**EXHIBIT NO. ___(IP-4)**
**DOCKET UE-161123**
**PSE SCHEDULE 451**
**WITNESS: IRENE PLENEFISCH**

**BEFORE THE**
**WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

| | |
|---|---|
| **WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,**<br><br>**Complainant,**<br><br>**v.**<br><br>**PUGET SOUND ENERGY,**<br><br>**Respondent.** | **Docket No. UE-161123** |

**EXHIBIT NO.____(IP-4)**

# FIRST EXHIBIT TO THE SUPPLEMENTAL PREFILED DIRECT TESTIMONY OF IRENE PLENEFISCH ON BEHALF OF MICROSOFT CORPORATION

**DECEMBER 15, 2016**

Microsoft

Store
Store home
Devices
Microsoft Surface
PCs & tablets
Xbox
Virtual reality
Accessories
Windows phone
Software & Apps
Office
Windows
Additional software
Windows apps
Windows phone apps
Games & Entertainment
Xbox One games
Xbox 360 games
PC games (disc)
Windows digital games
Windows phone games
Movies & TV
Music
Deals
12 Days of Deals
Sale
Holiday Gift Guide
Microsoft Surface Deals
PC Deals
Xbox Deals
More
Gift cards
Business Store
Students & educators
Developer
Products
Software & services
Windows
Office
Free downloads & security
Internet Explorer
Microsoft Edge
Skype
OneNote
OneDrive
Microsoft Health

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MSN
Bing
Microsoft Groove
Microsoft Movies & TV
Devices & Xbox
All Microsoft devices
Microsoft Surface
All Windows PCs & tablets
PC accessories
Xbox & games
Microsoft Lumia
All Windows phones
Microsoft HoloLens
For business
Cloud Platform
Microsoft Azure
Microsoft Dynamics
Windows for business
Office for business
Skype for business
Surface for business
Enterprise solutions
Small business solutions
Find a solutions provider
Volume Licensing
For developers & IT pros
Develop Windows apps
Microsoft Azure
MSDN
TechNet
Visual Studio
For students & educators
Office for students
OneNote in classroom
Shop PCs & tablets perfect for students
Microsoft in Education
Support

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Corporate Social ResponsibilityCorporate Social Responsibility
Our approach
Letter from our CEO

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UN SDGs


Carbon neutrality
Carbon footprint
FY15 data factsheet
Renewable energy
News and updates
Energy efficiency

# Carbon neutrality

Since July 1, 2012, Microsoft's global operations have been carbon neutral.

Our commitment to carbon neutrality spans operations in more than 100 countries. To deliver on our commitment, we created a program to ensure company-wide accountability for carbon, charging an internal carbon fee to our business groups for the cost of reducing the carbon emissions associated with their energy use and air travel. Funds collected from the business groups help support:

- Internal energy efficiency investments.
- Purchases of renewable energy equal to 100 percent of our consumption.
- Externally certified carbon offset projects.
- Support for e-waste recycling and renewable energy innovation.

Learn more about Microsoft's environmental efforts beyond what this report provides.

Explore our Environmental Sustainability site. >

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Since the inception of the carbon fee, Microsoft has:

- Purchased more than 14 million megawatt-hours (MWh) of green power.
- Reduced company-wide emissions by more than 9 million metric tons of carbon dioxide equivalent (mtCO2e).
- Supported the lives of more than 7 million people in emerging nations through carbon offset community projects.

Our purchase of green energy through this program has earned us recognition from the U.S. Environmental Protection Agency (EPA) as a 2016 Climate Leadership award winner, and our work has been recognized by the United Nations Framework Convention on Climate Change (UNFCCC) as a 2015 Lighthouse Activity winner in the Momentum for Change initiative.

In April 2015, Microsoft released a white paper describing the progress made with our carbon program since its inception, with the hope that our work will inspire other organizations to take similar action.

Find out how other organizations can work toward a successful carbon fee program.

↓ Download our whitepaper: Making an impact with Microsoft's carbon fee (PDF)

# Carbon footprint

Transparency is important to our customers, investors, and partners. Microsoft has a longstanding history of disclosing our carbon footprint, and we have reported voluntarily on our carbon emissions through CDP (formerly the Carbon Disclosure Project) since 2005. Data on our carbon emissions are available on the CDP website.

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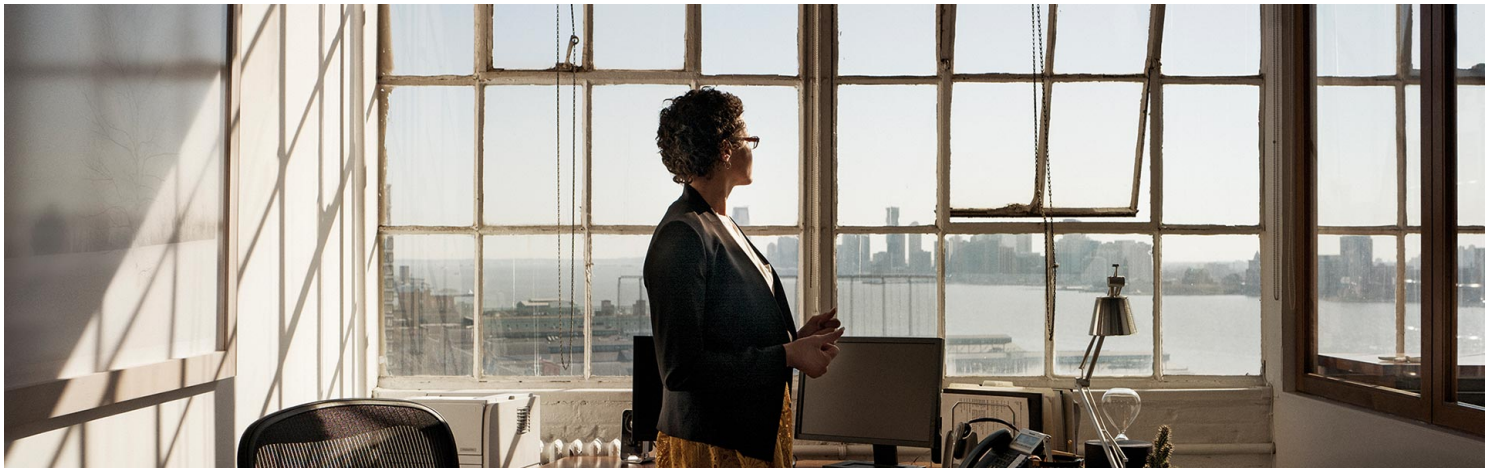
Microsoft can have even more impact by influencing the sustainability of our supply chain. Toward that end, we encourage our contracted hardware suppliers to report their emissions to CDP and encourage all of our indirect suppliers to report as well. In recognition of our climate efforts, CDP has included Microsoft on its Climate A List for climate performance leadership for 2013 – 2016.



# Renewable energy

We have more than 100 datacenters around the world that are delivering a secure, trusted, and responsible cloud. In May 2016, we announced a commitment to increase the percentage of wind, solar, and hydro energy we use to power these datacenters.

As of 2016, roughly 44 percent of the electricity used by our datacenters comes from wind, solar, and hydropower energy sources. Our goal is to pass the 50 percent milestone by the end of 2018, and to top 60 percent early in the next decade.

In addition to purchasing more clean energy, we are also committed to:

- **Maintain carbon neutrality.** Through investments in energy efficiency and procurement of renewable energy and carbon

Blog: Datacenter research manager Sean James sees energy gold – and green – in waste and in fuel cells >

Learn more about how fuel cells are a promising power

offsets, we will continue to be 100 percent carbon neutral in our operations and business air travel.

- **Invest in new energy technologies.** We will continue to invest in new energy technology, such as our biogas and **fuel cell** work, that has the potential to accelerate the availability of different types of energy and drive efficiency.
- **Support public policies that help enable new renewable energy sources.** We will continue to support public policies that accelerate the availability of renewable and clean energy in markets where we operate.
- **Site our facilities with access to renewable energy.** Availability of renewable energy is among the criteria that we consider in where to locate our datacenters.
- **Retire all green attributes from projects generated from our contracted assets:** Any time we purchase green energy, we will not sell the renewable energy certificates (RECs, or international equivalents) or any other green "attributes" for others to claim.

These commitments build on our work to advance renewable energy in our own operations and beyond:

source for future data centers.

Read the whitepaper

↓ SizeCap: Efficiently Handling Power Surges in Fuel Cell Powered Data Centers

# Energy efficiency

Our investment in new energy technologies drives new efficiencies in datacenters.

Compared to conventional chiller solutions, the air cooling techniques we employ at our datacenters result in 20-30 percent lower energy consumption and 90 percent lower water consumption. Our broader energy efficiency strategy is focused on changes that we can make in the future that will have even greater gains:

- We are experimenting with ways to integrate fuel cells into our datacenters to improve efficiencies and reduce transmission losses.
- We are working with industry partners and the U.S. Department of Energy to pilot and commercialize new energy technologies that we hope will be foundational to the next generation of efficient datacenter designs. This includes our multi-year partnership with the University of Texas at San Antonio and the school's Texas Sustainable Energy Research Institute to identify economically viable technologies that reduce the environmental footprint of datacenters.
- We contributed new, innovative hardware specifications to the Open Compute Project, which is focused on engineering the most efficient hardware for cloud and high-scale computing via open collaboration.

Energy efficiency in buildings: We invest to reduce carbon and save energy.

Through our carbon progam, we have invested over $3.1 million in our real estate facility projects that reduced our associated carbon emissions by over 18,000 metric tons and saved over $3.6 million in annual energy costs – paying for themselves in under a year.

With one of our partners, Iconics, Microsoft leveraged our corporate campus to help create an analytical software solution that prioritizes maintenance and repairs our 125 Puget Sound buildings based on energy and cost savings potential. Generating energy savings of 10–11 percent, the Puget Sound system paid for itself in less than two years, and we've now also implemented the solution on our Silicon Valley and Las Colinas campuses, with additional deployments on other campuses underway.

We are sharing our results with government and industry leaders from around the globe and making similar solutions available through partners to our customers (such as through Microsoft CityNext offerings).

# FY15 data factsheet

Microsoft is committed to publish information on our greenhouse gas emissions, energy consumption, and carbon offset purchases.

Download the Microsoft FY15 Environmental Data Factsheet >

## News and updates


## Video: Microsoft global carbon fee program

See how we put an incremental fee on carbon emissions associated with our global operations. (UNFCCC)

## 88 Acres: How Microsoft quietly built the city of the future

See how we leveraged our corporate campus to help create an energy-smart building software solution.

## Blog: All around energy-smart bu

Learn how digital transformation is he reduce energy costs buildings.



Learn
Windows
Office
Skype
Outlook
OneDrive
MSN
Devices
Microsoft Surface
Xbox
PC and laptops
Microsoft Lumia
Microsoft Band
Microsoft HoloLens
Microsoft Store
View account
Order tracking
Retail store locations

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Returns
Sales & support
Downloads
Download Center
Windows downloads
Windows 10 Apps
Office Apps
Microsoft Lumia Apps
Internet Explorer
Values
Diversity and inclusion
Accessibility
Microsoft in Education
Microsoft Philanthropies
Corporate Social Responsibility
Privacy at Microsoft
Company
Careers
About Microsoft
Company news
Investors
Research
Site map
English (United States)
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