

TOTO®

NEOREST® WX1 & WX2

TOTO's NEOREST Collection offers the most innovative, design-forward array of products available with elegant designs drawn from nature, cutting-edge technology, flawless performance, and extraordinary comfort.

TOTO believes that the bath space should be a relaxing, restorative place where people escape the stresses of daily life, and their everyday bathroom rituals are transformed into enriching experiences.

With its NEOREST Collection, TOTO has brought this design philosophy to its most beautiful and welcoming expression.



Performance dashboard

Features & functionality

Auto-Flush: Touchless TORNADO flushing technology

PREMIST®: The bowl's interior is sprayed with a fine water mist to reduce waste's ability to stick to its surface, resulting in a better clean.

CEFIONTECT®: a nano-tech glaze that creates a super-slippery, non-porous surface on porcelain, preventing waste from clinging.

TORNADO FLUSH®: Quiet, powerful dual flush (1.28 or 1.0 gpf) with rimless bowl and 2.5" trapway effectively removes waste and cleans bowl.

Visit TOTO for more product information:

NEOREST® [WX1](#), [WX2](#)

Environment & materials

Improved by:

EWATER+®: Electrolyzed water sprays bowl and wand, ensuring cleanliness without harsh chemicals; reverts to tap water over time.

Certification & rating systems:

IAPMO

ADA Compliant

CALGreen

WaterSense®

MasterFormat® 22 41 13.13
Product specifications:

[NEOREST® WX1](#)
[NEOREST® WX2](#)

For spec help, [contact us](#) or call 888-295-8134

[See LCA, interpretation & rating systems](#)

[See materials, interpretation & rating systems](#)



SM Transparency Report (EPD)™ + Material Health Overview™

EPD

3rd-party reviewed



Transparency Report (EPD)

3rd-party verified



Validity: 08/31/2024 – 08/30/2029
TOTO – 20240831 – 003

MATERIAL HEALTH

Material evaluation

Self-declared



LCA

This environmental product declaration (EPD) was externally verified by Jack Geibig (Ecoform) on behalf of NSF according to ISO 14044; ISO 21930:2017; SM Part A: LCA calculation rules and report requirements, 2023; the reference PCR; and ISO 14025:2006.

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NSF International
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734 769 8010



Certified Environmental Product Declaration
www.nsf.org

SUMMARY

Reference PCR
SM Part B: Residential toilets, v3.0

Regions; system boundaries
North America; Cradle-to-grave

Functional unit
One dual flush toilet in an average residential environment, with an electronic bidet seat, over the estimated service life of the building

LCIA methodology; LCA software; LCI database
TRACI 2.1; SimaPro Analyst 9.6; ecoinvent and Industry data 2.0 databases

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Public LCA

LCA background report of TOTO NEOREST® NX & WX Toilets, 2024

TOTO USA

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Morrow, GA 30260
www.totousa.com

Contact us

LCA results & interpretation

NEOREST® WX Wall-Hung Toilet with In-Wall Tank System

- LCA results & interpretation
- EPD additional content
- Material health

Scope and summary

- Cradle to gate
- Cradle to gate with options
- Cradle to grave

Functional unit

One dual flush toilet used in an average residential environment over the estimated service life of the building. The expected service life (ESL) of a building is 75 years, and all use stage activity and impacts are accounted for in that full ESL period. The reference service life (RSL) of a residential toilet is 20 years.

Maintenance

The toilet requires periodic cleaning, and each cleaning event uses 1.69 fl oz (50mL) of a 1% sodium lauryl sulfate (SLS) solution. The toilet basin, bowl, seat, and lid are assumed to be cleaned twice a month, the electric plug/cord and gap between the toilet tank and seat monthly, the deodorizing filter monthly, the wand weekly, and the water filter parts every six months. Each cleaning event uses 0.338 fl oz (10mL) of a 1% sodium lauryl sulfate (SLS) solution.

The deodorizing filter and water filter are assumed to be fully replaced once every ten years, and the battery is assumed to be replaced every six years.

The waste activities associated with the disposal of old filters are included.

Repair and replacement

The flapper seal, fill valve seal, lid assembly, lid bumpers, seat bumpers, deodorizer assembly, air filter, and flexible hose assembly are assumed to be fully replaced once during the 20-year RSL period as part of regular repairs. At the end of its RSL, the product is assumed to be replaced. Therefore, an additional 2.75 products are included as replacements, with all life cycle modules considered, over the building's ESL of 75 years.

The waste activities associated with the disposal of replaced parts are included.

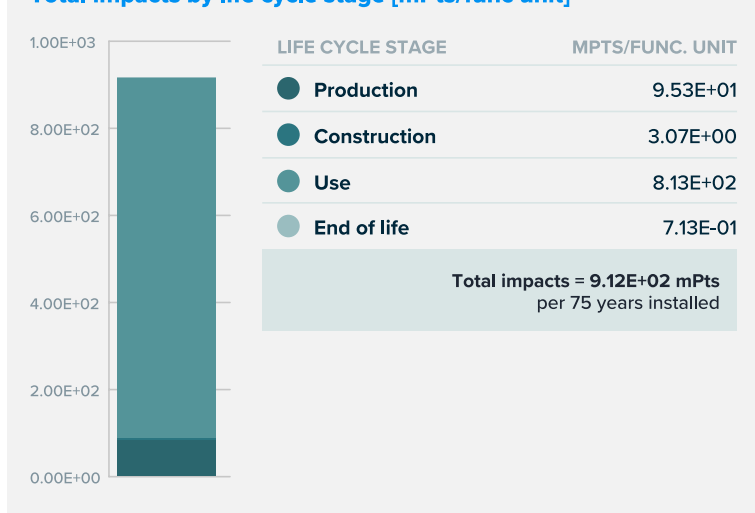
Manufacturing data

Manufacturing data has been collected at the manufacturing facility in Kokura, Japan for the top unit and Shanghai, China for the tank support system.

Data reporting period: 2023

MATERIAL	WT%
Ceramics	54.2%
Stainless Steel	16.6%
Cardboard packaging	10.8%
Polypropylene (PP)	8.96%
Polyethylene (PE)	2.45%
Acrylonitrile butadiene styrene (ABS)	1.67%
Brass	1.62%
Others	3.75%

Total impacts by life cycle stage [mPts/func unit]



What's causing the greatest impacts

All life cycle stages

The use stage [B1-B7] dominates the results for all impact categories. The operational energy use [B6] leads the impacts in terms of global warming. The product replacement module [B4] contributes the most to impact results for five evaluated impact categories: ozone depletion, smog, acidification, respiratory effects, and fossil fuel depletion. Operational water use [B7] leads impacts for four impact categories in the overall life cycle: eutrophication, carcinogenics, non-carcinogenics, and ecotoxicity. The production stage [A1-A3] also demonstrates significant impacts across all impact categories. Additionally, the processes associated with dismantling the product and final waste treatment during the end-of-life stage do not have a significant impact.

Production stage [A1-A3]

The electronics contained in the toilet's bidet seat and the in-wall tank support system dominate all impact categories in the production stage. The raw materials needed for ceramic production did not contribute significantly to raw material acquisition [A1]. Most of the impacts within manufacturing [A3] stem from energy used during the ceramic manufacturing operations, and there were insignificant impacts from raw material transportation [A2].

Construction stage [A4-A5]

Distribution of the product dominates impacts in the construction stage. Transportation by sea for delivery to distribution centers contributes the most, accounting for about 7% of potential smog impacts. Transportation contributed less than 4% to the remaining impact categories.

Use stage [B1-B7]

Electricity required for bidet operations contributes the most to the impacts for global warming (~38%) and fossil fuel depletion (~36.1%). Product replacement [B4] contributes the most to five impact categories: ozone depletion (~47.3%), smog (~41.6%), acidification (~32.4%), carcinogenics (~42.1%), and respiratory effects (51.1%). Operational water use [B7] leads impacts for three impact categories in the overall life cycle: eutrophication (~95.1%), non-carcinogenics (~79.1%), and ecotoxicity (~53.2%).

End-of-life stage [C1-C4]

The transportation to landfill dominates impacts in the end-of-life stage. Transportation and the processes for dismantling the product contribute to a relatively low portion (<1%) of total results for all impact categories.

Operational energy and water use

Operation of the bidet seat requires electricity and water. The peak wattage for the NEOREST® WX toilet is 1,452 W for 30 seconds for seat heating, nozzle spraying, and water heating. Then it uses 75.6 W for seat warming for the remaining 12 minutes of operation. This use stage electricity was modeled using a United States grid mix.

The incoming municipal tap water is used for bidet operations including rear cleansing, rear soft cleansing, front cleansing, and wide front cleansing at an average of 0.095 gpm. The duration of each use is assumed to be 0.58 minutes at four uses per day. The bidet seat functionality also features pre-misting and post-misting, plus automatic misting every eight hours. The NEOREST® WX toilet uses 0.8gpf for liquid and 1.2gpf for solids.

Over the building's ESL of 75 years, the NEOREST® WX toilet consumes 328,212 gallons of water, including from its 109,500 bidet seat uses, 273,750 liquid flushes, and 82,125 solid flushes. An electricity factor of 0.000961 kWh per liter of water is used to represent energy for upstream municipal water collection, treatment, supply, and downstream management.

How we're making it greener

TOTO's Washlets are ecology-minded bidet seats that can save 50% of toilet paper consumption or more. Washlets deliver a concentrated stream of water for washing, which greatly facilitates cleaning. TOTO's wonder wave water stream delivery also enhances cleaning efficiency. As a result, not only is saving toilet paper an economic advantage, but less toilet paper use means less water, energy, and other toxic chemicals used upstream in the toilet paper production process. Additionally, only one-eighth of a gallon of water per minute is used in a maximum mode saving water over conventional bidet fixtures. Moreover, this fully eliminates the need for flushable wipes which create an added burden on toilet flushing, pipe clogs, and downstream water treatment at sanitation plants.

[See how we make it greener](#)

LCA results

LIFE CYCLE STAGE	PRODUCTION	CONSTRUCTION	USE	END OF LIFE
	(X) A1 Raw materials	(X) A4 Transportation/Delivery	(X) B1 Use	(X) C1 Deconstruction/Demolition
	(X) A2 Transportation	(X) A5 Construction/Installation	(X) B2 Maintenance	(X) C2 Transportation
	(X) A3 Manufacturing		(X) B3 Repair	(X) C3 Waste processing
			(X) B4 Replacement	(X) C4 Disposal
			(X) B5 Refurbishment	
			(X) B6 Operational energy use	
			(X) B7 Operational water use	

Information modules:
Included (X) | Excluded (MND)*

SM Single Score

Impacts per bidet seat	9.53E+01 mPts	3.07E+00 mPts	8.13E+02 mPts	7.13E-01 mPts
Materials or processes contributing >20% to total impacts in each life cycle stage	Printed wiring board production as well as other raw material extraction and preprocessing.	Transportation of the product to distribution centers and disposal of packaging.	Amount of electricity used during operation and the number of product replacements needed over the building's service life.	Transport to waste processing and disposal of material flows transported to a landfill.

TRACI v2.1 results per functional unit

LIFE CYCLE STAGE	PRODUCTION	CONSTRUCTION	USE	END OF LIFE	
Ecological damage					
Impact category	Unit				
Global warming	kg CO ₂ eq	3.45E+02	5.37E+01	3.80E+03	1.87E+01
Ozone depletion	kg CFC-11 eq	5.42E-05	5.24E-06	2.95E-04	1.70E-06
Acidification	kg SO ₂ eq	1.86E+00	7.72E-01	2.01E+01	4.99E-02
Eutrophication	kg N eq	2.67E-01	4.29E-02	3.79E+01	3.08E-02
Human health damage					
Impact category	Unit				
Smog	kg O ₃ eq	2.01E+01	1.71E+01	2.17E+02	1.43E+00
Respiratory effects	kg PM _{2.5} eq	4.01E-01	4.73E-02	1.99E+00	5.78E-03
Additional environmental information					
Impact category	Unit				
Carcinogenics	CTU _h	3.61E-05	2.75E-08	2.00E-04	3.83E-08
Non-carcinogenics	CTU _h	1.20E-04	1.96E-06	2.37E-03	4.68E-07
Ecotoxicity	CTU _e	9.76E+02	2.57E+01	7.68E+03	3.97E+00
Fossil fuel depletion	MJ surplus	5.11E+02	9.74E+01	5.04E+03	1.66E+01

References

LCA Background Report

Life Cycle Assessment of TOTO NEOREST® NX & WX Toilets, 2024; SimaPro Analyst 9.6;ecoinvent and Industry data 2.0 databases; TRACI 2.1.

ISO 14025, "Sustainability in buildings and civil engineering works -- Core rules for environmental product declarations of construction products and services"

ISO 21930:2017, "Sustainability in Building Construction -- Environmental Declaration of Building Products" serves as the core PCR along with Sustainable Minds Part A.

SM Part A: LCA calculation rules and report requirements, version 2023

August, 2023. PCR review conducted by the Sustainable Minds TAB, tab@sustainableminds.com.

SM Part B: Residential toilets, v3.0

March, 2024. PCR reviewed by Jack Geibig, Tctreault, ing., M.Sc.A. (Groupe Geibig@ecoform.com; Hugues Imbeault-Tctreault, ing., M.Sc.A. (Groupe AGÉCO); Rebe Feraldi, LCACP, CLAR (Pacific Northwest National Laboratory).

Download PDF SM Transparency Report/EPD

SM Transparency Reports (TR) are ISO 14025 Type III environmental declarations (EPD) that enable purchasers and users to compare the potential environmental performance of products on a life cycle basis. They are designed to present information transparently to make the limitations of comparability more understandable. Environmental declarations of products that conform to the same PCR and include the same life cycle stages, but are made by different manufacturers, may not sufficiently align to support direct comparisons. They therefore cannot be used as comparative assertions unless the conditions as defined in ISO 14025 Section 6.7.2.

"Requirements for Comparability" are satisfied. In order to support comparative assertions, this EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. Any EPD comparison must be carried out at the building level per ISO 21930 guidelines, use the same sub-category PCR where applicable, include all relevant information modules, be limited to EPDs applying a functional unit, and be based on equivalent scenarios with respect to the context of construction works. Some LCA impact categories and inventory items are still under development and can have high levels of uncertainty. To promote uniform guidance on the data collection, calculation, and reporting of results, the ACLCA methodology (ACLCA 2019) was used.

Rating systems

The intent is to reward project teams for selecting products from manufacturers who have verified improved life-cycle environmental performance.

SM Transparency Report (EPD)™ + Material Health Overview™

EPD	LCA
3rd-party reviewed	<input checked="" type="checkbox"/> NSF
Transparency Report (EPD)	
3rd-party verified	<input checked="" type="checkbox"/> NSF
Validity: 08/31/2024 – 08/30/2029	
TOTO – 20240831 – 003	
MATERIAL HEALTH	Material evaluation
Self-declared	<input checked="" type="checkbox"/>

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Public LCA
LEA background report of TOTO NEOREST® NX & WX Toilets, 2024

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SM Transparency Report (EPD)[™] + Material Health Overview[™]

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Certified
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NEOREST[®] NX & WX Toilets, 2024

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LCA & material health results & interpretation

NEOREST® WX Wall-Hung Toilet with In-Wall Tank System

LCA results & interpretation

EPD additional content

Material health

Evaluation programs

Declare

Declare labels are issued to products disclosing ingredient inventory, sourcing, and end of life options. Declare labels are based on the Manufacturers Guide to Declare, administered by the International Living Future Institute.

How it works

Material ingredients are inventoried and screened against the [Living Building Challenge](#) (LBC) Red List which represents the 'worst in class' materials, chemicals, and elements known to pose serious risks to human health and the greater ecosystem.

The Declare product database and label are used to select products that meet the Living Building Challenge's stringent materials requirements, streamlining the materials specification and certification process.

Assessment scope and results

Declare™

Inventory threshold: 100 ppm

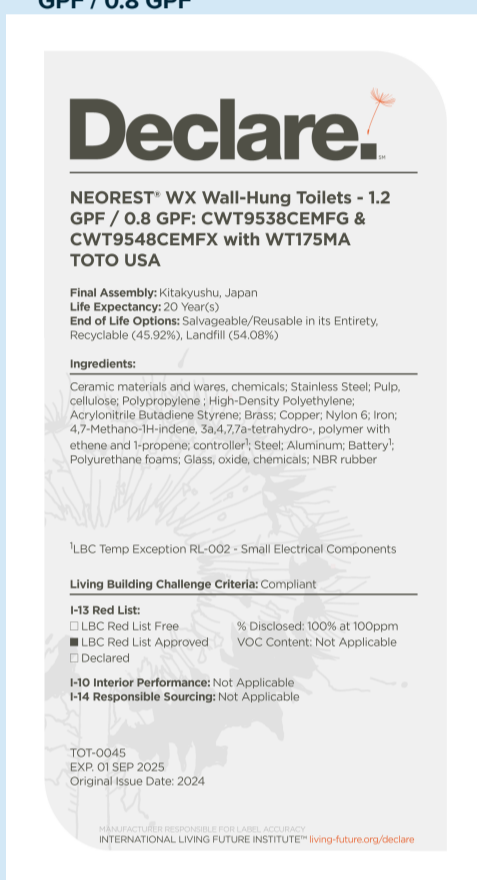
Declare level:

The Declare product database and label are used to select products that meet the LBC's stringent materials requirements, streamlining the materials specification and certification process.

- LBC Red List Free [?]
- LBC Red List Approved [?]
- Declared [?]

Click the label to see the full declaration.

● NEOREST® WX Wall-Hung Toilets, 1.2 GPF / 0.8 GPF



References

Declare

TOTO USA, Declare label for NEOREST® WX Wall-Hung Toilets, 1.2 GPF / 0.8 GPF

Manufacturer's Guide to Declare

A comprehensive guide providing information about the program, the assessment methodology, how to submit material data to obtain a Declare label and how they are used to meet the Health & Happiness and Materials Petals of the Living Building Challenge.

What's in this product and why

Declare level

'Living Building Challenge Compliant' is achieved when the product contains Red List ingredients that have been given a temporary exception by the Living Building Challenge due to current market limitations.

What's in the product and why

The electronics used for flush valve operation include circuit board components. The controller, battery, and sensor allow for a self-powered hydroelectric flush valve system while also maintaining a true mechanical flush override. The electronic components are contained within the flush valve body and do not represent any hazards to the user.

Where it goes at the end of its life

TOTO encourages consumers to recycle their used toilet and toilet parts. Contact your local municipality for recycling programs.

How we're making it healthier

TOTO's NEOREST Collection offers the most innovative, design-forward array of products available with elegant designs drawn from nature, cutting-edge technology, flawless performance, and extraordinary comfort. Using a gentle stream of warm-aerated water, its WASHLET® cleans the user better and more thoroughly than the paper alternative, thereby reducing harmful environmental waste products. Its cleaning functions like PREMIST® and EWATER+® reduce the frequency of cleaning and the need for harsh chemicals that can be harmful to our ecosystem.

PREMIST® sprays the bowl before use, and EWATER+® sprays the bowl after each use, preventing waste buildup to keep the bowl clean. It offers a refreshing, comfortable way to cleanse. The integrated technology helps keep the toilet bowl clean without harsh chemicals, which benefits the environment.

[See how we make it greener](#)

Rating systems

LEED BD+C: New Construction | v4 - LEED v4

Building product disclosure and optimization

Material Ingredients

Credit value options 1 product each

1. Reporting 2. Optimization 3. Supply Chain Optimization

LEED BD+C: New Construction | v4.1 - LEED v4.1

Materials and resources

Material Ingredients

Credit value options 1 product each

1. Reporting 2. Optimization 3. Supply Chain Optimization

Living Building Challenge Materials petals imperatives

10. Red List Free 12. Responsible Industry 13. Living Economy Sourcing

WELL Building Standard®

Air and Mind Features

- X07 Materials Transparency

- X08 Materials Optimization

Collaborative for High Performance Schools National Criteria

EQ C7.1 Material Health Disclosures

- Performance Approach 2 points

- Prescriptive Approach 2 points

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How we make it greener

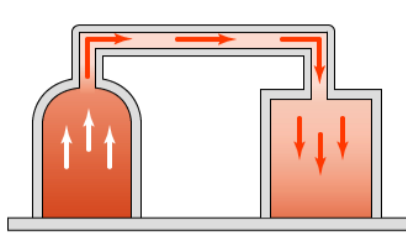
NEOREST® WX Wall-Hung Toilet with In-Wall Tank System

Expand all

PRODUCTION



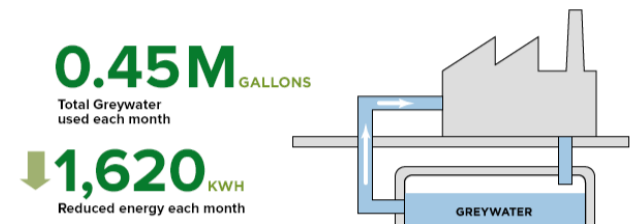
↓ 15%
Less Natural Gas



Waste heat from the kilns is routed to the product dryer. This reduces 15% natural gas consumption.



TOTO is taking additional steps at its other facilities outside of Japan to reduce potential environmental impacts. For example, TOTO's Morrow plant matches 100% of its electricity usage through [Georgia Power Simple Solar](#) and helps grow solar energy. 14 million kilowatt hours of green energy helps reduce 18.5 million pounds of carbon dioxide equivalents each year.



In another example of TOTO's energy savings outside of Japan, 0.45 million gallons per month of greywater is used in [TOTO Morrow's operations](#). 1,620 of kWh in energy per month is reduced due to less potable water.



65% of all cardboard used is 100% recycled content.

CONSTRUCTION

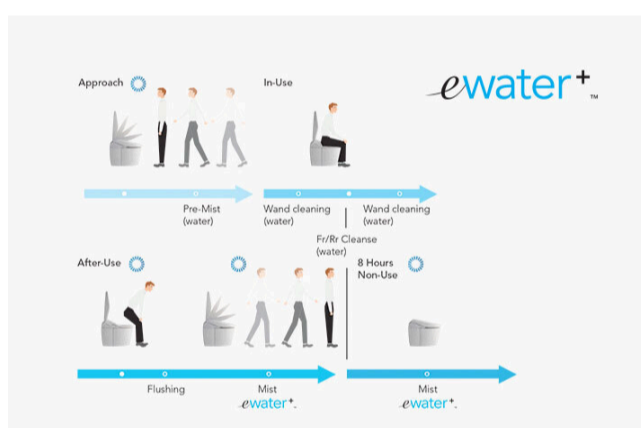


UPS parcel shipments are carbon neutral. TOTO is a registered SmartWay® Transport Partner.

USE



EWATER®
After each flush, EWATER+ mists on the wand and toilet bowl, reducing the need for harsh cleaning chemicals.



Cut down on toilet paper
Introducing an electronic bidet seat can reduce the need for toilet paper or eliminate it entirely, thereby avoiding the emissions associated with toilet paper production.

GLOBAL INITIATIVES



TOTO's recognition on the [CDP A List](#) underscores its leadership in environmental transparency and effectiveness. As a top performer among over 23,000 companies in the CDP's premier environmental disclosure system in 2023, TOTO stands out by ranking in the elite 1.74% with an A rating. This highlights TOTO's dedication to reducing carbon emissions and advancing water conservation, affirming its substantial role in global environmental stewardship and commitment to high ecological standards.

As part of TOTO's initiative to alleviate water stress through the widespread adoption of water-saving products, they avoided **1.00 billion m³ of water** emissions during product use when compared with the case where products from 2005 continued to be used.



DRIVING AMBITIOUS CORPORATE CLIMATE ACTION
TOTO's strict environmental objectives, aligned with the SBTi's "1.5°C target", highlight its proactive strategy to limit global warming in accordance with the Paris Agreement's most ambitious standards. These objectives are integral to TOTO's broader plan to reach carbon neutrality by 2050.

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