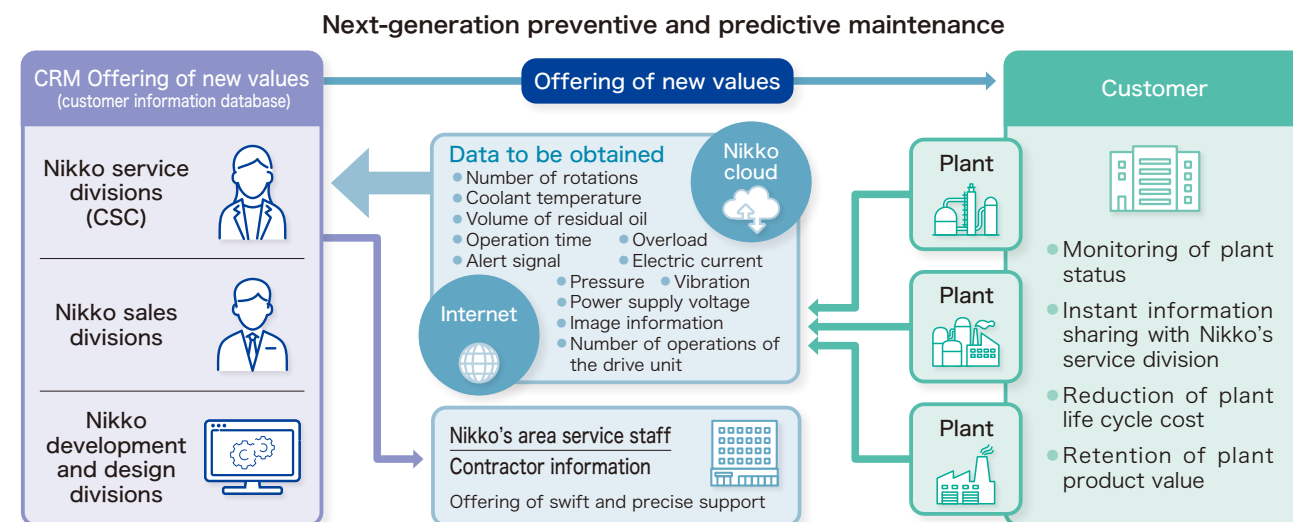


Nikko Group offers solid after sales service so that customers can use the products with ease of mind. In addition to the nation-wide service network, we also carry out regular inspections to prevent troubles and provide plant operator training to nurture engineers. However, the analog-type plant maintenance service until now was based on post-incident maintenance where repair was carried out after malfunction and preventive maintenance that relied on the experience and intuition of the service personnel. We are currently working on establishing a next-generation preventive and predictive maintenance that utilizes advance measuring equipment and communication network, in addition to introducing a new service model, aiming to create new customer values. The other pillar of customer value creation is our responses to climate change led by CO₂ emission reduction. Customers of the Nikko Group led by the road pavement industry have been strengthening their initiatives for realization of low-carbon and decarbonized society and the Group supports problem solving at customers through technology and product development as well as offering of solutions towards its realization.

Creation of new values through DX

Stable operation of asphalt and concrete plants is indispensable for improving the productivity of road pavement and construction sites. To this end, it is important to detect the necessity of maintenance service in advance and take required action before

the operation status of the plant becomes unstable. In order to resolve such issues, Nikko Group will remotely monitor the plant operation status, catch signs of malfunction based on data analysis, and replace parts and carry out repair in advance.



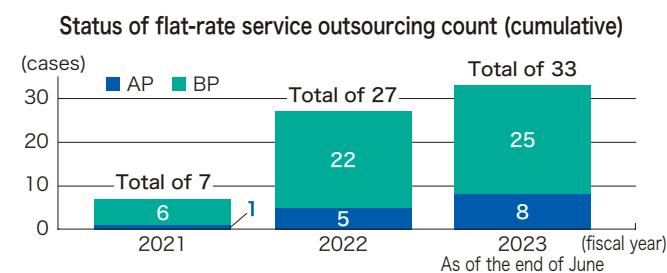
We can propose appropriate advance maintenance by accumulating various operation information, inspection data, and repair and work history of customer plants in the Nikko cloud and visualizing operation status. Taking action after the occurrence of malfunction requires suspension of plant operations, which significantly lowers productivity. In addition to the operation information of the plant, collecting and analyzing facility environment information enables

to identify the cause of the problem. We also offer plant failure prediction reports by analyzing the accumulated data, which can be utilized to formulate a maintenance plan over the life cycle of the plant.

Visualizing the operation status allows to collect failure information and identify the location of the fault. It enables to examine the cause without waiting for an engineer to arrive and greatly shortens the time taken for recovery.

Introduction of flat-rate (subscription) service

For introduction of the next-generation predictive maintenance service, we have introduced a flat-rate charge to replace the existing charge system based on each recovery project. We aim to contribute to improved productivity and cost performance at customers by carrying out regular repairs and parts replacement in accordance with the long-term preliminary maintenance plan and by reducing maintenance cost as well as emergency post-incident repairs.



Nikko brand products contributing to realization of low-carbon and decarbonized society

Customers who own asphalt and concrete plants have been driving forward various initiatives for realization of low-carbon and decarbonized society. As the leading brand in plant manufacturing, Nikko Group has been offering various products and solutions to jointly solve the issues faced by customers.

See the following pages for details of value creation in realization of carbon neutrality.

- [Technology Roundtable Talk](#) (pp. 43–46)
- [TCFD recommendations-compliant disclosure](#) (pp. 58–62)

1 Asphalt warm mix equipment (warm mix [foamed] equipment)

Nikko has developed Blue Cyclone, mechanical warm mix (foamed) equipment required for manufacturing warm mixture, and has been offering it to the road pavement industry, which has been actively incorporating warm mix as part of efforts to reduce CO₂ emissions. The use of the product enables^{*1} a 6% reduction in CO₂ emissions compared with a conventional plant.

^{*1} Nikko's calculation for the CO₂ emitted at a mixture plant.

Mechanical warm mix (foamed) equipment Blue Cyclone



2 Fuel transition

Nikko has completed testing a small-sized model of asphalt mixture manufacturing plant using a test burner fired by the next-generation fuel hydrogen instead of heavy oil. Similarly, it has completed the combustion test phase of an ammonia burner and has embarked on the development of a small-sized model. Nikko will continue developing these products to address new fuels aimed at reducing CO₂ emissions by considering the development status of fuel supply infrastructure.

Hydrogen burners (in development)



3 Enhancement of aggregate moisture management

The amount of water contained in aggregate has the biggest impact on CO₂ emissions in manufacture of asphalt mixture. Nikko has been developing a system

device that reduces the amount of water in aggregate before the drying process, and it plans to make it available within the current fiscal year.

One Nikko Platform, which realizes new value creation

In the new CRM (customer information database) being built, we are aiming to create new values by developing a system that leverages IoT tools and AI to connect customers and Nikko. We are envisaging a future, where, in case of suspension of operations of a plant, we limit the downtime to the minimum by

sending staff from a nearby Nikko Group base, utilize data from CRM in new product development, and enhance customer contacts also in digital space, while managing the life cycle of plants, which are customers' assets, in asset management through next-generation preventive and predictive maintenance.

One Nikko Platform, which connects customers and Nikko

