

SUMMARY OF ENVIRONMENTAL DATA

Energy (a)									
Type	Unit	2007	2012	2013	2014	2015	2016	2017	2018
Total Combustion On-site (Direct) (d)	1,000 GJ	2,151	1,790	1,828	1,744	1,828	1,660	2,090	1,766
Natural Gas	1,000 GJ	1,848	1,390	1,400	1,322	1,371	1,207	1,100	1,017
Diesel	1,000 GJ	303	390	416	411	448	443	988	748
Propane	1,000 GJ	-	10	11	11	10	9	3	1
Total Purchased Energy (Indirect) (e)	1,000 GJ	2,190	2,059	1,990	1,962	1,983	1,876	1,619	1,518
Fossil Fuel	1,000 GJ	1,541	1,545	1,435	1,418	1,419	1,314	1,039	937
Hydro	1,000 GJ	287	191	210	200	217	123	131	129
Nuclear	1,000 GJ	240	195	185	185	178	148	141	132
Nonspecified Renewables	1,000 GJ	106	114	152	144	156	277	299	301
Nonspecified	1,000 GJ	16	13	8	14	13	13	8	19
Total Energy	1,000 GJ	4,341	3,849	3,817	3,706	3,812	3,535	3,709	3,284
Total Energy Normalized to Net Sales	1,000 GJ/\$B net sales	303	231	210	192	182	161	170	146
Confirmed Results of Energy Reduction Projects (b,c)	1,000 GJ	-	919	106	131	175	244	397	524

Carbon (a)									
Type	Unit	2007	2012	2013	2014	2015	2016	2017	2018
Total Carbon Combustion On-site (Scope 1) (f)	1,000 MT CO ₂ Eq	126	98	101	96	103	94	125	104
Natural Gas	1,000 MT CO ₂ Eq	104	70	71	67	71	62	56	51
Diesel	1,000 MT CO ₂ Eq	22	27	29	29	32	31	68	52
Propane	1,000 MT CO ₂ Eq	-	0.63	1	1	1	1	0.2	0.1
Total Carbon Purchased Energy (Scope 2) (g)	1,000 MT CO ₂ Eq	290	287	263	258	266	198	154	160
Electricity	1,000 MT CO ₂ Eq	284	283	259	254	263	195	150	156
Steam	1,000 MT CO ₂ Eq	6	4	4	4	3	3	3	4
Total Carbon from Energy	1,000 MT CO ₂ Eq	416	385	363	354	369	291	278	263
Total Carbon Normalized to Net Sales	1,000 MT CO ₂ Eq/\$B net sales	29.1	23.1	20	18	18	13	13	12
Total Carbon Normalized to Total Energy	MTCO ₂ Eq/GJ	0.095	0.100	0.095	0.10	0.097	0.082	0.075	0.085
Confirmed Results of CO ₂ Reduction Projects (b,c)	1,000 MT CO ₂ Eq	-	84	8	10	13.5	20.2	34	42

SUMMARY OF ENVIRONMENTAL DATA

Other Carbon (h)									
Type	Unit	2007	2012	2013	2014	2015	2016	2017	2018
Carbon Sales Fleet (Scope 1)	1,000 MT CO ₂ Eq	13	15	16	13	13	16	32	44
Carbon Sales Fleet Emissions Avoided (Scope 1) (o)	1,000 MT CO ₂ Eq	-	4	1	2	2.3	2	3	3
Carbon Executive Air Fleet (Scope 1)	1,000 MT CO ₂ Eq	5	6	5	5	6	6	5	4
Carbon from Fugitive Refrigerant Emissions (Scope 1)	1,000 MT CO ₂ Eq	-	-	4.2	5.5	4.0	1.6	2.1	8.6
Carbon Business Travel - Commercial (Scope 3) (i,j)	1,000 MT CO ₂ Eq	-	65	67	65	74	78	85	59
Carbon from Amgen Materials Transportation (Scope 3) (i,j)	1,000 MT CO ₂ Eq	-	25	27	25	29	24	40	33
Carbon from Staff Commuting (Scope 3)	1,000 MT CO ₂ Eq	-	-	-	-	-	-	60	56
Carbon from Waste Disposal (Scope 3)	1,000 MT CO ₂ Eq	-	-	-	-	-	-	1.6	1.4

Water (a)									
Type	Unit	2007	2012	2013	2014	2015	2016	2017	2018
Total Water Withdrawal (k,c)	1,000 CM	3,286	2,720	2,725	2,487	2,520	2,351	2,320	2,093
Municipal	1,000 CM	3,249	2,707	2,712	2,482	2,453	2,341	2,293	2,080
Other - (Reservoir) Trucked In	1,000 CM	8	-	-	-	-	-	-	-
Ground	1,000 CM	29	13	13	5	68	10	27	13
Total Water Withdrawal Normalized to Net Sales	1,000 CM/\$B net sales	230	163	150	129	120	107	106	93
Water Fate (k)	1,000 CM	-	2,720	2,739	2,487	2,512	2,335	2,319	2,093
Consumed Into Products	1,000 CM	-	21	21	28	71	28	28	31
Lost to Evaporation	1,000 CM	-	713	684	657	736	603	610	562
Discharged to Treatment	1,000 CM	-	1,662	1,758	1,551	1,449	1,495	1,490	1,328
Discharged Directly to Environment	1,000 CM	-	324	276	250	256	210	191	172
Recycled	1,000 CM	-	535	655	525	759	642	608	572
Percentage of Water Recycled per Total Water Withdrawal	%	-	20	24	21	30	28	26	27
Confirmed Results of Water Reduction Projects (b)	1,000 CM	-	686	19	36	142	203	266	278

SUMMARY OF ENVIRONMENTAL DATA

Waste (a, c)									
Type	Unit	2007	2012	2013	2014	2015	2016	2017	2018
Recycling Rate (l)	%	34.9	52.8	51.3	50.4	52.1	54	49	49
Total Routine Waste	MT	10,146	9,018	8,780	8,929	10,054	10,330	9,856	9,642
Hazardous Waste	MT	1,343	1,180	1,157	1,113	1,455	1,815	2,179	1,984
Recycled	MT	251	245	105	84	190	286	281	281
Incinerated for Energy Recovery	MT	375	347	402	387	447	683	901	795
Incinerated Not for Energy Recovery	MT	523	422	468	473	683	726	860	738
Landfilled	MT	118	126	147	132	102	94	115	89
Treated (m)	MT	76	40	36	38	33	27	22	81
Nonhazardous Waste	MT	8,803	7,838	7,623	7,816	8,599	8,515	7,677	7,658
Composted	MT	260	583	532	628	947	814	761	728
Reused	MT	32	44	274	178	153	159	129	176
Recycled	MT	2,999	3,890	3,583	3,610	3,945	4,258	3,620	3,441
Incinerated for Energy Recovery	MT	432	576	604	605	700	762	601	603
Incinerated Not for Energy Recovery	MT	194	79	48	88	259	188	162	202
Landfilled	MT	4,885	2,662	2,530	2,661	2,543	2,273	2,367	2,462
Treated (m)	MT	-	4	52	47	52	61	38	46
Total Routine Waste Normalized to Net Sales	MT/\$B net sales	709	542	483	462	480	472	452	428
Total Nonroutine Waste (n)	MT	31,415	16,902	8,452	3,722	2,253	4,529	4,852	7,509
Confirmed Results of Routine Waste Reduction Projects (b)	MT	-	1,094	320	441	688	850	1,038	1,297

Fleet (o)									
Type	Unit	2007	2012	2013	2014	2015	2016	2017	2018
Sales Fleet Fuel Efficiency	MPG-US	19	23	25	26	27	26	28	29
Sales Fleet Fuel Use Avoided	1,000 GL	-	427	104	289	498	704	1,031	1,472
Sales Fleet Fuel Use	1,000 GL	1,498	1,739	1,738	1,381	1,414	1,750	3,415	4,695

Compliance (a)									
Type	Unit	2007	2012	2013	2014	2015	2016	2017	2018
Environmental Notices of Violation (NOVs) (p)	1 NOV	8	2	2	6	0	1	1	3

SUMMARY OF ENVIRONMENTAL DATA - NOTES

General

(a)	Amgen has included data from 16 facilities covering energy and carbon, water and waste. The facilities represent approximately 88 percent of Amgen's worldwide facility space based on total square feet. Included facilities are in Thousand Oaks, California, U.S.; West Greenwich, Rhode Island, U.S.; Juncos, Puerto Rico, U.S.; Louisville, Kentucky, U.S.; South San Francisco, California, U.S.; Cambridge and Woburn, Massachusetts, U.S.; Burnaby, Canada; Breda, Netherlands; Dun Laoghaire, Ireland; Uxbridge and Cambridge, United Kingdom; São Paulo, Brazil; Yenibosna and Sekerpinar, Turkey; and Tuas, Singapore. This includes leased buildings where we have operational control over building infrastructure, including utilities.
(b)	Measurement and verification of conservation and reduction projects for energy and carbon, water and waste are based on adaptation of the International Performance Measurement and Verification Protocol (IPMVP). Project measurements are conducted using reasonable means, including direct measurements and scientific estimations as appropriate. Values for conservation and reduction projects represent year-over-year, cumulative and continuing avoidance based on a 2007 baseline, then re-baselined in 2012 to match the next-generation 2020 Target design.
(c)	Immaterial changes to 2007–2018 data may have occurred due to refinements in calculations. All changes have been confirmed through a documented change control process.

Energy

(d)	Direct energy use results from the operation of equipment that is owned or controlled by Amgen at the facilities listed in note (a). Data on the use of natural gas, propane and diesel in boilers, furnaces and HVAC are recorded from utility bills or purchase records. Data on the use of diesel in emergency generators are recorded from purchase records or meter readings and, in some cases, estimated from run-hours. Utility bills recorded in units of volume are converted to energy. Energy from emergency generators recorded as run-hours is estimated using the manufacturer's specified fuel-feed rate for each generator.
(e)	Indirect energy use results from purchased energy in the forms of electricity and steam at the Amgen facilities listed in note (a). Data on the use of electricity and steam are recorded from utility bills.

Carbon

(f)	Scope 1 carbon emissions result from direct energy sources defined in note (d). Additional Scope 1 Carbon emissions from sales fleet, executive air fleet and fugitive emissions from chillers, coolers and HVAC are found in the Other Carbon category in this data summary. Carbon emissions from natural gas sources are calculated using the U.S. EPA's Center for Corporate Climate Leadership Emission Factors for Greenhouse Gas Inventories (9 March 2018) for all U.S. sites; the 2017 B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions for Amgen's facility in Burnaby, Canada; and the U.K. Defra's GHG Conversion Factors for Company Reporting (Standard set for 2018) for Amgen's other international facilities. Carbon emissions data from propane and diesel fuel sources are calculated using U.S. EPA's Center for Corporate Climate Leadership Emission Factors for Greenhouse Gas Inventories (9 March 2018). Carbon data from direct energy sources prior to 2011 were calculated using emission factors from the Greenhouse Gas Protocol Cross-Sector Tools-Stationary Combustion-V.1.0 (July 2009). Scope 1 emissions that are not included in this data summary include process-related emissions from cell respiration (carbon as a by-product) and pH adjustments (CO ₂ injection). Analysis of these sources in 2013 showed that cell respiration and emissions from pH adjustments are negligible (less than 0.1 percent of our total carbon emissions).
(g)	Scope 2 carbon market-based emissions result from indirect energy sources defined in note (e). Carbon emissions from purchased electricity are calculated using emission factors from U.S. EPA eGRID Summary Tables 2016 for all U.S. locations except Amgen's facility in Puerto Rico, which are calculated using The Climate Registry Emission Factors for "U.S. territories (not an eGRID Region)" (May 1, 2018), and Amgen's facility in San Francisco, which are calculated using a supplier specified emission factor. Carbon emissions from purchased electricity for Amgen's facilities in Singapore, Brazil and Turkey are calculated using emission factors from the International Energy Agency's CO ₂ emissions from fuel combustion 2018. Carbon emissions from purchased electricity for Amgen's facilities in the United Kingdom and Ireland are calculated using supplier specific emissions factors. Carbon emissions from purchased electricity for Amgen's facility in British Columbia, Canada are calculated using regional emission factors. Carbon emissions from purchased electricity for Amgen's Netherlands facility are covered by a renewable energy certificate. Carbon data from purchased steam is calculated using an emission factor provided by the supplier for Amgen's facility in Cambridge, Massachusetts. Carbon data from indirect energy sources prior to 2011 were calculated using emission factors from U.S. EPA eGRID2007 Version 1.1 for U.S. facilities.

SUMMARY OF ENVIRONMENTAL DATA - NOTES

Other Carbon

(h)	The Other Carbon category contains additional Scope 1 and Scope 3 carbon emissions that are tracked. Carbon emissions from our executive air fleet and sales fleet are calculated using emission factors from the U.S. EPA's Center for Corporate Climate Leadership Emission Factors for Greenhouse Gas Inventories (9 March 2018). U.S. sales fleet fuel use and mileage data are collected at the pump for Amgen leased vehicles. Carbon emissions generated from miles driven by U.S. Beginning in 2017, sales fleet encompasses our U.S. sales fleet and international fleets. This represents approximately 90 percent of our sales fleet based on distance driven. Carbon emissions from our commercial business travel are calculated by Amgen's travel provider. Carbon emissions from Amgen's material transportation have been provided by the carrier using their own specific methods. Fugitive emissions from process equipment (e.g., refrigerant from refrigeration and HVAC equipment) are calculated using emission factors from the Intergovernmental Panel on Climate Change. Processes are in place to maintain chillers, coolers and HVAC equipment to prevent unintended emissions.
(i)	Scope 3 carbon emissions are a consequence of the activities of the company but occur from sources not owned or controlled by the company. Scope 3 carbon emissions that are currently tracked include emissions from Amgen's commercial business travel (air and rail), upstream material transportation, staff commuting, fuel-related activities and disposal of waste.
(j)	Commercial business travel was not tracked in 2007 or 2008. Material transportation was not tracked from 2007 to 2011. The accuracy of carbon emissions tracking from chillers, coolers, and HVAC improved in 2013 and will now be reported going forward.

Water

(k)	Immaterial discrepancy between values for total water fate and total water withdrawal is due to rounding and compilation of individual facility totals.
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Waste

(l)	The recycle rate is the total routine recycled, composted and reused weight divided by the total weight of routine waste.
(m)	Treatment means the physical, thermal, chemical or biological processes that change the characteristics of the waste in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery.
(n)	Nonroutine waste constitutes waste generated outside the normal operations of our facilities and consists mainly of construction and demolition waste.

Fleet

(o)	Emissions and fuel use avoided are the result of improvements in fleet efficiency from years 2007 through 2012 based on a 2007 baseline and years 2013+ based on a 2012 baseline. Beginning in 2017, sales fleet encompasses our U.S. sales fleet and international fleets. This represents approximately 90 percent of our sales fleet based on distance driven.
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Compliance

(p)	Environmental notices of violation (NOVs) reported that resulted from agency inspections.
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SUMMARY OF ENVIRONMENTAL DATA - ASSURANCE

INDEPENDENT LIMITED ASSURANCE STATEMENT



To: The Stakeholders of Amgen

Introduction and Objectives of Work

Bureau Veritas North America, Inc. (Bureau Veritas) has been engaged by Amgen to provide limited assurance of its selected environmental and safety data. This Assurance Statement applies to the related information included within the scope of work described below.

Scope of Work

The scope of our work was limited to assurance over the following environmental and safety data included within Amgen's 2018 Responsibility Highlights Report ('the Report') for the period of calendar year 2018 (the 'Selected Information'):

- Energy Use (Total, Direct and Indirect)
- Greenhouse Gas Emissions (Scope 1, Scope 2 location-based and market-based)
- Water Withdrawal and Fate
- Waste Quantities and Disposition
- Recordable Case Rate
- Days Away Case Rate
- Environmental Notices of Violation

Reporting Criteria

The Selected Information needs to be read and understood together with the description of the Selected Information in the Report. The reporting criteria for greenhouse gas emissions was the World Resources Institute (WRI)/World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol Corporate Accounting and Reporting Standard.

Limitations and Exclusions

Excluded from the scope of our work is any verification of information relating to:

- Text or other written statements associated with Amgen's 2018 Responsibility Highlights Report and amgen.com
- Activities outside the defined verification period of Calendar Year 2018

This limited assurance engagement relies on a risk based selected sample of sustainability data and the associated limitations that this entails. This independent statement should not be relied upon to detect all errors, omissions or misstatements that may exist.

Responsibilities

This preparation and presentation of the Selected Information in the Report are the sole responsibility of the management of Amgen.

Bureau Veritas was not involved in the drafting of the Report or of the Reporting Criteria. Our responsibilities were to:

- obtain limited assurance about whether the Selected Information has been prepared in accordance with the Reporting Criteria;
- form an independent conclusion based on the assurance procedures performed and evidence obtained; and

SUMMARY OF ENVIRONMENTAL DATA - ASSURANCE

- report our conclusions to the management of Amgen.

Assessment Standards

We performed our work in accordance with Bureau Veritas' standard procedures and guidelines for external Assurance of Sustainability Reports and International Standard on Assurance Engagements (ISAE) 3000 Revised, Assurance Engagements Other than Audits or Reviews of Historical Financial Information (effective for assurance reports dated on or after Dec. 15, 2015), issued by the International Auditing and Assurance Standards Board. Greenhouse Gas Emissions were verified in accordance with and ISO Standard 14064-3 Greenhouse Gases - Part 3: Specification with Guidance for the Validation and Verification of Greenhouse Gas Assertions. A materiality threshold of ± 5 -percent was set for the assurance process.

Summary of Work Performed

As part of our independent verification, our work included:

1. Assessing the appropriateness of the Reporting Criteria for the Selected Information;
2. Conducting interviews with relevant personnel at Amgen regarding data collection and reporting systems;
3. Reviewing the data collection and consolidation processes used to compile Selected Information, including assessing assumptions made, and the data scope and reporting boundaries during a visit to Amgen's headquarters location in Thousand Oaks, California.;
4. Reviewing documentary evidence provided by Amgen;
5. Comparing a selection of the Selected Information data to the corresponding source documentation both remotely and during site visits to facilities located in Istanbul, Turkey and Juncos, Puerto Rico;
6. Reviewing Amgen systems for quantitative data aggregation and analysis; and
7. Assessing the disclosure and presentation of the Selected Information to ensure consistency with assured information.

Conclusion

On the basis of our methodology and the activities described above:

- Nothing has come to our attention to indicate that the Selected Information is not fairly stated in all material respects; and
- It is our opinion that Amgen has established appropriate systems for the collection, aggregation and analysis of quantitative data within the scope of this assurance.

A summary of data within the scope of assurance for 2018 is attached.

Statement of Independence, Integrity and Competence

Bureau Veritas is an independent professional services company that specialises in quality, health, safety, social and environmental management with more than 185 years history. Its assurance team has extensive experience in conducting verification over environmental, social, ethical and health and safety information, systems and processes.

Bureau Veritas operates a certified¹ Quality Management System which complies with the requirements of ISO 9001:2008, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

¹ Certificate of Registration No. 44 100 160145 issued by TUV Nord

SUMMARY OF ENVIRONMENTAL DATA - ASSURANCE

Bureau Veritas has implemented and applies a Code of Ethics, which meets the requirements of the International Federation of Inspections Agencies (IFIA)², across the business to ensure that its employees maintain integrity, objectivity, professional competence and due care, confidentiality, professional behaviour and high ethical standards in their day-to-day business activities.

The assurance team for this work does not have any involvement in any other Bureau Veritas projects with Amgen.



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April 11, 2019

² International Federation of Inspection Agencies – Compliance Code – Third Edition

SUMMARY OF ENVIRONMENTAL DATA - ASSURANCE

Summary of 2018 Data Subject to Assurance

Metric Type	Units ⁽¹⁾	2018 ⁽²⁾
Total Combustion On-site (Direct)	1,000 GJ	1,766
Natural Gas	1,000 GJ	1,017
Diesel	1,000 GJ	748
Propane	1,000 GJ	1
Total Purchased Energy (Indirect)	1,000 GJ	1,518
Fossil Fuel	1,000 GJ	937
Hydro	1,000 GJ	129
Nuclear	1,000 GJ	132
Renewables	1,000 GJ	301
Nonspecified	1,000 GJ	19
Total Energy	1,000 GJ	3,284
Total Carbon Combustion On-site (Scope 1 GHG emissions)	1,000 MT CO ₂ Eq	104
Natural Gas	1,000 MT CO ₂ Eq	51
Diesel	1,000 MT CO ₂ Eq	52
Propane	1,000 MT CO ₂ Eq	0.1
Total Carbon Purchased Energy (Scope 2 GHG emissions - market based)	1,000 MT CO ₂ Eq	160
Electricity	1,000 MT CO ₂ Eq	156
Steam	1,000 MT CO ₂ Eq	4
Total Carbon Purchased Energy (Scope 2 GHG emissions - location based)	1,000 MT CO ₂ Eq	176
Electricity	1,000 MT CO ₂ Eq	171
Steam	1,000 MT CO ₂ Eq	5
Total Carbon From Energy	1,000 MT CO ₂ Eq	263
Total Carbon Normalized to Total Energy	MTCO ₂ Eq/GJ	0.085
Carbon Sales Fleet (Scope 1)	1,000 MT CO ₂ Eq	44
Carbon Executive Air Fleet (Scope 1)	1,000 MT CO ₂ Eq	4
Carbon From Fugitive Refrigerant Emissions (Scope 1)	1,000 MT CO ₂ Eq	8.6
Total Water Withdrawal	1,000 CM	2,093
Municipal	1,000 CM	2,080
Other - (Reservoir) Trucked In	1,000 CM	0
Ground	1,000 CM	13
Water Fate	1,000 CM	2,093
Consumed Into Products	1,000 CM	31
Lost to Evaporation	1,000 CM	562
Discharged to Treatment	1,000 CM	1,328
Discharged Directly to Environment	1,000 CM	172
Recycled	1,000 CM	572
Percentage of Water Recycled per Total Water Withdrawal	%	27%
Waste Recycling Rate (includes routine waste recycled, reused, composted and treated)	%	49%
Total Routine Waste	MT	9,642
Routine Hazardous Waste	MT	1,984
Recycled	MT	281
Incinerated for Energy Recovery	MT	795
Incinerated Not for Energy Recovery	MT	738
Landfilled	MT	89
Treated	MT	81

SUMMARY OF ENVIRONMENTAL DATA - ASSURANCE

Metric Type	Units ⁽¹⁾	2018 ⁽²⁾
Routine Nonhazardous Waste	MT	7,658
Composted	MT	728
Reused	MT	176
Recycled	MT	3,441
Incinerated for Energy Recovery	MT	603
Incinerated Not for Energy Recovery	MT	202
Landfilled	MT	2,462
Treated	MT	46
Total Nonroutine Waste	MT	7,509
Injury and Illness Rate	Recordable Cases per 100 Employees	0.41
Lost Day Case rate	Lost Day Cases per 100 Employees	0.14
Environmental Notices of Violation	number	3

⁽¹⁾ Unit abbreviations:
 GJ= gigajoules
 MT CO2Eq = metric tons of carbon dioxide equivalents
 CM = cubic meters
 MT = metric tons

⁽²⁾ Numbers in this table have been rounded