

TF meeting on regulatory reforms to be held

Sep. 5, 2022 (Mon) 9 AM, Vice Minister of Environment Yoo Je-chul

Before I begin, I would like to mention this year's 11th typhoon, Typhoon Hinnamnor. We know that considerable concern has been expressed about the typhoon. The Ministry of Environment will take all the necessary measures to prevent any potential damage from the typhoon.

I will begin with today's briefing.

A circular economy is an economic system that pursues sustainability by continuously reusing or recycling products without disposing of them after production and use through raw materials input.

Please see the first page of the handout.

Business models for the circular economy are drawing attention as environmental regulations at home and abroad are being strengthened, and consumers' environmental awareness is increasing.

Given the market size and future growth potential, plastics and spent electric vehicle (EV) batteries are expected to lead the future of the circular economy market.

However, many point out that the lack of regulations and systems is an obstacle to achieving a circular economy. We need to make policy efforts to improve the situation in the future.

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The global market for chemical recycling is expected to have an average growth rate of over 17% per year. Global Chemical companies are taking action to enter the market.

In Korea, SMEs have mainly adopted low-value-added chemical recycling for waste treatment. Recently, conglomerates and the public sector have been expanding the demonstration and investment of high-value-added chemical recycling.

However, regulations in each phase of location selection, production, sales, utilization, etc., hinder the growth of the plastic pyrolysis industry.

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Along with an increase in the number of EVs, The global battery recycling market is expected to grow rapidly at an average growth rate of 31.8% per year by 2027.

The Korean recycling market is growing, centering on the existing battery recycling company, and the re-manufacturing and reuse market is still in its demonstration phase.

As Korea has a competitive edge in the spent battery industry, it is necessary to improve related systems to boost the industry.

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The ministry will take regulatory reform to promote plastic pyrolysis.

The revised legislation will stipulate that pyrolysis oil from waste plastics will be used as raw material such as naphtha for petrochemical products.

We also plan to allow the use of pyrolysis oil as a raw material for the refining process, like crude oil. As of now, this is not permitted according to the Petroleum and Alternative Fuel Business Act.

We plan to re-classify pyrolysis plants, currently categorized as incineration plants, as chemical recycling plants. We will also simplify the standards for their installation and inspection.

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When moving into the industrial complexes, there have been complaints regarding the ambiguous industrial classification of pyrolysis plants. As our solution, we will swiftly develop industrial classification codes.

We will also expand our incentive program and financial support for pyrolysis plants.

We will establish standards and verification methods for chemical recycling records and reflect them in reducing waste charges.

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We will increase the subsidy for "extended producer responsibility" for pyrolysis from plastic waste and reorganize the subsidy structure to encourage producers' recycling of high-quality plastics.

We plan to further support for R&D of plastic pyrolysis and will build ten more public pyrolysis plants by 2026.

The Ministry of Environment will also support the automation and modernization of public sorting facilities. The ministry will increase twenty-five vinyl sorting equipment by 2026.

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Only pyrolysis is currently included in Korea's green taxonomy, among other chemical recycling methods. As such, while monitoring the development progress of other

technologies, such as depolymerization and solvent extraction, we intend to review the inclusion of those technologies in the green taxonomy.

To create market demand and respond to environmental regulations abroad, the Ministry of Environment will establish a database of basic information necessary to calculate the carbon footprint of chemically recycled plastics. At the same time, the ministry will expand the market for recycled plastic products and containers.

Page 10 is about measures to boost the used EV battery industry.

The first measure is to significantly ease the standards for used EV batteries to be recognized as circular resources. The Ministry of Environment will revise the Framework Act on Resources Circulation to recognize circular resources without application to exempt from waste regulation for used EV batteries.

The Ministry of Environment will revise the Electrical Appliances And Consumer Products Safety Control Act to set the safety standards for reusing batteries, allow manufacturers to inspect by themselves before reuse batteries, and adopt software inspection techniques to reduce inspection costs and time.

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The Ministry of Environment will revise the Motor Vehicle Management Act to prepare the distribution basis exclusively for batteries separated from EVs, revitalizing the used battery rental and reuse business.

We will accumulate all data generated over the entire cycle of production, registration, operation, removal, reuse, and recycling of EV batteries in a public database. We will discuss how and how much to open database information with the industries. Once both sides reach an agreement, we will share it with the industries and insurance companies to better utilize the information.

Next, please see page 12.

The Ministry of Environment will set up a plan to share information on the battery's internal control system. In addition, the private sector-centered "Battery Alliance" will be launched this year to draft an industry-level plan for an integrated management system and plan for support for used batteries. We will finalize a government-level draft and proceed to legislation based on this.

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We will increase the research and development of re-manufacturing, reusing, and recycling batteries.

The Ministry of Environment will support the research and development on diagnosing, evaluating batteries' residual value, re-manufacturing, and recycling. We also plan to form a used battery resource recycling cluster in Pohang, Gyeongsangbuk-do, by 2025 to support demonstrating and commercializing new products and technologies.

We will also exert efforts to build the center for industrializing rechargeable batteries.

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To respond to the regulations of the EU on the mandatory use of renewable raw materials in batteries, we will add information on the percentage of used renewable

materials to the 'Environmental Product Declaration' and try to introduce a 'Certification of renewable raw material traceability.'

We will include products with recycled raw materials and recycled or reused batteries in the 'Excellent Recycling Product Certification' and prioritize them in public procurement.

As with the chemical recycling of plastics, we will establish a database of basic information necessary to calculate the carbon emissions of EV batteries. We will develop evaluation techniques to promote the re-manufacturing and recycling batteries with low carbon emissions.

We will skip from page 15 and onwards.

[Q&A]

<Q>

Thank you for the early morning briefing. I have three questions. First, I have heard that most companies of plastic pyrolysis are micro-sized businesses. In other words, they are short of human resources. I wonder if there is any action taken in large companies or SMEs. Also, I am curious whether the reduction of waste charges is temporary or not.

For my second question, in what category will pyrolysis plants be included once the industry classification is finalized? For instance, will pyrolysis plants be categorized as oil refining or chemical companies? If so, will it be permitted to build the facilities on their respective sites? If oil refining or chemical companies construct an additional pyrolysis plant, will they be benefited from the related deregulation?

My last question is about used batteries. You've mentioned the government anticipates

that the country's dependence on overseas minerals needed for batteries will be lowered. I wonder if minerals obtained from recycling batteries are sufficient to reduce the country's dependence on imports.

<A>

As of today, about a dozen micro-sized companies are pyrolyzing plastic waste on a small scale and supplying them as fuels rather than raw materials.

Recently, conglomerates, especially those in the chemical and oil refining industries, have been very interested in and are currently undertaking demonstration projects to use pyrolysis oil for oil refining.

Four large petrochemical or oil refining companies are currently in the demonstration process thanks to the regulatory sandboxes. As mentioned in my report, the ministry is currently working to build ten plants by 2026.

While SMEs undertake most work, if these large corporations participate in an economy of this scale in the future, I believe the industries will be boosted through an added synergy.

There is an issue regarding the designation of a suitable business for SMEs. And the issue of whether the industry suits SMEs or conglomerates. I would say that the ministry is working on this separately.

Among chemical recycling, there can be other types of chemical recycling, including the pyrolysis of plastic waste. For the items recycled using this kind of technology, the ministry will reduce the recycling charges by calculating the recycling records.

It does not mean that it is temporary. As long as we maintain the obligation for recycling charges, we will also maintain the exemption or reduction of recycling charges.

As for now, it is hard to say how we will develop the industry classification since it requires discussion with the relevant institutions. Moving into an industrial complex is sometimes challenging, and the interpretation of classification varies. So we expect to review the industry classification in a way to resolve this matter.

We should modify the industrial classification to make it easy to move into industrial complexes as much as possible. Since discussions among relevant institutions are required, we will come up with the final classification scheme by the end of this year.

All the deregulation benefits announced today will be applied in the case of building new facilities or expanding the existing facilities.

As you may know, we import more than 80% of the critical minerals from countries like China. Our primary aim is to reuse and re-manufacture the used batteries. If this is impossible, we may have to recover rare metals by recycling materials. There are rechargeable batteries necessary for our home appliances such as washing machines. We should recycle these materials to lower our dependence on overseas minerals further.

A circular economy is a system that continuously collects and recycles materials used in the past without immediately disposing of or landfilling them. Considering this, we plan to undertake reform of various systems in other areas, focusing on the circular economy.

<Q>

Thank you, vice minister, for the briefing. I have two questions. You have mentioned incentives for waste charge reduction. Then how much are the companies entering the pyrolysis oil market charged for waste, and is there an expected amount of reduction

in the fees?

Also, regarding restructuring the EPR subsidy, if this will raise the unit price of the subsidy and increase the activity rate, wouldn't there be a fairness issue between other recycling and plastic recycling? I would like to hear your thoughts on this matter.

<A>

Was the first question about the waste charge reduction incentive?

<Q>

Yes. I am aware that petrochemical companies have entered the plastic-to-pyrolysis oil production market. I believe the incentive amount will decide how the scheme will attract more companies. In short, do you have a target amount?

<A>

My answer is only related to plastic waste. We collect waste charges from the respective companies, while we collect waste charges on the plastic products through the EPR scheme simultaneously. Specific industries subject to waste charges are listed in the Act on The Promotion of Saving and Recycling of Resources. We collect waste charges from those companies by unit prices of the plastic products they have produced. So, there are fees that are significantly reduced and fees that are not. I will provide you with the exact amount and data separately.

As for now, it is hard to predict the reduction amount as we have to prepare the recycling-related standards and verification and calculation methods. There is also a part of this scheme that reduces the fees of companies that recycle certain materials.

We plan to give reductions for chemical recycling in addition to material recycling.

Once we calculate to-be-chemically-recycled quantities and current reductions through material recycling, we can come up with the estimated amount.

Moving on, the EPR is a system in which recycling companies act on behalf of large corporations or manufacturers for recycling, and large corporations and manufacturers pay the necessary costs to the recycling companies. This system will increase the subsidy for pyrolysis recycling to give a little more incentive than the subsidy for material recycling and thermal recycling. It also aims to enhance the subsidy for chemical recycling with higher values by reforming the subsidy structure of the EPR system. Yet, we believe further research is necessary to work on the details.

<Q>

Then, let me rephrase my question. How much is the ERP subsidy provided for pyrolysis recycling as of now?

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It is KRW 173 per kg.

<Q>

Thank you for your briefing. I know that the Ministry of Environment has a plan for the pyrolysis of plastic waste. I heard that the ministry plans to expand the scale of plastic-to-pyrolysis oil production to 900,000 tons in 2030 and to increase its proportion from 0.1 to 10% in 2030. I am wondering if today's announcement is part of the said plan. If not, I believe there will be a revision to the 2030 target in case the ministry plans to take action to revitalize plastic-to-pyrolysis production. I would also like to know how far the plastic waste-derived pyrolysis oil market will expand in relation to the 2030 NDC. And how is this reflected in the 2050 Carbon Neutral Scenario roadmaps?

<A>

We announced last year about significantly increasing the chemical recycling rate by pyrolysis among our comprehensive measures for plastic waste. Today's briefing was about how we will eliminate barriers to reaching our goal and how to provide incentives.

While last year's announcement focused on supply, today is more about the dramatic reform of the relevant regulations and systems. My ambitious goal is to "reach a 10% chemical recycling rate by pyrolysis". However, I believe we can raise the goal a little higher if we improve the system and conglomerates join our efforts.

We extract plastics from crude oil intending to significantly reduce carbon emissions at all stages, from the extraction, transportation, and manufacture to the use and disposal of such raw materials in the circular economy. And I believe this can have a direct, positive impact on the 2030 NDC and the 2050 Carbon Neutral Scenario roadmaps.

To answer your question, we need to calculate carbon records in detail and plan to advance into overseas markets such as Europe. I would like to stress that we intend to build and update the public database that accurately calculates carbon emissions at the earliest possible date.

<Q>

I think the key here is making it possible to use pyrolysis oil as raw material, not as fuel. I wonder if we can secure economic feasibility when this is implemented. Simple crude oil extraction seems more practical. Do you have plans to make using these recycled materials mandatory in some parts?

<A>

As you have mentioned, economic feasibility, when compared to the method of burning PETs, pellets, or solid fuels through material recycling, pyrolysis requires a relatively low temperature. Because it applies heat without oxygen, this method uses much less heat than incineration or other methods to extract fuel, oil, and gas.

It is difficult for me to give you an exact answer at the moment to compare the economic feasibility of importing crude oil from scratch. Yet, I can say that pyrolysis is environmentally and economically beneficial compared to the current method of disposing of such generated waste. That answers your question on economic feasibility.

I'm sorry, what was your next question?

<Q>

I am curious if making some of these recycled materials mandatory when making plastics would be possible.

<A>

Making them mandatory? The priority is to revitalize the market through research and development in the related field. We indeed obligate recycling a certain part of the waste under the EPR system.

Among them, we are pursuing to give more incentives to induce chemical recycling in the form of pyrolysis. It is indirectly reflected in the mandatory recycling rate. However, we need to pay extra attention to whether to specify the exact amount. The market is still in its infancy, and I believe it is more efficient to revitalize the industry through the market rather than just focusing on regulatory measures.