

Sustainability Reporting: A Science-Based Framework

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CANADA'S FRAMEWORK FOR EMISSIONS REDUCTIONS

- **Carbon Pricing:** Applies to all emitters - \$30/t in BC; \$20/t in Alberta; cap-and-trade for Ontario and Quebec – By 2018, all provinces are expected to have some form of carbon pricing in place and applying to the same sources.
- **Complementary climate action:** Tightening of efficiency standards and codes for vehicles and buildings.
- **Adaptation and resiliency:** adequately preparing for climate risks like floods, wildfires, droughts, and extreme weather events
- **Clean technology, innovation and jobs:** position Canada as a global leader on clean technology innovation

Environment Canada report says we are on pace to miss emissions target

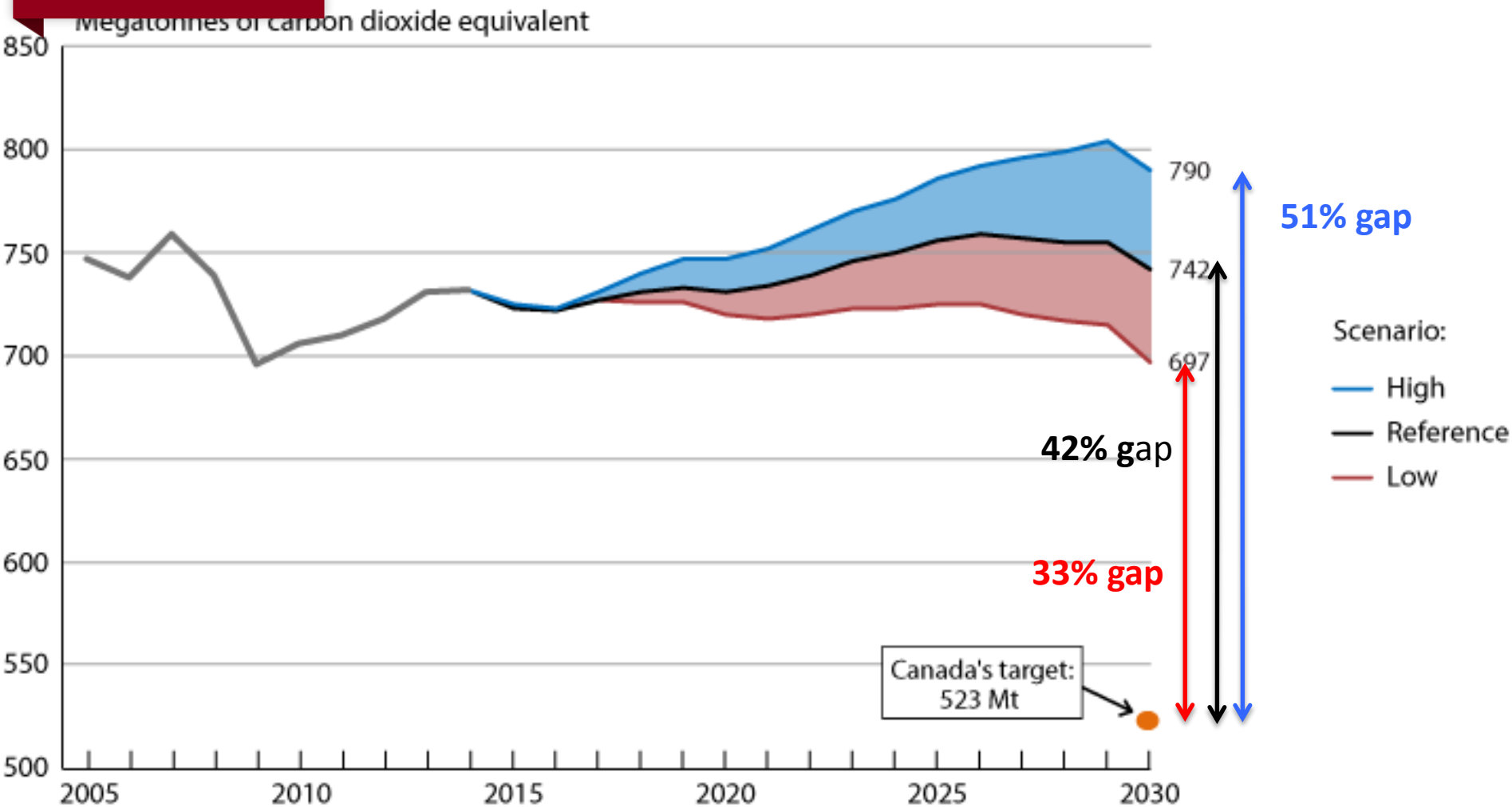
By 2030 we could be pumping out greenhouse gases at a rate at least 30 per cent higher than promised.

News • Canada

» thestar.com «

By **ALEX BALLINGALL** Ottawa Bureau
Mon., March 27, 2017

THE NAKED TRUTH



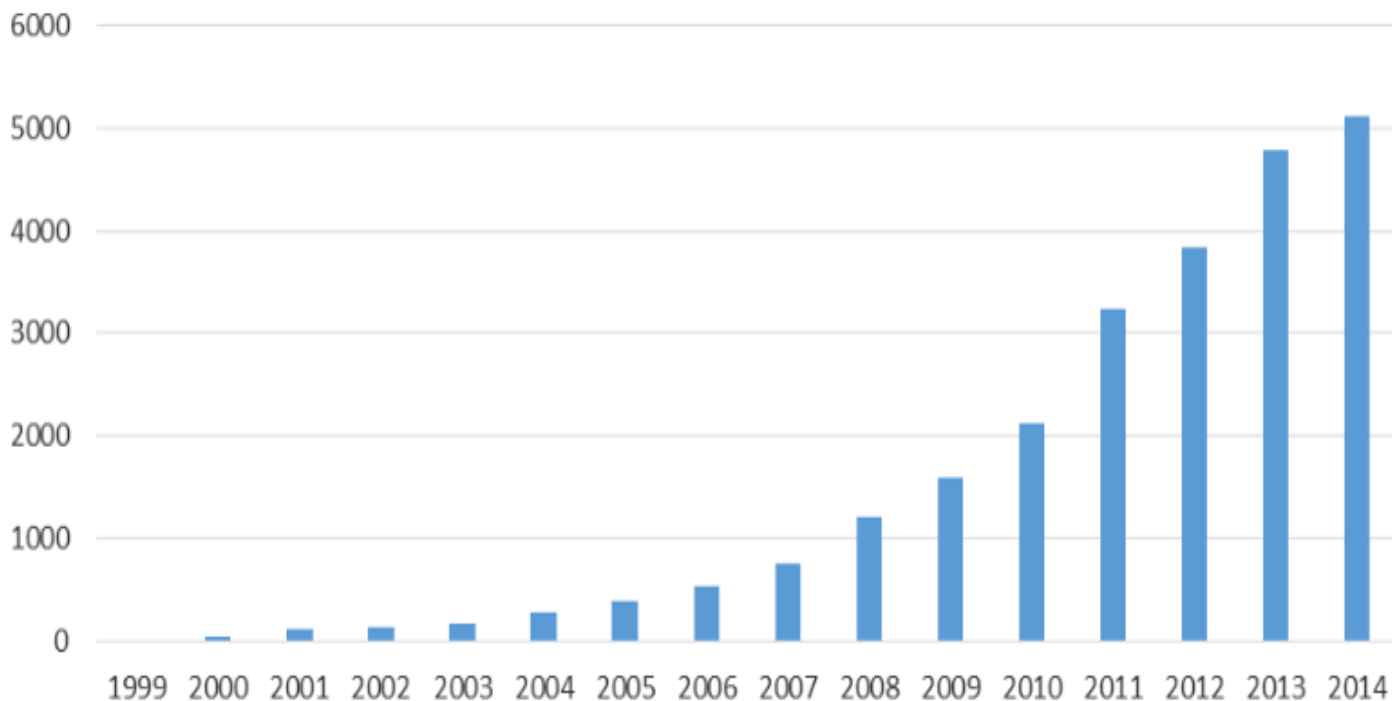
Source: Environment and Climate Change Canada (2016) Canada's 2016 Greenhouse Gas Emissions Reference Case. Environment and Climate Change Canada (2016) National Inventory Report 1990–2014: Greenhouse Gas Sources and Sinks in Canada. <https://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=CCED3397-1>

WHAT ABOUT SUSTAINABILITY REPORTING?

GRI IS THE DOMINANT ESAR REPORTING PLATFORM

**10,633 ORGS
in 2016**

Published Sustainability Reports



Source: Data coming from the [GRI Sustainability Disclosure Database](#)

ESAR: Environmental & Social Assessment Report

WHAT ARE GRI KEY OBJECTIVES?

- “To plan activities, **become more sustainable** and position the company”
- “...the ultimate objective **of becoming a more sustainable** and more coherent organization. The GRI reporting process incorporates many elements **specifically designed to contribute** to setting up such a system.”
- “These organizations prepare a sustainability report to: (i) take early steps towards operating **in a more sustainable fashion...**”

IS IT WORKING?... OUR STUDY:

- Exclusively restricted to CO₂ emissions
- 65 companies in 5 industries (Only A+ Level):
 - Mining & Materials
 - Utilities
 - Energy
 - Chemicals
 - Automotive
- CO₂ emissions and Revenues data for period: 2007 - 2012
- Analyzed 2 metrics:
 - Absolute Emissions: Tons of CO₂-equivalent emissions: t-CO₂
 - Emission Intensity: t-CO₂/Annual Sales (\$USD Millions) : t-CO₂/\$MM

Source: L. Belkhir, S. Bernard and S. Abdelgadir, “Does GRI reporting impact environmental sustainability? A cross-industry analysis of CO₂ emissions performance between GRI-reporting and non-reporting companies”, Management of Environmental Quality: An International Journal, 28.2 (2017): 138-155.

RESULTS

- NO statistical difference between GRI reporting and non-reporting companies as far as CO2 emissions are concerned
- GRI-reporting companies showed an average 6% increase in absolute emissions, while the Kyoto target is an 8% to 21% reduction for the same period.
- Both sets of companies show about **16% decrease in emission intensity**, but this seems to be almost wholly due to switching to cheaper and cleaner natural gas than any sustainability measures. Now that it's done, there's no more free ride.

7 TOP SUSTAINABILITY ISSUES FOR BUSINESSES

Original Report		Global Survey	
1	Public Policy on Climate Change	1	↑ Creating a Long-term Orientation
2	Collaborating for Sustainability	2	↓ Public Policy and Climate Change
3	Respecting Aboriginal Rights	3	↓ Collaborating for Sustainability
4	Measuring and Reporting Sustainability		↑ Measuring and Reporting Sustainability
5	Sustaining Sustainability Programs		↑ Sustaining Sustainability Programs
6	Educating Consumers for Sustainability		↑ Educating Consumers for Sustainability
7	Creating a Long-term Orientation	4	↓ Respecting Aboriginal Rights

Survey conducted by the Network of Business Sustainability (NBS) -

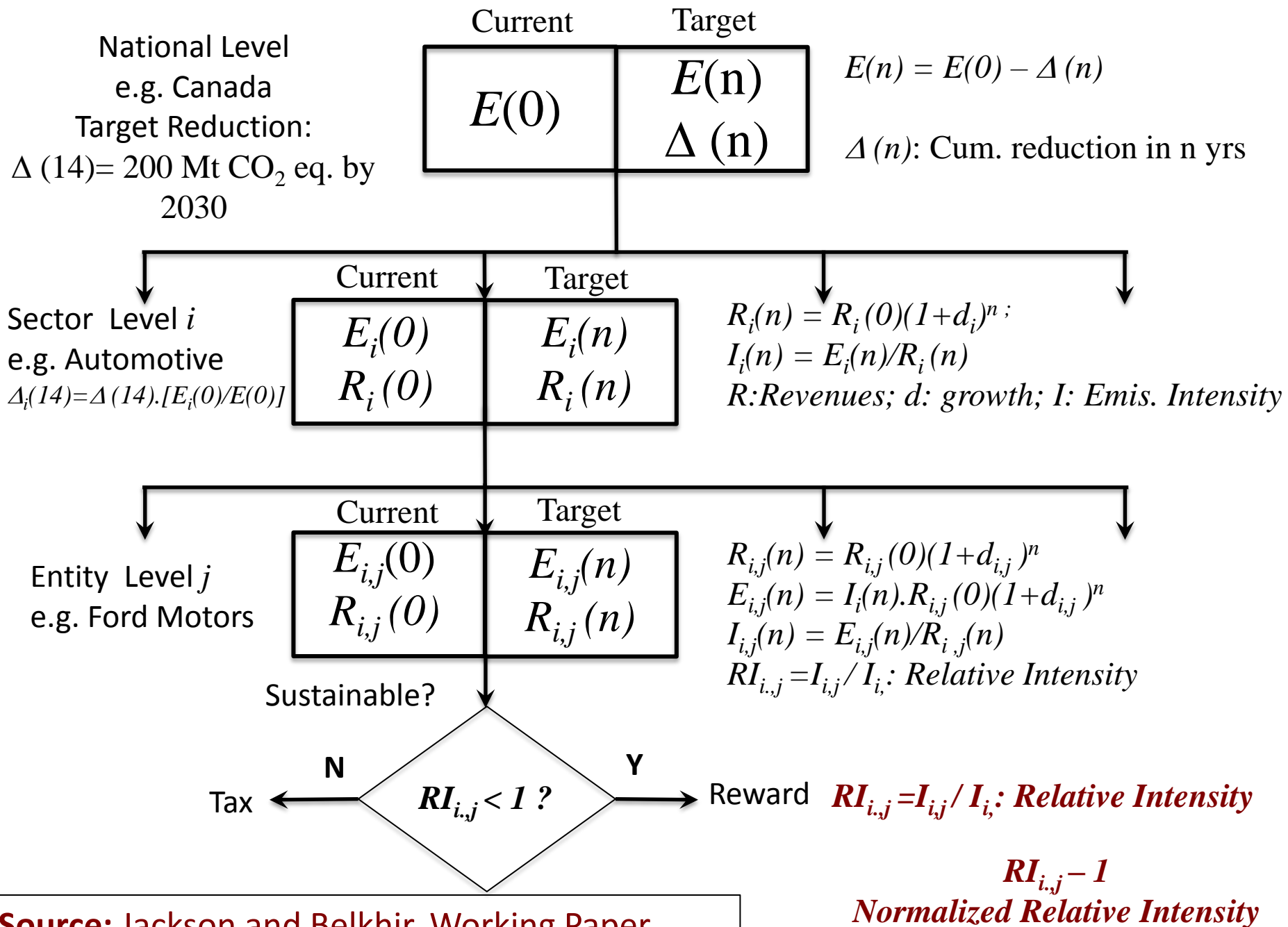
<http://nbs.net/knowledge/business-challenges-for-sustainability-a-global-perspective/>

A SCIENCE-BASED MODEL FOR SUSTAINABILITY REPORTING

WHAT WE NEED....

A Measurement & Reporting System that is:

- **Science-Based:** Objective, Rational, Rigorous & Quantitative
- **Goal-driven:** Closed-loop between target, action, results and assessment
- **Comparable:** Transparent, Consistent, and Standardized among same sector players
- **Equitable:** Burden commensurate with contribution
- **Actionable:** Provides clear *short & long-term orientation to further improvements*



To meet the “sustainability test” , each entity must satisfy the following reductions in emission intensity and absolute emissions, year-over-year, respectively:

$$\Delta I_{i,j}(n) = I_{i,j}(0) - \frac{E_i(0) - \Delta_i(n)}{R_i(0) \cdot (1 + d_i)^n}$$

$$\Delta E_{i,j}(n) = E_{i,j}(0) - r_{i,j}(0) \cdot (E_i(0) - \Delta_i(n)) \cdot \left(\frac{1 + d_{i,j}}{1 + d_i} \right)^n .$$

Where $r_{i,j}$ is the market share of entity j in sector i .

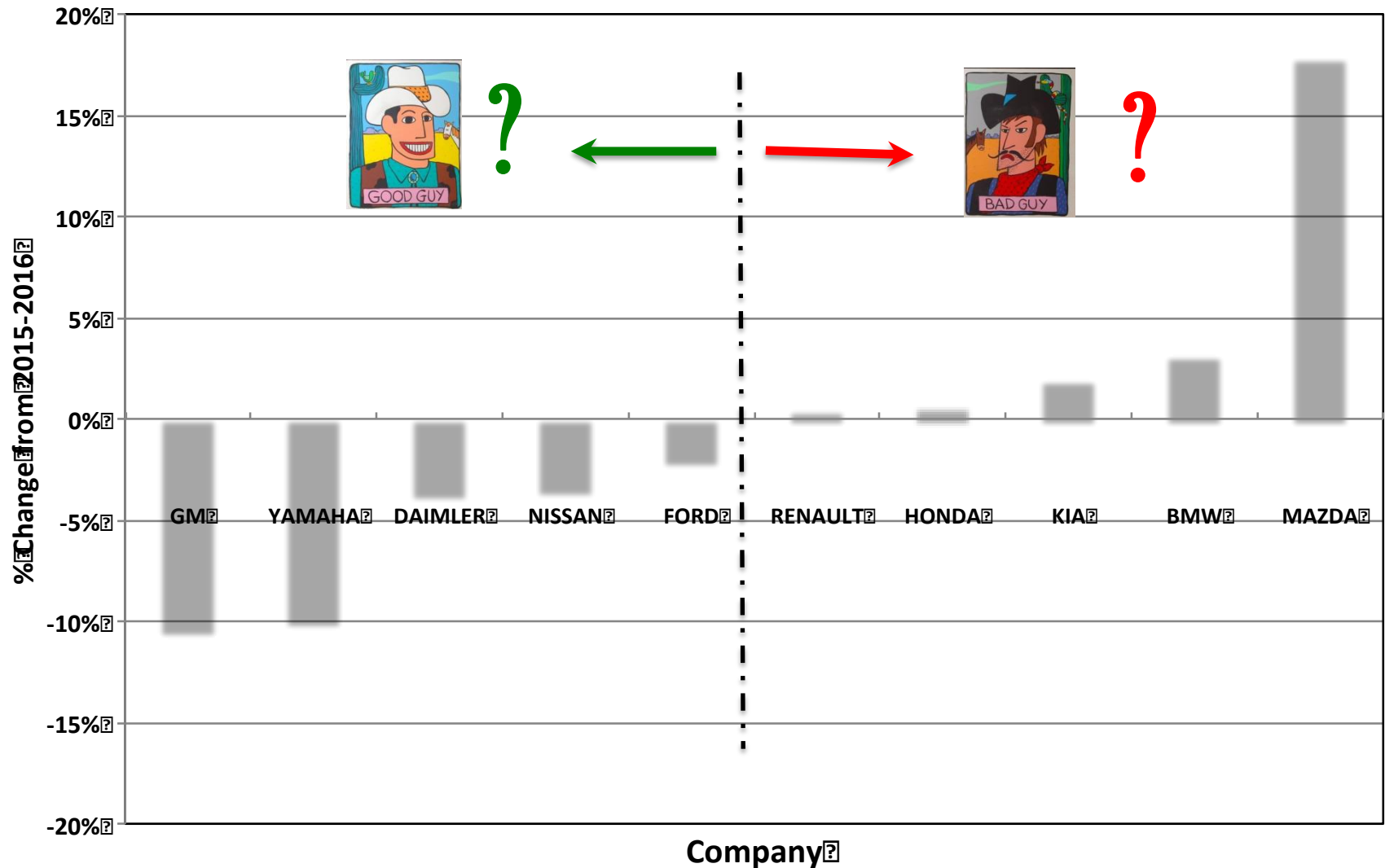
NOTE: A company could have $\Delta E_{i,j}(n)$ *NEGATIVE* (Increase in emissions) if $d_{i,j} \gg d_i$ and still be sustainable

NOTE:

If every entity meets the above reduction, then the sum total of all reductions would equal the National Level target reduction.

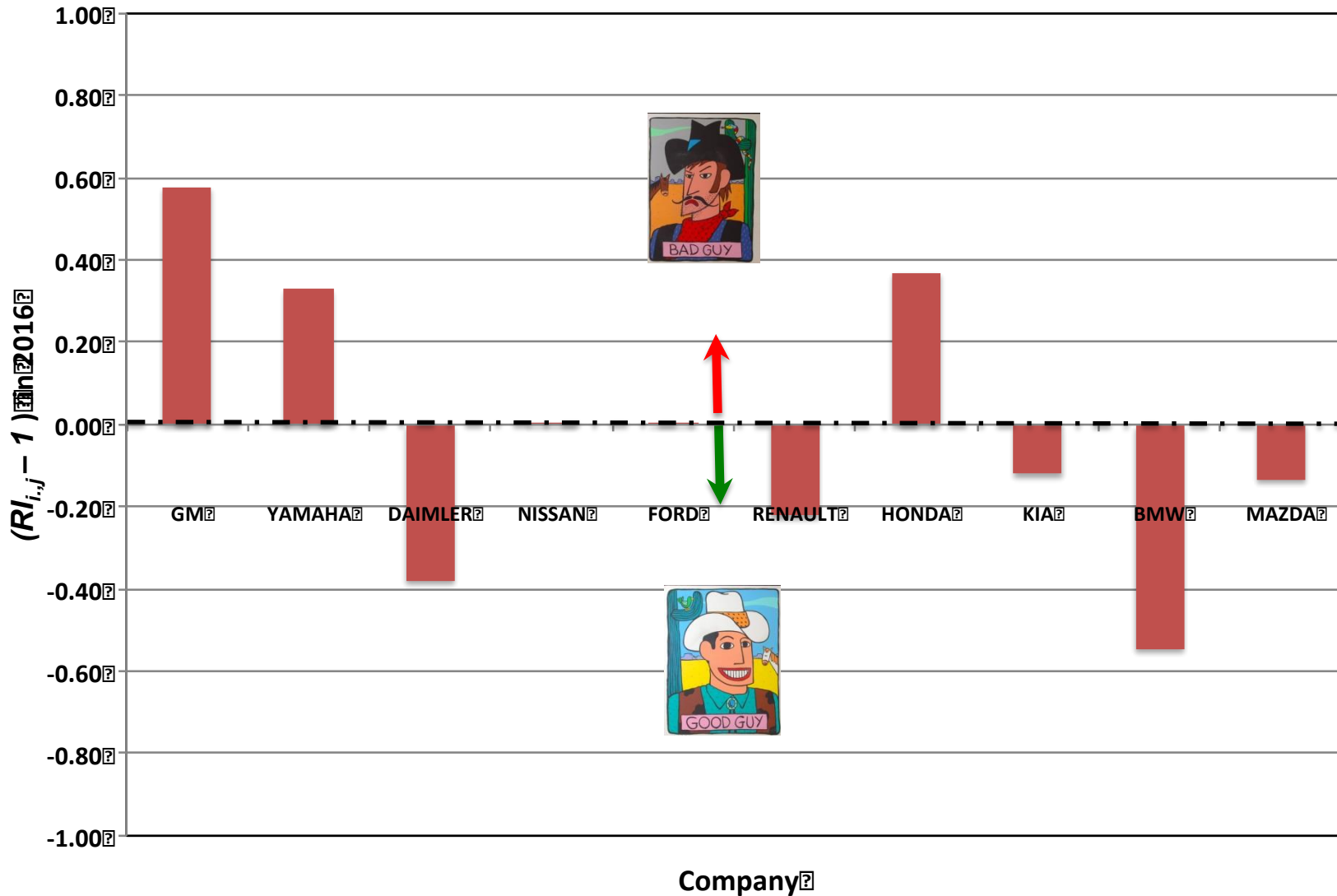
EXAMPLE FROM AUTOMOTIVE SECTOR

2-Year Change in Emissions in the Automobile Industry

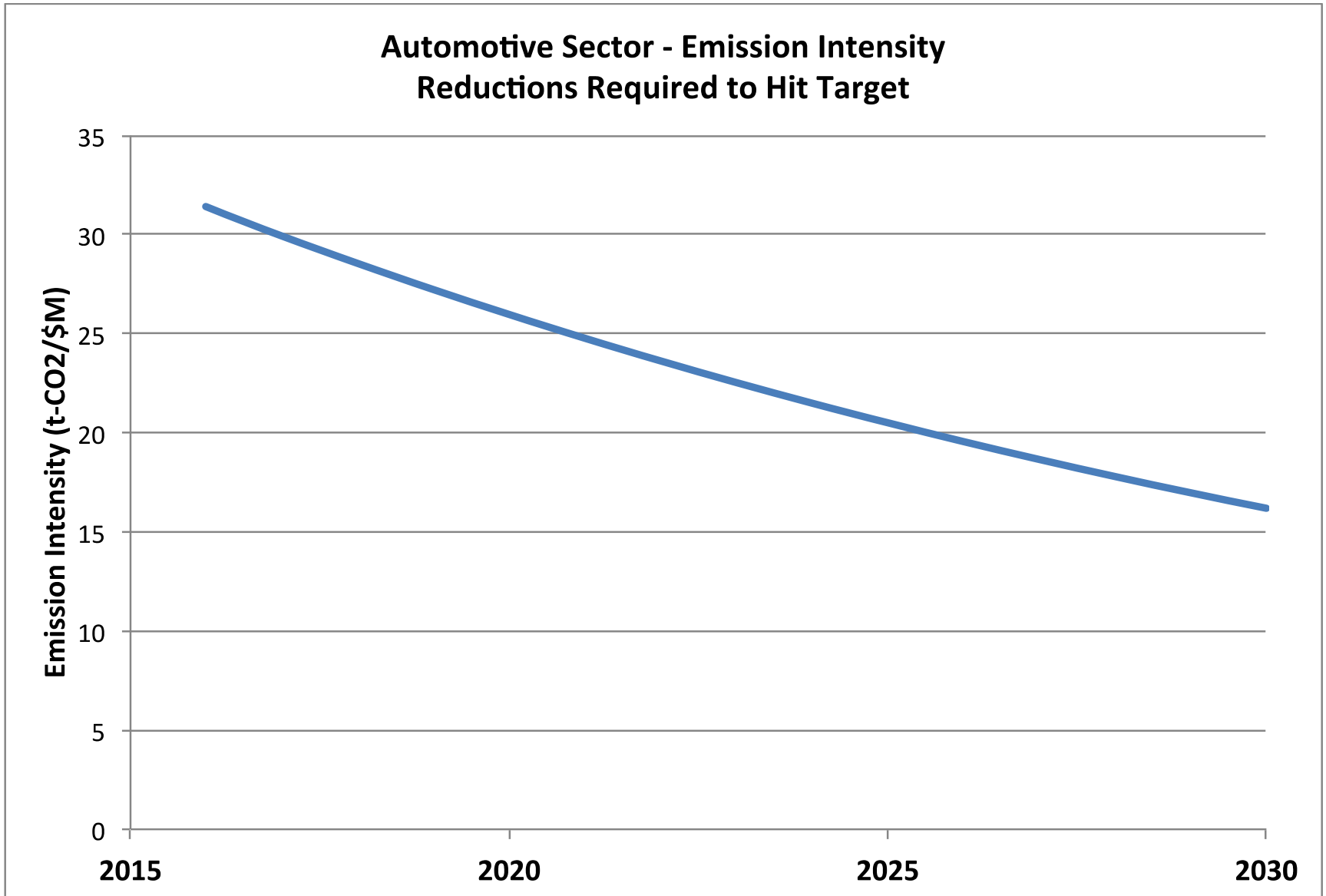


A VERY DIFFERENT (MORE ACCURATE) PICTURE.....

Normalized Relative Intensity - 2016 Automotive Industry

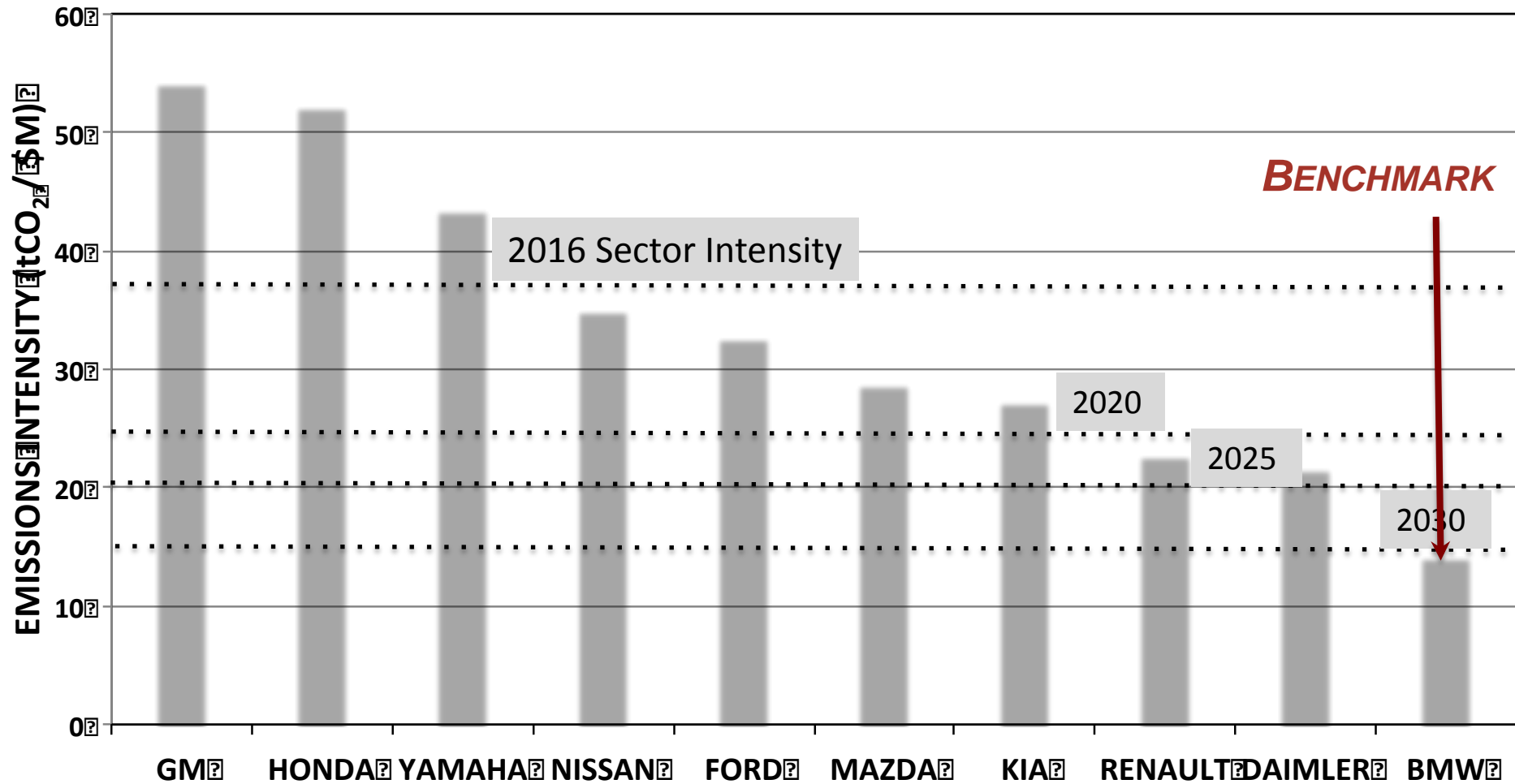


REQUIRED REDUCTIONS BY 2030



A MOVING TARGET

2016 Emissions Intensity Automotive Sector



IF BMW CAN DO IT; SO CAN EVERYONE ELSE!

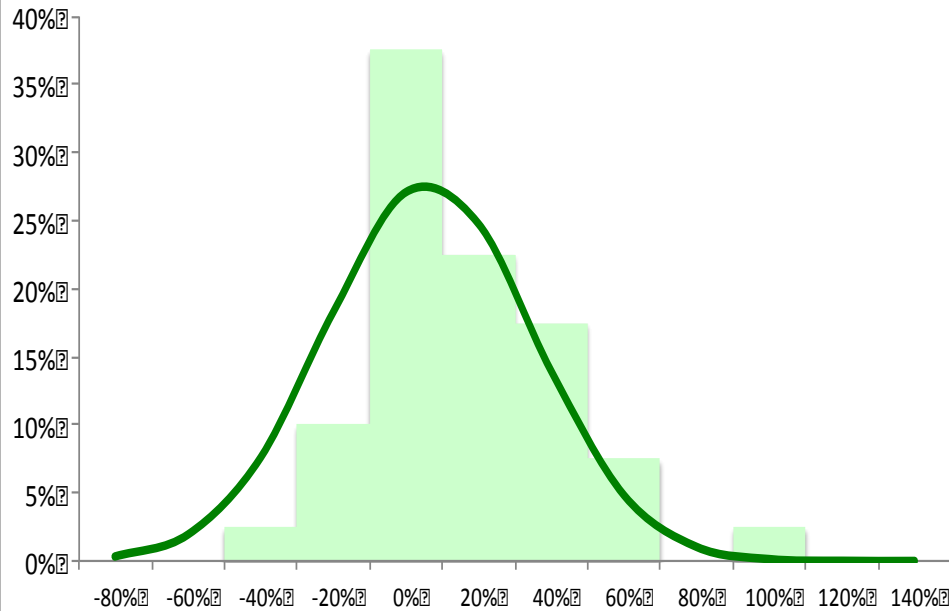
IN CONCLUSION:

- ✧ **A SIMPLE AND PRACTICAL SCIENCE-BASED FRAMEWORK ALLOWING THE CASCADING OF A GHGE REDUCTION TARGET FROM THE NATIONAL TO THE ENTITY LEVEL**
- ✧ **THE FRAMEWORK IS DYNAMIC AND TAKES INTO ACCOUNT MARKET GROWTH AS WELL AS COMPETITIVE PRESSURE BETWEEN ENTITIES AT THE SECTOR LEVEL**
- ✧ **ALLOWS TO READILY SPOT ENTITIES HITTING THEIR SECTOR-SPECIFIC TARGETS FROM THE ONES THAT ARE NOT**
- ✧ **FINALLY, IT HELPS IDENTIFY THE BENCHMARK ENTITIES THAT COULD PROVIDE THE LEADERSHIP AND LONG-TERM ORIENTATION TO THE REST OF THE SECTOR.**

THANK YOU!

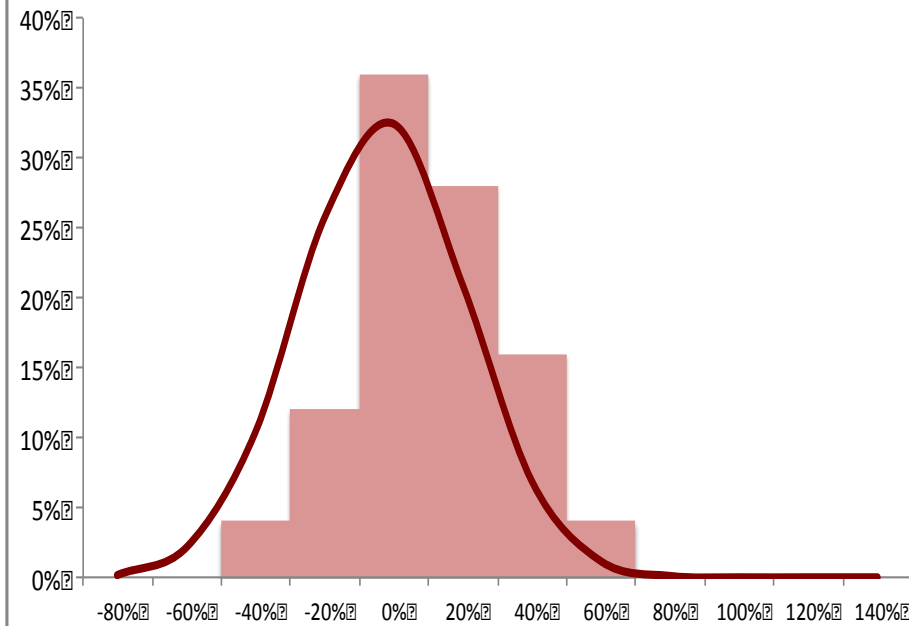
CHANGE IN ABSOLUTE EMISSIONS

GRI Companies
2008-2012 Cumulative Change in CO₂ Emissions (Scope 1+2)



MEAN = 6.24%
(INCREASE)

Non-GRI Companies
2008-2012 Cumulative Change in CO₂ Emissions (Scope 1+2)

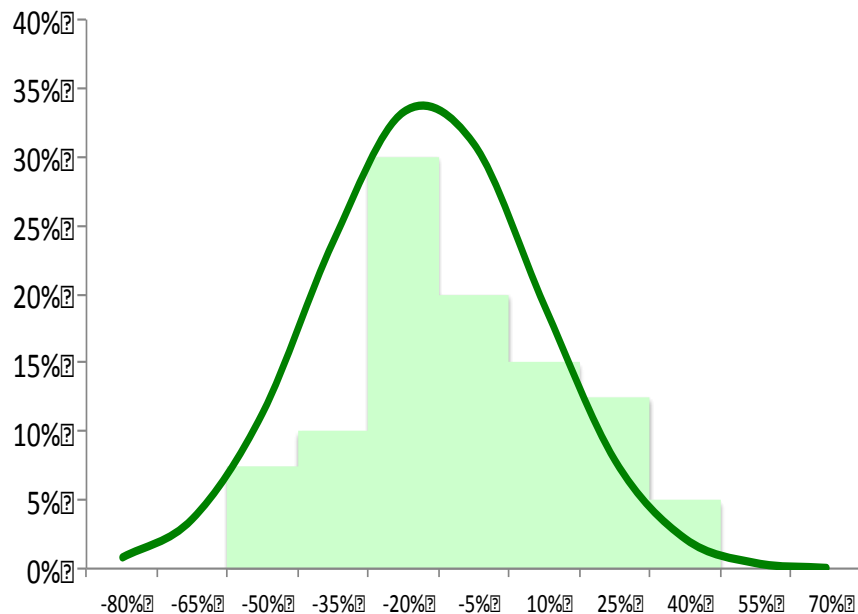


MEAN = - 3.18%
(DECREASE)

CHANGE IN EMISSION INTENSITY

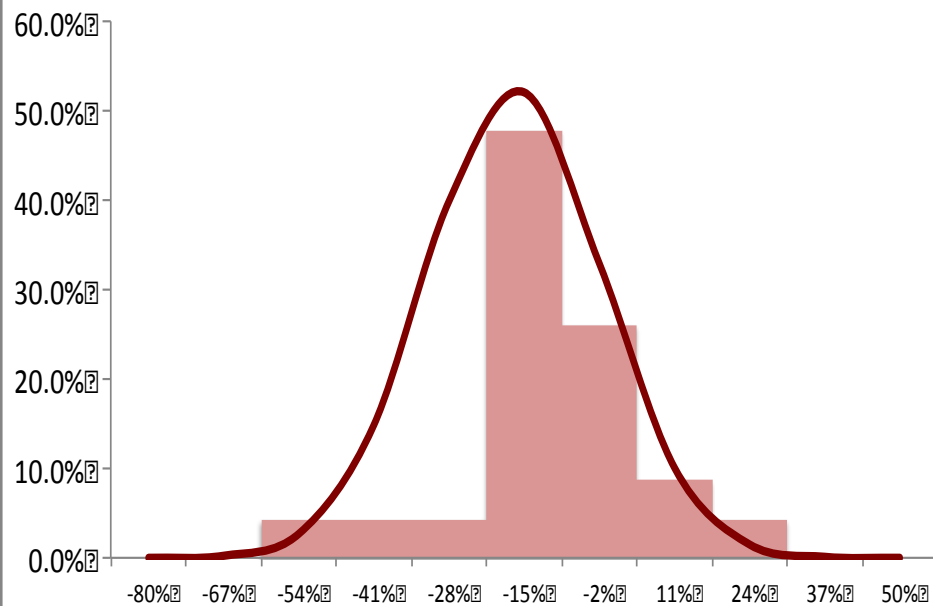
$$\text{Emission Intensity} = \text{Mt-CO}_2 / \$\text{M-Sales}$$

GRI Companies
2008-2012 Cumulative Change in CO₂ Emission Intensity
(Scope 1+2)



MEAN -15.18%
(DECREASE)

Non-GRI Companies
2008-2012 Cumulative Change in CO₂ Emission Intensity
(Scope 1+2)



MEAN = - 16.7%
(DECREASE)

Thanks to the hydro-fracking revolution, the switch to the cheaper (and cleaner) natural gas, accounts by itself in a reduction of CO₂ emissions amounting to:

**16% reduction/unit production
from 2008-2012**

15 YEARS IN – IS IT WORKING?

- No known quantitative study of impact of reporting on any sustainability metric relative to non-GRI reporting companies
- May papers researched impact of sustainability reporting on stakeholder engagement, environmentally friendly visibility and financial ROI, but none on direct impact on any key sustainability performance metrics
- Difficulty in getting enough large sample of the non-reporting data
- Of all the metrics, only CO₂ emissions data is available through the Carbon Disclosure Project (CDP)

Source: L. Belkhir, S. Bernard and S. Abdelgadir, “Does GRI reporting impact environmental sustainability? A cross-industry analysis of CO₂ emissions performance between GRI-reporting and non-reporting companies”, *Management of Environmental Quality: An International Journal*, 28.2 (2017): 138-155.