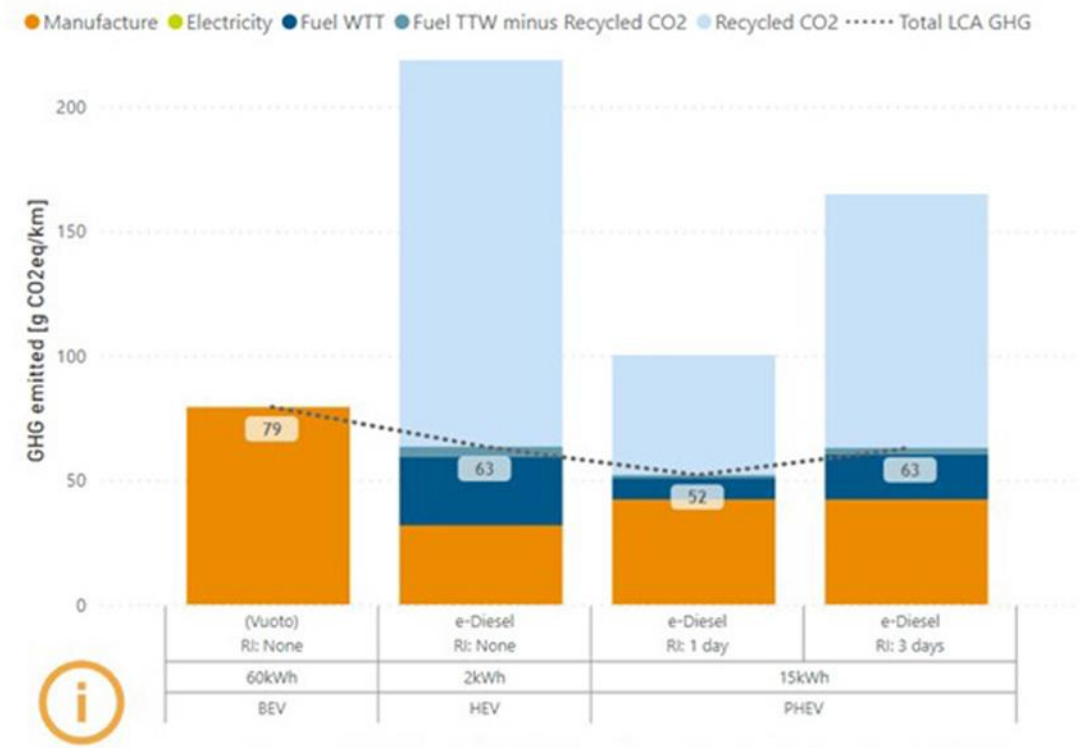

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Battery capacity [kWh]:
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PHEV: 2 | 4 | 6 | 8 | 10 | 15 | 20 | 30
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Electricity carbon intensity gCO2eq/kWh: 0

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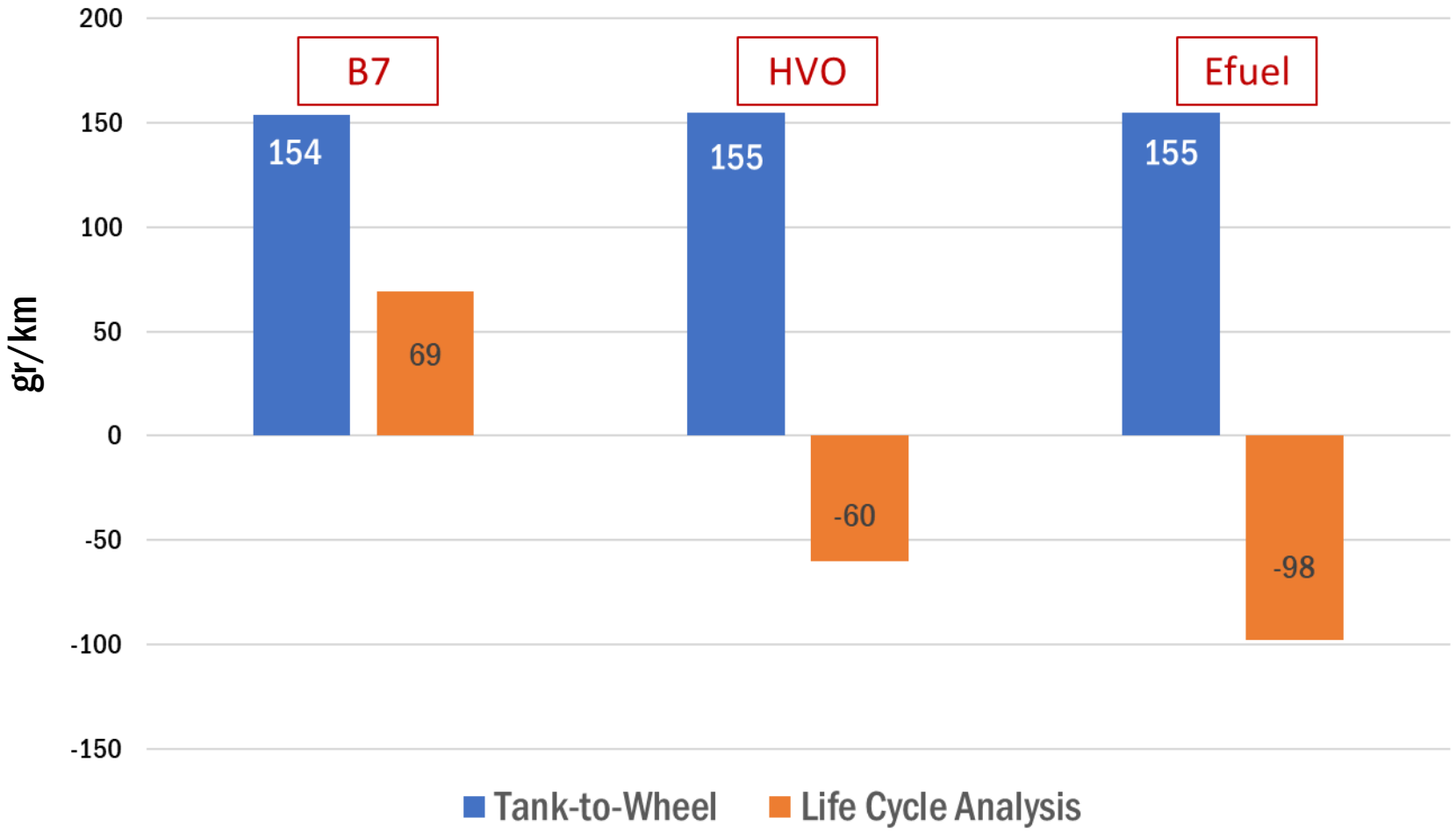
Δ emissioni BEV-HEV per diverse alimentazioni (calcolo TTW* e LCA)

B7: gasolio attualmente in commercio con il 7% di componente bio

HVO: biocarburante avanzato derivato da materiali di scarto di origine organica, utilizzabile in purezza

Efuel: carburante sintetico derivato dalla combinazione di idrogeno rinnovabile e CO2



** Per le BEV il valore delle emissioni CO_2 allo scarico è pari a zero*

unione energie per la mobilità

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