

REDUCING TRAVEL EMISSIONS

A CASE STUDY >>

Three ways to reduce greenhouse gas (GHG) emissions from business travel:

- Consider if an in-person meeting is necessary;
- Check if travel can be completed by rail/road;
- If air travel is the only option, choose non-stop flights on airlines with lower emissions per passenger kilometer.

In this case study, we demonstrate how businesses can reduce travel emissions. We also briefly cover how to calculate emissions per airline, and list best-in-class airlines.

Case Study: Wipro

>> In financial year 2014-15, Wipro wanted to calculate their GHG emissions, and suggestions for mitigation, from Air Travel. cBalance performed the following services:

- **Step 1:** calculate GHG Emission Factors for all domestic & international airlines which Wipro used during FY 14-15;
- **Step 2:** rank domestic and international air carriers based on their GHG emission factors, highlighting Best-In-Class airlines;
- **Step 3:** calculate Wipro's FY 14-15 air travel emissions using the derived airline emission factors in accordance with the GHG protocol;
- **Step 4:** perform scenario modeling to calculate emissions mitigation potential.

Step 1: Calculate Airline Emissions

A

Operations Data

1. Passenger Load Factor
2. Market Share %
3. Passenger-to-Freight Ratio
4. Fleet Composition

B

Design Data

1. Seating Capacity
2. Mfg. Emissions
3. Fuel Consumption

C

Fuel Data

1. Carbon Content
2. Supply-Chain

D

Travel Data

1. Airline Brand
2. Airport Origin & Destination
3. Travel class (*Business / Economy*)
4. Itinerary (*non-stop vs. multi-stop*)

Step 2: Airline Recommendations

INTERNATIONAL				DOMESTIC		
Airline	Ranking	% Travelled ¹	EF ² Comparison	Airline	Rating	% Travelled ¹
UNITED	1	4%	BEST	spiceJet	Cleaner	3%
swissair	2	0%	5.6%	IndiGo	Cleaner	39%
DELTA	3	1%	6.9%	Jetlite	Average	0%
طيران الخليج Gulf Air	4	0%	19.4%	VISTARA	Average	0%
TURKISH AIRLINES	5	0%	23.6%	JET AIRWAYS	Dirtier	42%
QANTAS	6	0%	25.0%	INDI GO AIR INDIA	Dirtier	10%
Lufthansa	7	13%	26.4%			
JET AIRWAYS	7	6%	26.4%			
KLM	8	2%	37.5%			
AIRFRANCE	8	1%	37.5%			
QATAR AIRWAYS	9	8%	41.7%			
American Airlines	10	2%	45.8%			
BRITISH AIRWAYS	11	9%	50.0%			
SINGAPORE AIRLINES	12	6%	50.0%			
INDI GO AIR INDIA	13	8%	51.4%			
Emirates	14	24%	62.5%			
الخطوط ETIHAD	15	16%	66.7%			

*EF - Emission Factor



Flying **business class** increases footprint by as much as **2.7 times**



Booking a **non-stop flight** wherever possible **reduces footprint**

Which should I take: a non-stop flight on Gulf Air or a one-stop flight on United Airlines?

Choose the one-stop flight on United Airlines vs. the non-stop flight on Gulf Air as Gulf Air's emission factor (EF) is MORE than 15% of United Airline's EF. Choose a one-stop flight on an airline with a lower emission factor vs. a non-stop flight on an airline with a higher emission factor, if the difference in their emission factors is more than 15%.

Step 3: Calculate Air Travel Emissions

In FY 2014-2015, Wipro employees flew 498,327 flights, and emitted approximately 170 thousand tonnes of CO₂e.

Step 4: Potential Emissions Reduction

60
thousand
tonnes
of CO₂e

Wipro was poised to save 60 thousand tonnes of CO₂e, 35% of total emissions, if it switched to Best-In-Class Airlines during FY 14-15. This saving comes from:

- 41% (~49 thousand tonnes of CO₂e) in International
- 37% (~7 thousand tonnes of CO₂e) in Domestic-USA
- 20% (~4 thousand tonnes of CO₂e) in Domestic-India

If Multi-Stop flights switched to Non-Stop flights, emissions reduction of 25% in International and 50% in Domestic-USA.

Visualizing emissions & alternatives

Flight



Train



Large Tree



All values provided in visualizing emissions are average values.

Non-stop vs. Multi-stop?

For Wipro, in FY 16-17 Q1, only **25%** of all trips were multi-stop, but they had **67%** of the total impact. While, **75%** of all trips were non-stop, and they had just **33%** of the total impact.

Category	Non Stop Sector	kg of CO ₂ e	One Stop Sector	kg of CO ₂ e	% increase in emissions
Dom-India	BLR-DEL	222.7	BLR-BOM-DEL	255.3	15%
Dom-USA	DFW-SFO	346.8	DFW-DEN-SFO	381.2	10%
International	BOM-LHR	892.0	BOM-DXB-LHR	989.6	11%

*Airline for visualizing emissions of Non-Stop vs. Multi-stop is Jet Airways.

Want to calculate your organization's travel emissions, and learn mitigation options?

Contact cBalance at info@cbalance.in & **020-30421636**.

cBalance has developed a carbon footprint measurement and reporting solution with over 19,000 India-specific emission factors. Learn more at www.cbalance.in.