

Impact Reporting (April 1 2022~March 31 2023)

Eligible Project	ICMA Project Category	Impact Reporting Item	Disclosure Information												
①5G-related investment	Energy efficiency	■ Number of 5G base stations installed	■ Approx. 30,000 Stations (As of March 31 2023)												
②FTTH-related investment	Energy efficiency	■ Number of subscribers (units)	■ 23.58 Million Agreements (As of March 31 2023)												
③R&D for the realization of the IOWN concept	Energy efficiency	<ul style="list-style-type: none"> ■ Explanation of the intended effects of the eligible R&D projects ■ Introduction of the progress of the R&D and examples of services and products 	■ Attachment												
④Highly energy efficient and power-saving data center	Energy efficiency	■ Amount of CO ₂ emissions (t-CO ₂)	■ Not Applicable												
⑤Green Buildings	Green Buildings	<ul style="list-style-type: none"> ■ Name of the Green Buildings, certification level obtained, and the timing of acquisition and reacquisition ■ Amount of CO₂ emissions (t-CO₂) 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #ADD8E6;"> <th style="width: 25%;">Property Name</th> <th style="width: 25%;">Certification Level</th> <th style="width: 25%;">Acquisition and Evaluation Timing</th> <th style="width: 25%;">Amount of CO₂ Emissions for FY2022 (April 2022-March 2023)</th> </tr> </thead> <tbody> <tr> <td>Shinagawa Season Terrace</td> <td>BELS Five star</td> <td>December 2019</td> <td>10,558 tons Co₂</td> </tr> <tr> <td>Urbannet Nagoya Nexta Building</td> <td>CASBEE Nagoya S rank</td> <td>December 2019</td> <td>2,461 tons Co₂</td> </tr> </tbody> </table>	Property Name	Certification Level	Acquisition and Evaluation Timing	Amount of CO ₂ Emissions for FY2022 (April 2022-March 2023)	Shinagawa Season Terrace	BELS Five star	December 2019	10,558 tons Co ₂	Urbannet Nagoya Nexta Building	CASBEE Nagoya S rank	December 2019	2,461 tons Co ₂
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■ Power generation capacity/ actual amount (GWh)	■ Power generation Actual Volume: 186GWh (Reference: Facility Capacity 360,000KW)														
■ Amount of CO ₂ emissions reduced (t-CO ₂)	■ Volume of CO ₂ emissions reduced 87,097 tons-CO ₂ (Buildings under construction excluded)														
⑥Renewable Energy	Renewable Energy														

[Attachment]

We advanced initiatives to flesh out the IOWN concept and to roll out the technology and resolve issues in a range of industries.

IOWN Concept

Amid the accelerating digital shift in social and economic activities, the use of communication networks has expanded greatly, and we are approaching the limits of data volume, latency, and power consumption. The IOWN concept breaks this barrier with revolutionary photonics technology, with the goal of creating a sustainable world.

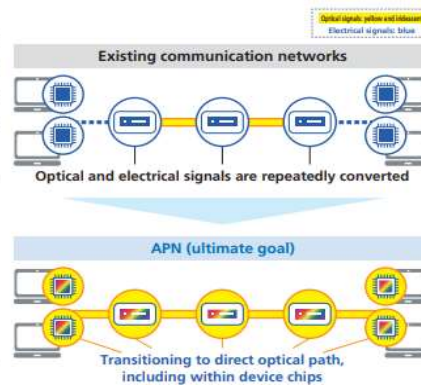
Low power consumption	Large capacity, high quality	Low latency
<p>100 times greater power efficiency*</p> <p>Provides various information and communication services at power consumption reduced by a factor of 100.</p> <p><small>* Target power efficiency for portion where photonics technology is applied</small></p>	<p>125 times greater transmission capacity*</p> <p>Capable of downloading 10,000 two-hour movies instantaneously (in 0.3 sec). (Compared with one movie in 3 sec with 5G technology)</p> <p><small>* Target communication capacity per optical fiber cable</small></p>	<p>End-to-end latency reduced by a factor of 200*</p> <p>Transmits real-time video without the latency experienced with digital TV or satellite broadcasting.</p> <p><small>* Target latency in video traffic not requiring compression within the same prefecture</small></p>

Research and Development for the realization of the IOWN concept

■ Along with the start of APN IOWN1.0 service, we announced our future developments

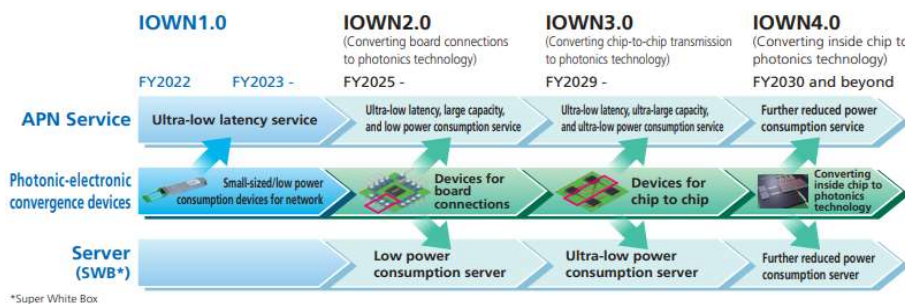
[Start of Provision of APN]

● In March 2023, as the first commercial service aimed at implementing IOWN (Innovative Optical and Wireless Network) concept, we began providing APN IOWN1.0 (All-Photonic Network), which introduces optics exclusively in all sections of the communication network.



What is APN?
In existing networks, repeated conversions of optical and electrical signals consume electricity, and control processing of communications traffic creates latency. By ultimately changing all these signals to optical signals, APN consumes less energy than current networks and realizes large-capacity networks with low latency.

■ Toward a prompt release of IOWN2.0 and later versions, we pursued the development and release of new semiconductor components and software. We will continue working to achieve our targets and promptly realize this concept.



IOWN Open Innovation

■ By discussing use cases with a wide range of global companies and groups and pursuing development of the necessary technologies, frameworks, and architect we aim to realize IOWN as a new communication platform.

■ The number of global major ICT companies, etc. that support IOWN's vision of the world and its innovations and that participate as members of the IOWN Global Forum has grown to 117 organizations (as of the end of March 2023).

IOWN GLOBAL FORUM

IT industry	Telecommunications industry	Various industrial and academic organizations
<ul style="list-style-type: none"> Intel Corporation Sony Group Dell Technologies Japan Ericsson Microsoft Nokia Corporation Red Hat, Inc., etc. 	<ul style="list-style-type: none"> Chungwhwa Telecom (Taiwan) KDDI ORANGE S.A. (France) Rakuten Mobile SK Telecom (South Korea) TELEFÓNICA (Spain) NTT, etc. 	<ul style="list-style-type: none"> Ajinomoto JAXA Mitsubishi Chemical Group MUFG Bank Mizuho Bank The University of Tokyo TOYOTA MOTOR, etc.

*Created based on information from the IOWN Global Forum website (the names of companies and other organizations may be shown using the commonly used names or abbreviations, and the names are listed in alphabetical order excluding founding members)