1. Introduction

It would be fair to say that consumer electronic products, rather than batteries, are perhaps the first things that come to mind when the names ‘Panasonic’ and ‘Sanyo’ are mentioned. Although the Commission’s 2009 investigation of the tie-up between these two Japanese groups looked closely at a number of consumer products (1), it was in fact batteries in various shapes, sizes and chemistries that were at the heart of the competition analysis (2).

The case raised a number of interesting issues from a merger control perspective related to the Commission’s remedy policy and how the Commission interacts with other competition authorities around the world. Besides notification to the European Commission, the transaction was subject to review by at least ten other competition authorities.

Considering the importance of the transaction and to gain the maximum benefit from international cooperation, the case team made contact with their Japanese and US colleagues at a very early stage of the procedure (during pre-notification). These early contacts allowed the authorities to exchange information on their procedural timetables and the focus of their market investigations. During the procedure, a great deal of information was exchanged between the three authorities. These exchanges were made possible thanks to bilateral agreements on cooperation (3).

In addition to the European Commission, three other authorities, namely the US Federal Trade Commission (FTC), the Japanese Fair Trade Commission (JFTC) and MOFCOM, cleared the case conditionally after the parties submitted remedies. As the market structure differs across regions, the competition concerns were not always identical. In order to avoid conflicting remedies in different regions and to ensure that, in the interest of the merging parties, the remedies were consistent and coherent, the Commission worked in close cooperation with its US and Japanese counterparts.

2. Rechargeable batteries for automotive use

The Commission looked in some detail at batteries (4), or more precisely, rechargeable batteries and their actual and potential use in passenger cars.

These batteries have attracted much attention recently as various battery producers, car manufacturers and even governments have announced plans to support the development of battery technology and encourage the move towards the mass production of electrically powered vehicles, perceived to be more environmentally friendly.

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3. Batteries are devices that produce electrical energy by means of a chemical interaction between a negative electrode (anode) and a positive electrode (cathode) through a conductive material (electrolyte). The resulting electricity may be tapped from the cell and used to power a wide range of devices.
Electrically powered vehicles, which include hybrid electric vehicles (HEVs), plug-in HEVs (PHEVs) and pure electric vehicles (EVs), are currently sold in limited volumes in comparison to conventional vehicles (1). Their sales, however, are expected to increase dramatically in the future as consumers become more familiar with the new technology and car manufacturers strive to meet more stringent emission and fuel consumption targets by either partnering or replacing the vehicle’s internal combustion engine with an electric motor.

The batteries used in these new vehicles are for the most part developed from the nickel metal hydride (NiMH) and lithium-ion (Li-ion) technologies that are used in the type of portable batteries that power hand-held devices such as power tools, mobile phones, personal care products and laptops.

2.1 Combination of the leading players — but no competition concerns

Sanyo is active in the manufacture and supply of NiMH batteries for automotive use and is in the process of beginning the production and commercialisation of batteries using Li-ion technology. Panasonic is, however, currently active only in the manufacture and supply of NiMH batteries both independently and via a joint venture with Toyota (Panasonic EV Energy Co., Ltd. or PEVE), which also has the possibility to offer NiMH batteries to third parties.

The Commission therefore first examined whether the combination of the merging parties’ activities in NiMH batteries for automotive use would result in anti-competitive effects as the parties are the leading players in this market.

Although the volume of NiMH batteries manufactured and sold is expected to increase significantly in the near future as a number of vehicle models already under development come to the market using this technology, the Commission’s market investigation confirmed that competition to supply NiMH for automotive applications has essentially ended. This is because NiMH, although a proven technology in HEVs, has certain limitations in terms of weight and energy density when compared to Li-ion that appear to make it unsuitable for use in PHEVs and EVs, where the degree of vehicle electrification and the demands placed on the battery are greater.

As a result, new investment in rechargeable batteries for automotive applications is directed towards Li-ion. The Commission’s extensive market investigation confirmed that the development efforts of numerous car manufacturers and battery suppliers are focused on Li-ion for future model programmes (whether HEV, PHEV or EV), leading to the expectation that Li-ion will replace NiMH in the mid-term.

The market investigation indicated that issues may arise relating to the use of Li-ion in automotive applications, such as safety concerns because of the sensitivity of Li-ion technology to high temperatures. However, the Commission found that this would be likely merely to delay the adoption of Li-ion technology and would not lead OEMs to return to NiMH, where the merged entity would have a strong market position. Therefore, the Commission was able to conclude that competition in the market for NiMH automotive batteries was already essentially over.

Given the above circumstances, the Commission concluded that the proposed transaction would not raise competition concerns in the area of rechargeable batteries for automotive use (2).

The FTC and JFTC reached a similar conclusion to that of the Commission. MOFCOM however found that the concentration as originally notified raised competition concerns in the area of NiMH batteries for automotive use given the merged entity’s high market share. To address these concerns, Panasonic committed to divest its automotive nickel metal-hydride battery business to a third party and implement measures to eliminate its influence on the PEVE joint venture with Toyota (3).

3. Portable batteries

The Commission also investigated primary (non-rechargeable) and rechargeable ‘portable’ batteries. The term ‘portable’ refers to batteries that can be carried and as previously noted are used in relatively small devices such as power tools, mobile phones, personal care products and laptop computers. The merged entity will become the biggest rechargeable battery producer in the world.

There are also different technologies for rechargeable batteries which lead to different physical and

(1) The term hybrid electric vehicle is used to describe a vehicle that combines a conventional internal combustion engine (ICE) with one or more electric motors. An electric vehicle, on the other hand, does not have an ICE and therefore relies entirely on battery power. Plug-in hybrid electric vehicles or PHEVs, which can be seen as an intermediate category in terms of vehicle electrification, have an ICE but differ from HEVs in that their battery can be recharged through external sources whereas the other systems recover electric energy from kinetic energy during the braking process (i.e. regenerative braking).

(2) This is independent of the exact product market definitions, i.e. possible markets for NiMH and/or Li-ion modules and/or battery systems.

performance characteristics (13). In general terms, the market investigation showed that NiMH batteries are being replaced by Li-ion technology, in particular for some ‘weight-sensitive’ applications (such as mobile phones and laptops). As a result, today, Li-ion is by far the dominant technology.

However, and in contrast to batteries for passenger cars, the Commission found that for some applications NiMH offers very desirable properties such as increased safety, reliability and lower cost and therefore the demand for NiMH portable batteries for these applications will persist. These applications include power tools, cordless telephones, shavers as well as consumer rechargeable batteries (14).

### 3.1 Different market dynamics in the NiMH and Li-ion markets

Different competitive conditions resulted in different conclusions being reached with respect to the Li-ion and NiMH battery markets despite the leading position of the merged entity post-transaction in both of these markets.

The market investigation showed that for NiMH batteries the parties are considered to be very close competitors. For some high-quality industrial applications they are even viewed by market participants as the only two reliable suppliers. This was also supported by the parties’ tender data. Furthermore, the NiMH market is very concentrated and new entry in the market was seen as unlikely by the respondents to the market investigation. As a result the Commission raised competition concerns in the NiMH market.

The situation in the Li-ion market(s) (12) is somewhat different. Industrial manufacturers considered that competing battery manufacturers offer credible alternative solutions for virtually all applications. These findings were confirmed by the parties’ tender data. Also, the Li-ion market(s) are fast-growing and characterised by a high rate of innovation. Therefore, the Commission was able to clear the market(s) for Li-ion batteries.

The other antitrust authorities reached the same conclusion for the Li-ion markets. As to NiMH battery markets both the FTC and MOFCOM also identified competition concerns that needed to be remedied.

### 3.2 Competition concerns for CLBs and rechargeable coin-shape batteries

The Commission raised serious doubts in two further, albeit smaller, portable battery markets, namely cylindrical lithium batteries (CLBs) and rechargeable coin-shape batteries. CLBs are primary (i.e. non rechargeable) batteries that are mainly used in fire alarms and utility meters due to their long shelf life and their ability to generate strong bursts of power. Rechargeable coin-shaped batteries are very small batteries whose diameter is greater than their height. Due to their limited capacity they are mainly used as back up power for certain applications (in mobile phones), in watches as well as for keyless entry systems (in cars). In both of these markets, the Commission identified competition concerns as Panasonic and Sanyo are strong players, close competitors and face limited competition from other battery manufacturers.

The JFTC also identified competition concerns in CLBs (13) whereas MOFCOM raised doubts in the rechargeable coin-shape battery market.

### 4. The remedies

In response to the Commission’s findings in phase I, Panasonic and Sanyo agreed to divest the entire overlap for rechargeable NiMH batteries, CLBs and rechargeable coin-shape batteries. The remedy discussions with the parties, the market test and the final commitments submitted touched on a number of interesting issues, namely: (i) the problems with carve-outs, (ii) the submission and market testing of alternative remedies with no a priori ranking, (iii) divestments in China, and (iv) the importance of good coordination with other competition authorities in formulating suitable remedies (which will be addressed in the last section of this article).

#### 4.1 Carve-out vs. full plant divestiture

In line with the commitments submitted originally to the JFTC, the parties initially proposed a carve-out solution to the Commission to remedy the competition concerns for CLBs and rechargeable coin-shape batteries. The Commission’s investigation, however, showed that a carve-out solution could not be accepted as a prima-facie clear-cut remedy to be market tested. The Commission Notice on Remedies (14) expresses a clear preference for divestiture of an exist-

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(13) A further rechargeable battery technology not used in passenger cars is based on Nickel Cadmium (NiCd). However, Panasonic is no longer active in this market.

(14) They are sold to end-consumers as a replacement for primary (e.g.) alkaline batteries.

(15) Li-ion batteries might be further segmented according to their different shape and type, i.e. cylindrical, prismatic or polymer.

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(15) The competition concern identified by the JFTC related mainly to the use of CLBs in residential fire alarm systems, which became mandatory in Japan recently.

ing stand-alone business over a carve-out solution as it offers a higher likelihood that the business will be able to compete effectively with the merged entity on a lasting basis.

In the present case, the respective battery manufacturing equipment consisted of heavy machinery which could only be removed, transported and reassembled at high cost. Furthermore, it would have led to considerable disruption of the business as it is a time-consuming process. In addition, it was doubtful whether the necessary qualified personnel with the requisite know-how would be willing to be transferred to another location.

Therefore, a carve-out solution was not accepted for market testing. Accordingly, the parties committed to divest a plant which would remove the entire overlap in CLBs and in rechargeable coin-shape batteries. The market test confirmed the suitability of this remedy. The JFTC subsequently approved the same commitment in terms of removing the competition concern identified in the (Japanese) CLB market.

4.2 Alternative remedies

To eliminate the competition concerns in the NiMH battery market, the parties proposed to divest either the Panasonic NiMH business or the Sanyo NiMH business. Either alternative would include the respective production facilities with all the respective tangible and intangible assets and would remove the entire overlap between the parties’ activities in this area. The two alternative divestments each had their respective strengths and weaknesses and hence differed from a ‘crown jewel solution’ where one of the proposed divestments prima facie is clearly superior. This was confirmed by the market test and therefore both alternatives were retained in the final commitments.

In general, the submission of alternative remedies is not appropriate. They complicate the remedy procedure as the competition authority has to gather information on both alternatives, seek the views of market participants and negotiate the concrete terms of two different scenarios. As the Notice on Remedies stresses it is necessary that the commitments establish a clear procedure on how the divestment takes place (15). It is indispensable that interim preservation and hold-separate measures apply to each alternative remedy business until one alternative has been completely implemented. In practice this means that both businesses have to be ring-fenced and not integrated into the new merged entity until the divestiture has been implemented. Nevertheless, in the very specific circumstances of this case the Commission accepted alternative remedies.

4.3 Divestment in China

In this case the divestment of plants located in China was part of the remedy package. As more and more products are manufactured in China and global businesses shift their production there, the assessment and effective implementation of divestitures in China becomes increasingly relevant. One particular concern in this case was the feasibility of speedy divestments in China, due to alleged burdensome legislation and approval processes. This could jeopardise the time-frame required by the Commission’s standard commitments, which serves to preserve the viability and competitiveness of the divested business. If remedies are also offered in jurisdictions that normally require a fix-it-first solution, the coordination of remedies between jurisdictions adds further complications.

In the present transaction, the divestiture of a plant in China was accepted as a suitable clear-cut remedy by the Commission. Nevertheless, in the end, the alternative divestiture involving a plant in Japan was successfully implemented as it could also be approved by the US authorities in a timely fashion.

5. International cooperation

Given the procedural and substantial differences between different merger control systems, dealing with multi-jurisdictional transactions can be very challenging for merging parties and for the competent competition authorities. This is particularly true when the clearance of the transaction is subject to remedies agreed with several competition authorities as was the case in Panasonic/Sanyo.

In the present case, the difficulties resulting from procedural differences were further emphasised by the fact that the notification was made much earlier in the US than in the EU. At the time of the formal notification in the EU the FTC had already opened a second-phase proceeding (second request) and the parties were also in an advanced stage of negotiations with the JFTC (16).

(15) In a scenario of real alternative remedies as in the present case, the notifying party has the option throughout the First Divestiture Period to switch between both alternatives until the Commission has approved one of the alternatives. Similarly, the Divestiture Trustee has the option during the Trustee Divestiture Period to switch between both alternatives.

(16) It should be also noted that under the Japanese system, the parties to the transaction (anticipating possible anti-competitive concerns) have the possibility to engage in formal consultation on potential commitments with the JFTC well before the formal filing becomes due. Unlike the Japanese system, the Commission does not adopt such practice and formal remedy discussions only start once competition concerns have been identified.
Thanks to the contacts established with the FTC and the JFTC, the Commission was informed, at an early stage in its procedure, of the major legal, economic and factual focus of its US and Japanese counterparts. The sharing of information received in the framework of the market investigations was beneficial in understanding the different market structures for batteries across the various regions of the world. Moreover, cooperation with the JFTC and the FTC was useful given the world-wide scope of some of the battery markets and the fact that all the production facilities of the parties, competitors and the main customers were headquartered outside the EEA, mainly in Asia.

The biggest challenge of the cooperation was the coordination of remedies. This is not surprising given the overlapping competition concerns on potentially world-wide markets. Furthermore, a locally tailored divestiture was not possible as all relevant production facilities were located outside the EU, mainly in Asia. As a result the Commission had to coordinate its remedy negotiation closely with the US and Japanese authorities in order to avoid conflicting remedies which would have created problems for the merging parties and caused political unease. The difficulty in finding remedies satisfactory to all authorities was also complicated in the present case by the gap between the different timetables and different procedures (17).

6. Conclusion

The Panasonic/Sanyo case has demonstrated the importance of effective cooperation between competition authorities in particular when remedies are involved. Notifying parties need to be aware of this issue when managing the review process and should be ready to engage constructively in remedy discussions if a successful outcome in phase one is to be achieved. Overall, and after the successful implementation of the remedies, it can be affirmed that international cooperation between the Commission, the FTC and the JFTC contributed significantly to the successful and timely conclusion of the merger review process.

(17) For instance, the US competition authorities generally prefer a fix-it-first solution, whereby the identity of the buyer is decided before closing of the transaction, in contrast to the Commission’s post-transaction trustee-based divestment procedure.