Introducing a new standard & methodology to disclose and measure climate impact for capital goods and consumer durables

Eric Koenig – Strategy VP Oil & Gas & Petrochemicals

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Sustainability megatrends for our industries

Community / Public image

Access to Capital

Profitability through efficiency

Digital Transformation

Shareholder Relations

Shift to renewables

Workforce Efficiency

Portfolio diversification

Corporate resiliency

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Schneider Electric provides energy and automation digital solutions for efficiency and sustainability

Key figures for 2019

5% of revenues devoted to R&D

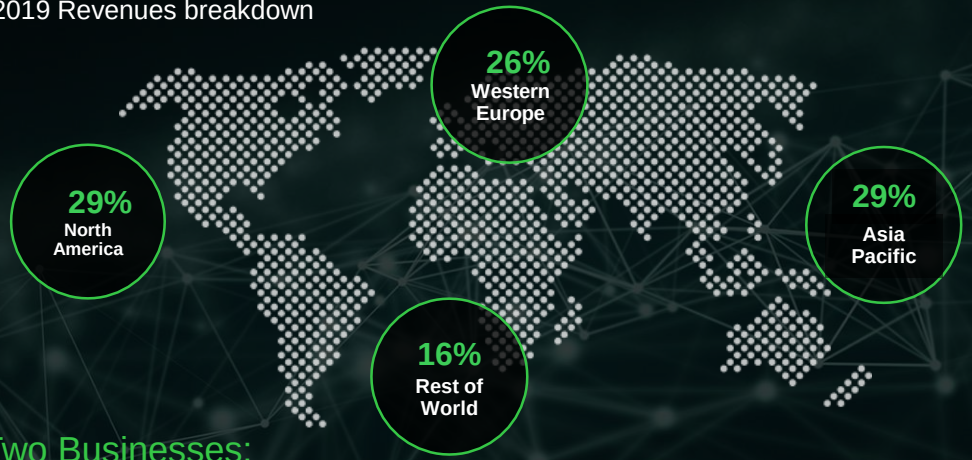
€27.2 billion
2019 revenues

41%
of revenues in new economies

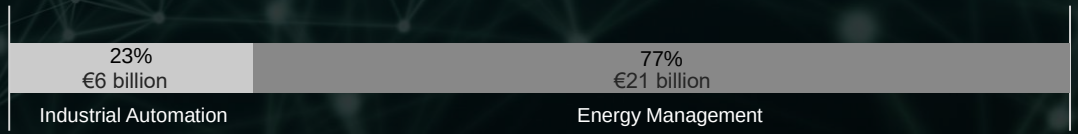
135,000+
Employees in over 100 countries

A well-balanced global presence

2019 Revenues breakdown



Two Businesses:



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Accelerating on our climate commitments

Climate Week, September 2020

2025

- **Carbon neutral** operations *(with CO_2 offsets)*
- **Climate positive impact with customers**
- Train **1 million** underprivileged people
- Phase out SF6
- Provide access to energy to **50 million** people
- Support **10,000** entrepreneurs
- Invest **10bn€** in green R&D (2015-2025)

2030

SCIENCE BASED TARGETS

Validated 1.5°C science-based target

- **Net-zero CO_2 operations** *(no CO_2 offsets)*
- **Supplier** engagement & green materials
- **-40%** on customers' CO_2 emissions

RE 100 EP 100 EV 100

2040

- **Carbon neutral products**, ie carbon neutral on full end-to-end CO_2 emissions *(with CO_2 offsets)*

2050

- Operate in a **net zero-CO_2 supply chain** *(no CO_2 offsets)*
- **Engage** actively with sustainable business initiatives such as the UN Global Compact

UN Global Compact Global Compact LEAD

SUSTAINABLE DEVELOPMENT GOALS

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80% of our product turnover cover by a PEP

Providing detailed information on product environmental attributes (incl. Carbon Footprint)

SCHN-00227-V01.01-EN - PEP ECOPASSPORT® - Masterpact MTZ1 16H1 three pole draw out circuit breaker with Micrologic 5.0X control unit

Product Environmental Profile

Masterpact MTZ1 16H1 three pole draw out circuit breaker with Micrologic 5.0X control unit

PEP eco PASS PORT®

Schneider Electric

ENVPEP1706010_V1 - SCHN-00227-V01.01-EN

06/2017

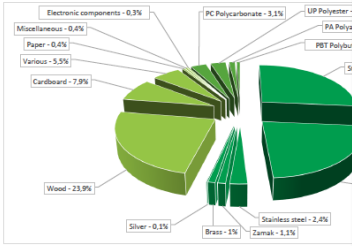
SCHN-00227-V01.01-EN - PEP ECOPASSPORT® - Masterpact MTZ1 16H1 three pole draw out circuit bre

General information

Representative product	Masterpact MTZ1 16H1 three pole draw out circuit breaker w
Description of the product	The Masterpact MTZ1 16 H1 three pole draw out circuit brea protection of a low voltage electrical distribution system with rated current of 1600A. The breaker can be remotely operated using closing XF rele The Micrologic 5.0X control unit fitted with the circuit breaker installation under fault conditions.
Functional unit	Protect during 20 years the installation against overloads an voltage up to 690VAC and 1600A rated current. This protect following parameters: - Number of poles: 3 - Rated service breaking capacity Ics at 440VAC = 42 kA (Ic - Tripping curve: long time, short time and instantanous prot

Constituent materials

Reference product mass: 52300 g including the product, its packaging and addition



Substance assessment

Products of this range are designed in conformity with the requirements of the RoHS directive (Europ 2011) and do not contain, or only contain in the authorised proportions, lead, mercury, cadmium, hex (polybrominated biphenyls - PBB, polybrominated diphenyl ethers - PBDE) as mentioned in the Direc

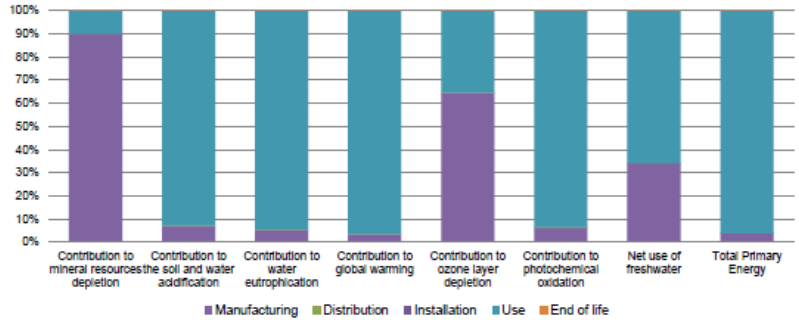
As the products of the range are designed in accordance with the RoHS Directive (European Directiv they can be incorporated without any restriction in an assembly or an installation subject to this Direc

Details of ROHS and REACH substances information are available on the Schneider-Electric Green http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-prem

ENVPEP1706010_V1 - SCHN-00227-V01.01-EN

SCHN-00227-V01.01-EN - PEP ECOPASSPORT® - Masterpact MTZ1 16H1 three pole draw out circuit breaker with Micrologic 5.0X control unit

Compulsory indicators		Masterpact MTZ1 16H1 three pole draw out circuit breaker with Micrologic 5.0X control unit - LV847240					
Impact indicators	**Unit**	**Total**	**Manufacturing**	**Distribution**	**Installation**	**Use**	**End of Life**
Contribution to mineral resources depletion	kg Sb eq	9,36E-02	8,43E-02	0*	0*	9,30E-03	0*
Contribution to the soil and water acidification	kg SO_2 eq	7,28E+00	4,93E-01	2,63E-02	4,98E-03	6,75E+00	1,03E-02
Contribution to water eutrophication	kg PO_4^{3-} eq	1,89E+00	9,94E-02	6,05E-03	1,17E-03	1,78E+00	2,67E-03
Contribution to global warming	kg CO_2 eq	6,45E+03	2,19E+02	5,86E+00	1,59E+00	6,22E+03	4,50E+00
Contribution to ozone layer depletion	kg CFC11 eq	1,49E-04	9,64E-05	0*	1,22E-07	5,27E-05	2,29E-07
Contribution to photochemical oxidation	kg C_2H_4 eq	8,53E-01	5,31E-02	1,87E-03	5,27E-04	7,97E-01	1,09E-03
Resources use	**Unit**	**Total**	**Manufacturing**	**Distribution**	**Installation**	**Use**	**End of Life**
Net use of freshwater	m3	1,15E+01	3,93E+00	0*	1,95E-03	7,56E+00	4,42E-03
Total Primary Energy	MJ	1,06E+05	3,99E+03	7,85E+01	2,41E+01	1,02E+05	4,94E+01



Optional indicators		Masterpact MTZ1 16H1 three pole draw out circuit breaker with Micrologic 5.0X control unit					
Impact indicators	**Unit**	**Total**	**Manufacturing**	**Distribution**	**Installation**	**Use**	**End of Life**
Contribution to fossil resources depletion	MJ	1,00E+05	2,88E+03	8,23E+01	2,26E+01	9,72E+04	4,64E+01
Contribution to air pollution	m³	7,43E+05	9,75E+04	2,40E+02	1,76E+02	6,45E+05	3,63E+02

DEMONSTRATING THAT… *'MORE SCHNEIDER IS A BETTER CLIMATE'*

measuring the positive CO_2 impact of our offers for our customers

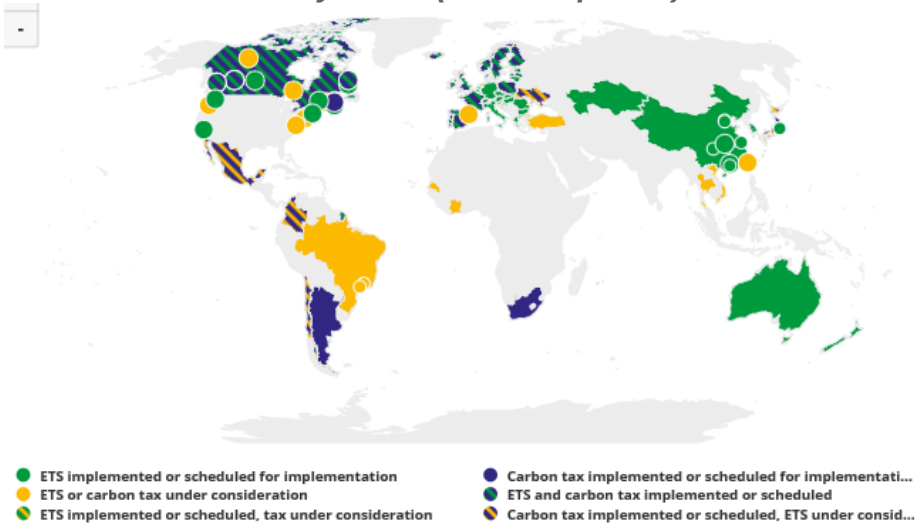
Customers

- CO_2 savings can generate financial savings: external price with tax and quota, internal corporate CO_2 pricing
- SE EcoStruxure architecture is a lever to achieve corporate CO_2 commitments (carbon neutrality, science-based targets, etc.)
- CO_2 savings can be associated to lower energy spent &/or better process efficiency

Investors

- « Positive impact investing » is a business opportunity for the finance sector
- Investing in low-CO_2 companies enables finance sector to reduce climate risks

Carbon pricing & emission trading systems (tax and quotas)



Source : https://carbonpricingdashboard.worldbank.org/

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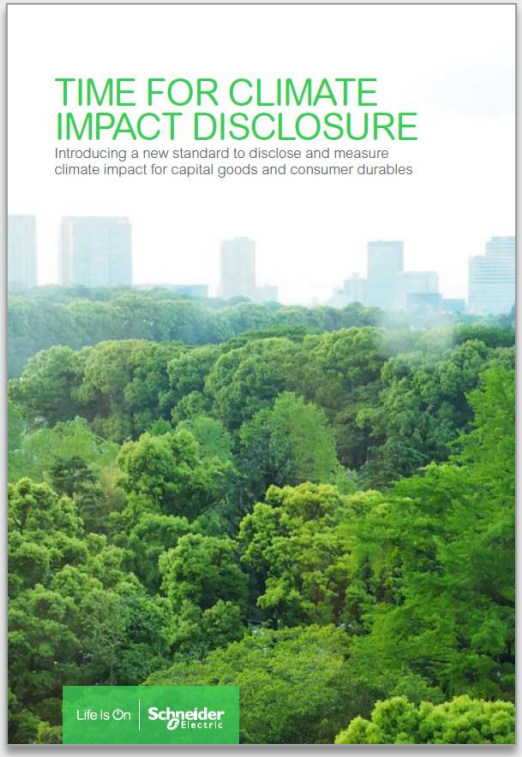
WHY DO WE SHARE OUR METHODOLOGY?



TIME FOR CLIMATE IMPACT DISCLOSURE

Introducing a new standard to measure and disclose climate impact for capital goods and consumer durables

Schneider Electric, 2019

https://www.se.com/ww/en/about-us/sustainability/for-your-business/

The current **lack of CO_2 standardization** delivers unclear messages for investors and customers.

Schneider Electric **aims to set the standard, with a robust, transparent, verified, methodology for capital goods and consumer durables.**

This methodology allow us to pursue different approaches:

- **Corporate view**, top down, measuring the aggregated impacts of all our offers
- **Product view** – based on the specific use case
- **Project view** – incorporating our products & equipment

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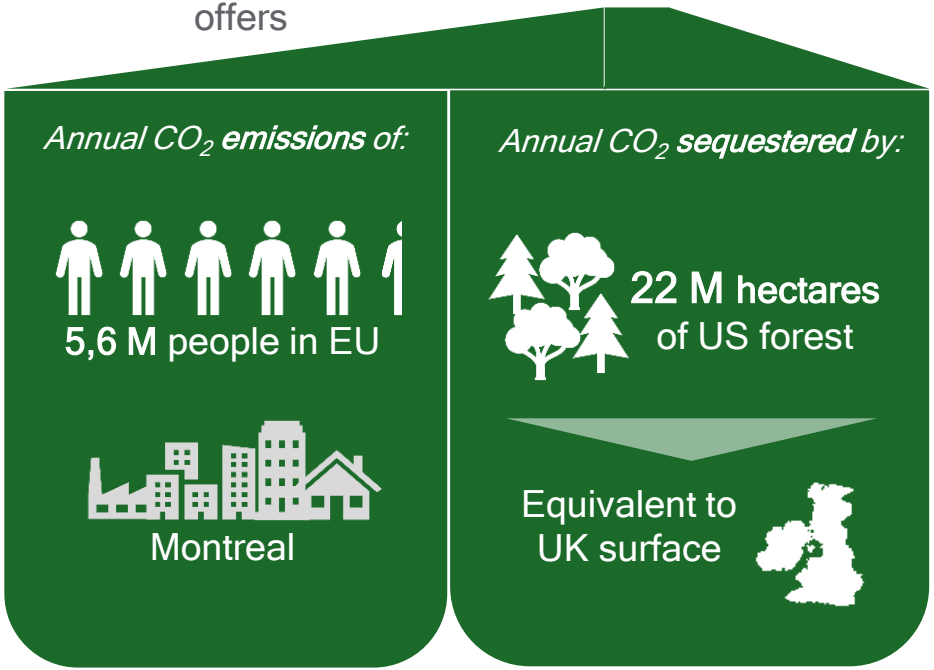
DEMONSTRATING THAT… *'MORE SCHNEIDER IS A BETTER CLIMATE'*

measuring the positive CO_2 impact of our offers for our customers

120 Mtons CO_2 saved through our offers from 2018 to 2020

45 Mtons CO_2 Per year



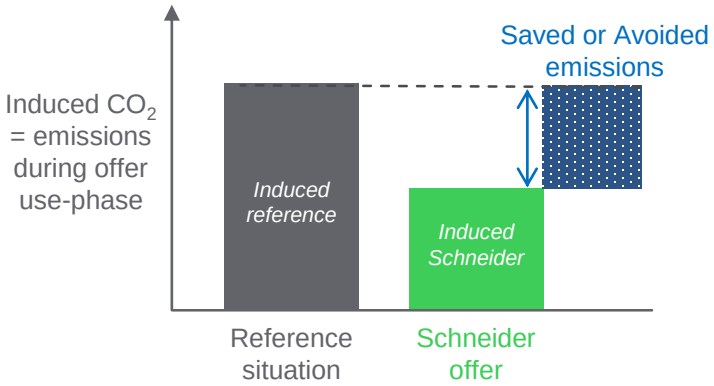
Our CO_2 methodology demonstrates the **positive CO_2 impact** of Schneider Electric's offers for customers

METHODOLOGY PRINCIPLES: STRICT DEFINITIONS, TIGHT RULES

Strictly distinguishing 1. induced, 2. saved and 3. avoided emissions during use-phase

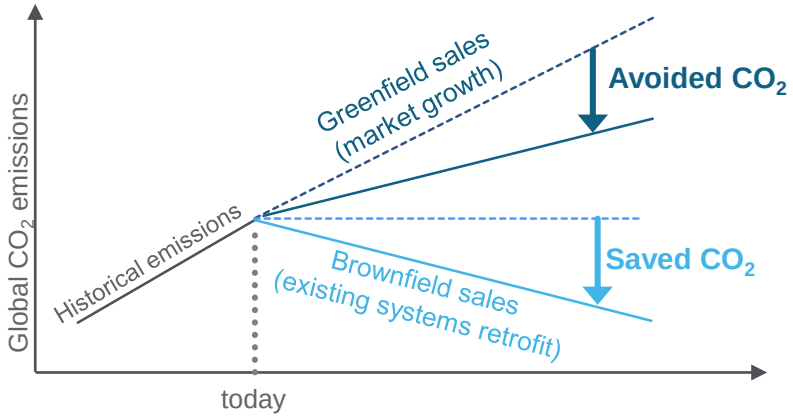
KEY #1: « NET » EMISSIONS

*…whether **saved** or **avoided***



KEY #2: «PROJECT TYPE »

*… whether **brownfield** or **greenfield***



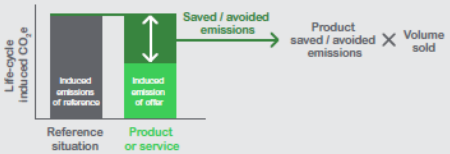
A FLEXIBLE CALCULATION METHODOLOGY

Calculation rules are top-down, using aggregated sales data, to ensure data availability, reproducibility and consistency.

1 Based on the volume sold during the year

This methodology is applicable to homogeneous lines of business for which it is possible to count sales with a "physical unit", such as a number of units, MW, kWh of energy, etc.

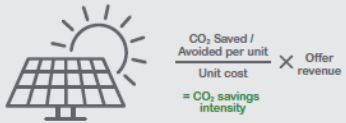
Examples: VSD, transformers, renewable projects etc.



2 Based on CO_2 saving intensity

This methodology is applicable for lines of business for which typical ratios of saved and avoided emissions in $kgCO_2/€$ of sales can be created. This is the case in industries in which CO_2 savings per € of investment can be estimated, based on market studies.

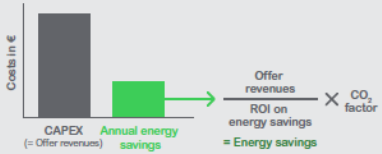
Examples: Process automation, renewables etc.



3 Based on the ROI from energy savings enabled by the offer

This methodology is applicable for lines of business that enable energy savings in a system, and that have negligible or no use-phase emissions.

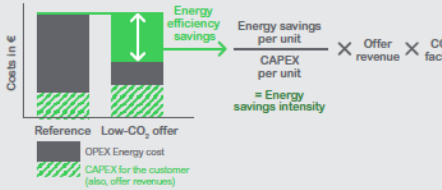
Examples: VSD, building management systems, power management systems etc.



4 Based on the share of energy costs in the offers' total lifecycle costs

This methodology is applicable for lines of business that generate significant use-phase emissions, while enabling use-phase emission savings compared to the reference situation.

Examples: Electric motors, data centers



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METHODOLOGY PRINCIPLES

A unique methodology, designed to become an industry standard

1 Transversal

- Transversal methodology framework **applicable to all capital goods**
- Covers **products, software and services**

2 Rigorous and detailed

- **Detailed calculation rules per offer/technology**, leveraging in each case the best available data (sales data, market data, expert estimates) to quantify the expected use case of our offers and associated energy and CO_2 savings

3 Conservative assumptions

- Conservative assumptions to avoid « green washing » in CO_2 savings claims
- Distinction **saved CO_2 emissions** (enabled vs brownfield sales) and **avoided CO_2 emissions** (enabled vs greenfield sales)

4 Forward-looking

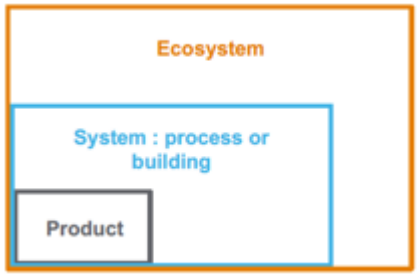
- As solutions are 10 to 20 years in average, methodology takes into account the **expected reduction of CO_2 intensity of** electricity mix and natural gas across the Globe

5 Transparent and verified

- Methodology developed with the leading independent consulting company
- Methodology **verified** by EY
- Methodology guide to ensure transparency

Case studies

3 Different boundaries to CO2 impact



Boundary	Induced, avoided and saved emissions
1 **Product**	• CO_2 use-phase emissions due to the internal consumption of the product and CO_2 efficiency v/s reference product *Examples : Transformers, UPS, etc.*
2 **System : process or building**	• CO_2 savings delivered to the clients' process or building thanks to the offer sold *Examples : Variable speed drives, BMS in buildings, Process automation solutions, energy audit, energy performance contracting, etc.*
3 **Ecosystem**	• CO_2 savings in a ecosystem thanks to increased connectivity and managing capabilities of an infrastructure enabled by the offer sold or thanks to superior quality of service and operation *Examples : Smart grid solutions (that enable renewable integration in electricity grid, energy demand management), Field service enabling better ecosystem energy efficiency and longer asset lifetime, etc.*

A PRACTICAL EXEMPLE OF A SCHNEIDER ELECTRIC OFFER
Variable Speed Drives (VSD)

Variable Speed Drives enable electricity savings by motors, through speed and rotational force regulation
Eg: cooling towers, water treatment…
They also optimize motor startup and hence have induced impact on power generation dimensioning

Saved and avoided CO_2 with VSD = VSD sales per country and per power output (**SE sales reporting**) x % brownfield (saved) & % greenfield (avoided) (**Expert estimate**) x VSD net energy efficiency (**Expert estimate**) x Forward-looking electricity emission factor per country (**IEA scenario**) x VSD life expectancy (**Industry data**) - Infrastructure emissions ($kgCO_2e$) (**SE carbon footprint**)

***Brownfield**: % of sales for existing motors with old VSD, % for existing motors with no VSD*
***Greenfield**: % for new motors*

Net value - taking into account VSD internal consumption

Average emission factor over VSD life

When possible: conventional value from industry standards

To consider manufacture, distribution and central services emissions of SE

Our 2018 VSD sales have allowed our customers to save (ie in Brownfield projects alone)

10 $MtCO_2$

A PRACTICAL EXEMPLE OF A SCHNEIDER ELECTRIC ARCHITECTURE OPTIMIZATION

Savings figures compared to current situation for a large electrical substation

substation	CAPEX					OPEX
	Electrical Distribution (ED)	ED Technical Building	**TOTAL savings**	ED CO2 avoided	Technical building CO2 avoided	ED CO2 avoided Over 20 years
Main	6M€	9M€	15M€	750Tons	240Tons	10120Tons
Train (x2)	1.5M€	2M€	3.5M€	454Tons	51Tons	1780Tons
BOG	1.5M€	2.8M€	4.3M€	400Tons	74Yons	1780Tons
TOTAL			**26M€**	**2500Tons**		**15460 Tons**

Note:

- *Combustion emissions from IPCC and upstream emissions from ADEME*
- *CO2 valorisation = 35€/Tons → low impact*

A PRACTICAL EXEMPLE OF A SCHNEIDER ELECTRIC ARCHITECTURE OPTIMIZATION

Example Energy Management Benefits on a 450k/bbd Oil Refinery

Area of Savings	Actions	Avg Energy Improvement (affected processes)	Avg Profit Increase (M$/yr)	Avg CO2 savings* (KTonnes/Year)	Avg Equivalent number of cars off the road (annual)
Improved Operation and Control	Improve online monitoring, control and optimization	3%	$75M	162	35,000
Heat Recovery Optimization	Increase heat recovery within and across process units.	5%	$170M	351	76,500
Advanced Process Technology	Employ new process technology, design, equipment and catalyst technology	5%	$70M	270	58,500
Utilities Optimization	Optimization and controls for onsite steam and power production/supply and demand optimization	2.5%	$65M	135	29,000
Aggregate Benefit		**15.5%**	**$380M**	**918**	**199,000**

Key take aways – CO_2 savings for customers

- **Sustainability is good Business**: companies that embrace the climate transition generate short-term gains from energy efficiency and appear more likely to succeed in the long-term. Time has come for **climate impact disclosure**
- **More and more companies adopt science-based CO_2 reduction targets, and CO_2 has a price in many areas** (carbon tax, quotas, voluntary credit schemes, internal CO_2 price in companies)
- **This methodology aims at becoming an industry standard** applicable across capital goods and consumer durables sectors. It is pragmatic, robust and flexible to enable fast adoption
- **Schneider Electric aims to demonstrate the positive CO2 impact of EcoStruxure** offers, with 120 $MtCO_2$ saved by customers over 3 years
- **The methodology is robust and conservative** (distinguishing saved from avoided emissions and using forward-looking emission factors), transparent and has been verified by an independent organization

Thanks for your attention!

If you want to discuss further…

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