

## Electric Vehicles—EU Legal Issues

Kiran S. Desai



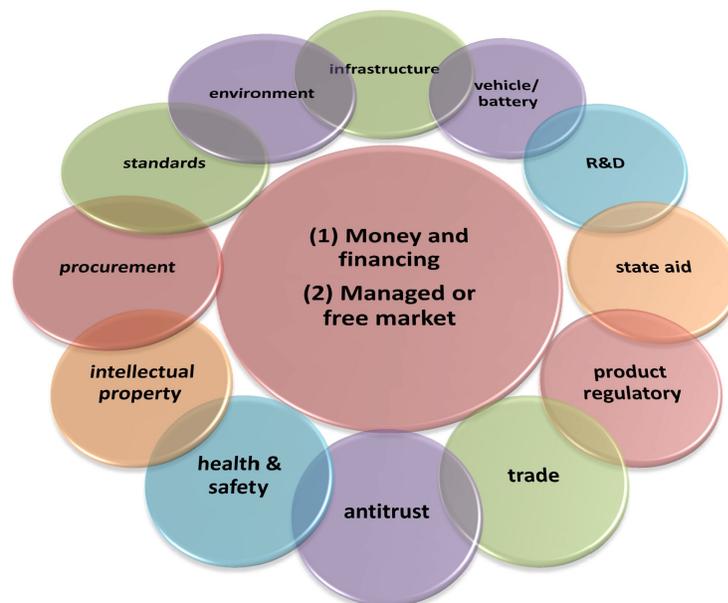
Kiran S. Desai  
Brussels  
+32 2 502 5517  
kdesai@mayerbrown.com

As electric vehicles become more prevalent throughout Europe, EU Member States will face legal issues at the policy and legislative level while European companies face them in terms of their strategic decisions and day-to-day operations. The European Commission predicts that electric vehicles will constitute a material part of the total vehicle fleet in the European Union, growing to 30 percent by 2030.

The EU automotive industry is a global leader and there exists at the political level the industrial policy objective that this must remain the case.<sup>1</sup> There will be EU and national Member State support for the automotive industry

and other stakeholders to ensure this industrial policy objective is met. As a result legal issues arise both within the European Union and between the European Union and its trading partners.

These legal issues can be considered to relate to two broad themes. First is the tension between the European Union's efforts to manage the market outcome (likely based on strong industrial policy grounds) and the need not to distort the perceived optimal outcomes that the free market (competition) could deliver. Second is the question of who pays for change—how much, and to what extent, financial support is required.



## Batteries — an Example

There are many elements that must be addressed in order to ensure the creation and development of a viable market for electric vehicles. These elements constitute a complex web, with the elements being interrelated as well as any possible changes to the elements having consequences outside of the immediate field of electric vehicles.

In this paper we address one element – batteries – to demonstrate the complexity of issues arising in the electric vehicle market.

The car manufacturers have presented two business models. One is the traditional model by which the end consumer buys the car. In this business model, the battery is re-charged at electricity points that are predicted to be ubiquitous and come in various forms from steady overnight re-charging to a quick charge point. (We refer to this as the ownership model.) The other model is that the battery, while also capable of being recharged, is predicted, particularly for long journeys, to be swapped at stations using special equipment that allows easy and quick replacement.<sup>2</sup> (We refer to this as the rental model.) Consideration of these models raises commercial and legal issues, some of which include:

- Who will own the electric vehicle's battery?
- How does the owner finance the acquisition of the battery?
- If the battery owner is not the vehicle owner, what liability and insurance issues arise?
- Who is responsible for the replacement of the battery at the end of its life and dealing with the battery thereafter?
- What characteristics must a battery meet in order to be marketed and who decides those characteristics?
- Who will make the battery, and where and how will the battery get to market?

### My Battery or Your Battery?

The ownership model raises no novel finance issues. Thus, an electric vehicle owner may personally finance the vehicle outright, possibly through a bank loan, or may acquire it through third-party financing provided

by the vehicle manufacturer or dealer. However, issues arise in other quarters—such as financial incentives for purchase (see “State Support”).

In contrast, for the rental model, the first issue is whether the vehicle owner would pay for the battery in an ownership concept or in a rental concept. Ownership, in the strict sense of legal title to the battery, would not be possible because each particular battery will be changed. However, the vehicle owner could be given an ownership right in the sense of having the right to possess a battery. Thus, the vehicle owner's sale of the vehicle would also include sale of the battery ownership right. Alternatively, the vehicle owner could “only” acquire a rental right. A rental right raises the question of which entity is to supply (rent) the battery.

The question arises because the car manufacturers may not find it attractive to enter into this business activity. For example, the vehicle rental companies such as Avis may be far better equipped to undertake the financial and logistical aspects of owning millions of batteries,<sup>3</sup> and ensuring they are available in a charged state at the battery change stations that vehicle users demand. Equally, a logistics company such as DHL, an electricity provider such as EDF or the finance arm of a vehicle manufacturer could consider this business activity to be a market worth entering.

---

“Your car dealer will offer the purchase of the car, the rental of the battery and the contract to supply you with energy.”

Thierry Koskas, Director of EV project, Renault

---

The rental agreement with the vehicle owner can be expected to be of various forms. It may thus include not only the battery, but have ranges of how many battery changes per year are available to the vehicle owner, and perhaps which regions or countries are included. Payment premiums could be included if a vehicle owner exceeds the agreements terms, by analogy in the same way that premiums or rather penalties are paid by bank account holders if they exceed agreed-upon overdraft limits.

These rental agreements currently do not exist as standard, and the terms will need to be worked out, both in the senses of how they are drafted and what becomes market practice.<sup>4</sup> A coalition of those who would enter this rental market might consider trying to develop some standard terms, although that may have competition law implications (see “Competition for the market,” below).

## Charging Infrastructures

Battery charging can happen in two ways: by plugging the car to a conventional plug (the solution of all car manufacturers) or by developing a network of replacing stations where the battery is automatically extracted and replaced with a new one (Renault’s choice for some models).

For the simple plug-in method, some countries (like the United Kingdom, Portugal and France) are developing, or plan to develop, a wide network of plugging stations, allowing drivers to charge their vehicles outside their homes. By the end of 2011, Portugal will have 1,300 stations while Denmark plans to have 500,000 such stations.<sup>5</sup>

Renault’s concept of battery replacing stations will first be developed in Israel and Denmark, through its partnership with the company Better Place.

EU Member States have different approaches to electric cars and therefore the building of charging station networks is not homogeneous in Europe, as existing financial incentives emphasize.

## State Support

There are significant discrepancies in EU financial incentives for the acquisition of electric vehicles.<sup>6</sup>

For example, in France, a customer can receive approximately EUR 5,000 in financial support for a single vehicle (considering that Renault’s car will cost around EUR 35,000, it is a significant incentive). France also granted in October 2010 a loan of EUR 100 million at a preferential rate to Renault for research and development (R&D) in this field. This loan has apparently been authorized by the European Commission that reviewed it informally<sup>7</sup> and no formal procedure has been launched. The French authorities also announced they will buy 50,000 electric

cars over the next few years. Such an acquisition will likely be subject to procurement rules under EU law, and potentially non-EU government procurement rules, in particular the World Trade Organization (WTO) rules under the multilateral Government Procurement Agreement.

The United Kingdom plans to offer £5,000 to each customer buying an electric vehicle starting in 2011. Portugal has already entered into an agreement with Renault-Nissan for incentives to develop certain infrastructures.

By contrast, in Germany, there are apparently few and non-material incentives or planned charging stations. The government seems to focus more on supporting R&D.

These acts constitute single measures addressing specific issues. Arguably there is still no real coordinated EU strategy to develop the electric vehicle sector.

---

Incentives must be introduced at the right time, targeted, non-discriminatory, and limited in time and budget.

— Communication from the European Commission, *A European strategy on clean and energy efficient vehicles, 2010*

---

One of the issues is how the Commission will deal with the demand incentives in the next few years. The main question concerns the qualification of these incentives as State aid.<sup>8</sup> Considering the four-criteria definition of State aid<sup>8</sup> (public resources, impact on internal market, advantage to the recipient and distortion of competition), it remains uncertain whether such financial incentives granted to customers can be considered as an advantage to certain car makers toward their competitors.<sup>9</sup>

## Competition — Antitrust Issues

While consideration of the infrastructure issues is beyond the scope of this paper, one element is important for batteries: the number of potential business models pursued by different mixes of businesses, including electricity distribution companies, electric power companies, energy retail businesses (petrol stations, but also others such as supermarkets), logistics and physical distribution companies, battery producers and vehicle manufacturers.

In order to create the market and make it work, it is very likely that these businesses will need to cooperate. That cooperation will likely need to be strategic or at least long-term. These forms of cooperation may be between competitors across national borders. They may also be between non-competitors and have degrees of exclusivity.

These types of cooperation may create anti-competitive effects and raise competition law issues that will need to be addressed. Those issues become more complex where there are beneficiaries of State aid and where standards create barriers to entry.

Several manufacturers have entered into agreements, such as Peugeot-Citroën with Mitsubishi. It has been agreed that Peugeot-Citroën will buy from Mitsubishi its electric car (iMiEV under Mitsubishi) and sell it under the French company's brands (C-Zero for Citroën and iON for Peugeot). Such an agreement leads the manufacturers to a close cooperation. There would be a concern if the natural next step is anticompetitive coordination.

In relation to cooperation between market players, this seems to be inevitable. One example would be agreements between car manufacturers and energy suppliers<sup>10</sup> for the development of charging stations. For other car manufacturers, the concern might be that their cars would be closed out of the market (foreclosure). If lack of compatibility does become an issue, first-mover advantages could be significant to win the market, although with winning the market could come concerns of abuse of dominance. In this context, so-called "essential facilities" arguments could be relevant.

Such a risk of abusing a dominant position in certain countries is also present because of the relationship between manufacturers and public bodies. By way of illustration, Renault-Nissan is apparently very active in negotiating support from public bodies in France to build the necessary infrastructures for the launching of its electric cars. In coming years this could make entry into the market difficult for some competitors. Where compatibility becomes an issue, the race to market is important in order to reach the tipping point where there is only one meaningful market supplier. The involvement of public bodies also raises a potential State aid concern.

## What Market?

One of the early questions that will need to be addressed is a central issue under competition law: what is the product market? Existing precedent relates to combustion engine vehicles. Resolution of the market definition will have important consequences in terms of framing the ability of some businesses to engage in certain activities and in potentially limiting co-operation between certain stakeholders.

Defining the relevant product market is important to the application of competition law, but also to such other areas as product regulation, customs and trade.

The definition of the product market largely turns on the degree of interaction between electric cars and combustion cars. In previous merger cases, the European Commission subdivided the car market using the following segmentation:<sup>11</sup>

- A: mini cars
- B: small cars
- C: medium cars
- D: large cars
- E: executive cars
- F: luxury cars
- S: sport coupés
- M: multi-purpose cars
- J: sport utility cars (including off-road vehicles).

The engine type has not been used as a standard of differentiation. It seems safe to assume that this was due to the very small amount of electric cars and that this segmentation may soon change. But uncertainty remains.

## Legal Electrification of Vehicles: A Sinuous Roadmap

The disposal and/or recycling of the battery is an important issue. Ownership of the battery at the time of disposal may not be determinative because current rules place the obligation for collection on distributors and for disposal/recycling on the producer of the battery.<sup>12</sup> That may be a burden that the battery producers would wish to transfer, particularly as under current rules in the European Union the costs of collection and disposal/recycling cannot be

imposed on the private vehicle owner. Those rules will almost certainly have to change.

Who will make the battery is an issue for a number of reasons. Certain countries are providing significant financial incentives to corporations for R&D to improve battery technology. Germany is one example. There may be an implication that the recipients of these benefits will manufacture the batteries, creating jobs in the “donor” countries. That path may lead to allegations of unlawful State aid before the European Commission<sup>13</sup> and may also lead ultimately to WTO disputes as countries seek to subsidise domestic production.

---

Currently, there are strict limitations and controls on the transportation by air of batteries.

---

Presently, car battery manufacturers face a legal environment that is not adapted to the development of electric cars. One example is the air cargo transport of batteries, for which international rules are still very restrictive.

Rules on the electrical safety of the batteries need also to be updated. The absence of noise below 30 km/h of electric cars is another issue (Nissan’s LEAF has a built-in artificial noise system).

A much-welcomed positive step was taken in 2010 with the amendment of UNECE Regulation 100<sup>14</sup> which introduced approval requirements for all types of electric and hybrid vehicles’ electric safety standards.<sup>15</sup>

The European Commission adopted therefore a roadmap<sup>16</sup> listing the different acts necessary to ensure a safe legal environment, especially in the field safety approval.

There is also to an extent the issue of the standards that will apply. The functional, safety and other characteristics of car batteries are not settled.<sup>17</sup> Important standards organisations are looking at setting international and regional standards to avoid a standards war, and a number of inter-governmental groups are also collaborating to ensure that a standards war does not break out.<sup>18</sup> However, it remains an open point as to whether such a war can be avoided.

## Battery Risks

Under the existing health and safety rules for those storing and handling batteries, a car battery is a recognised dangerous product, and harm may be caused to property or persons by the battery, particularly if there is a vehicle accident. The insurance industry will need to consider the change from its current bilateral relationship with the vehicle owner, to a trilateral or even multi-party insurance situation (or inter-related bilateral agreements) depending upon which persons own the battery.

For example, the car manufacturer may be the first owner of the battery at the time the vehicle is acquired by the end consumer. At the point of sale or perhaps afterwards—and without the knowledge of the vehicle owner—the battery may become owned by an automotive finance company. This company may then resell the battery in a package sale of batteries made, for example, three years earlier to a specialist battery rental company that also deals with their disposal and/or recycling. Keeping track of the actual battery may be difficult for the insurance contract, particularly given the challenge that batteries tend to all look the same. Unique tagging and even something akin to a track-and-trace system might be required.

This raises the question of who would pay for such a system. The possibility of harm makes it even more essential for the vehicle owner to be confident that the battery that has been put into the vehicle is covered by an insurer.<sup>19</sup>

## Trade

One of the main obstacles to a smooth development of the market is the need for a material quantity of so-called rare metals to build the batteries (several kilos in one battery), such as neodymium or lanthanum. These metals are not particularly rare, but in many countries their extraction is very costly.

---

In fiscal year 2010 [...] \$35 million was spent by the Advanced Research Projects Agency-Energy (ARPA-E) on next generation battery technologies that don’t require rare earths.

US DoE Report, *Critical Materials Strategy*, December 2010

---

This issue makes the need for a generalization and improvement of recycling, mentioned earlier, even greater, for environmental and economic reasons.

This situation is even more challenging since, for most of these metals, the majority of the world's known reserves are in China (for lanthanum for example, China is the only country able to achieve economies of scale in its extraction). As a consequence Toyota had to invest significantly in other countries such as Vietnam to secure the source metals. China is well aware of the potential demand for these metals and consequently restricts their exportation.

Some analysts predict important international tensions in the future because the lack of rare metals will be increasingly critical in the light of technological developments. EU Member States will need to coordinate the management of these products, and the trade relationship with China.

Some European companies have already begun to specialize in the recycling technologies of rare metals. These initiatives should benefit from better EU and Member State support.<sup>20</sup>

## Concluding Remarks

If electric vehicles do form an increasingly significant part of the automotive industry, they will impose great changes in several fields of the economy and law. Although the challenges mentioned in this article are already significant, they only constitute the tip of the iceberg.

For example, the electricity network at both local and broader geographic levels will need to be restructured. Probably “smart-grid” technology will have to be used, given the increasing relevance of renewable energy sources. This is certainly the case if the base load becomes less reliant on nuclear power, which now seems likely given the response in some EU Member States to the tragic events in Japan.

The question which arises most notably in the European Union is whether this will be achieved in a coordinated way that supports the development of the market. ♦

## Endnotes

- <sup>1</sup> The Report of the German National Platform for Electromobility (“Nationale Plattform Elektromobilität”) of 30 November 2010 underlines this concern of the German automotive industry.
- <sup>2</sup> A description of such stations can be found at <http://www.betterplace.com>, a company that is installing several replacement stations in Denmark and Israel in 2011. These stations will also offer fast-charging services.
- <sup>3</sup> On the assumption that electric vehicles would constitute 30 percent of the all vehicles by 2030, this would mean approximately 100 million vehicle batteries in use in the European Union.
- <sup>4</sup> Denmark and Israel, where the rental model will start in 2011 will constitute interesting tests of these issues.
- <sup>5</sup> See the Report of the European Topic Centre on Air and Climate Change, *Environmental impacts and impact on the electricity market of a large scale introduction of electric cars in Europe - Critical Review of Literature - ETC/ACC Technical Paper 2009/4* July 2009, July 2009, p. 58 [http://air-climate.eionet.europa.eu/docs/ETCACC\\_TP\\_2009\\_4\\_electromobility.pdf](http://air-climate.eionet.europa.eu/docs/ETCACC_TP_2009_4_electromobility.pdf)
- <sup>6</sup> For an overview of the situation in different Member States, see the website of EuropeanVoice.com [www.thegreencarwebsite.co.uk/blog/index.php/2010/08/03/how-is-europe-supporting-electric-vehicles-the-green-piece/](http://www.thegreencarwebsite.co.uk/blog/index.php/2010/08/03/how-is-europe-supporting-electric-vehicles-the-green-piece/)
- <sup>7</sup> See article on EuropeanVoice.com [www.europeanvoice.com/article/imported/commission-considers-probe-into-renault-loan/69283.aspx](http://www.europeanvoice.com/article/imported/commission-considers-probe-into-renault-loan/69283.aspx)
- <sup>8</sup> See Judgment of the Court of 24 July 2003, *Altmark Trans and Regierungspräsidium Magdeburg*, Case C-280/00, I-07747 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62000J0280:EN:HTML>
- <sup>9</sup> Although the recent press release of the European Commission announcing its approval of a Danish state aid scheme toward electric cars because of its non-discriminatory effects and environmental purpose suggests a positive approach by the Commission. See press release on: <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/266&format=HTML>
- <sup>10</sup> For example between Renault and Spanish energy supplier Acciona for the offering of recharging stations of renewable energy
- <sup>11</sup> See, for example, the decision of the Commission for the GM/Saab merger, [http://ec.europa.eu/competition/mergers/cases/decisions/m1847\\_en.pdf](http://ec.europa.eu/competition/mergers/cases/decisions/m1847_en.pdf)
- <sup>12</sup> Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC Directive.
- <sup>13</sup> Such a scenario was already experienced by the French government in 2009. France had granted loans to national car manufacturers while arguing in the press that the condition for the loans was that jobs in France would be maintained.

- <sup>14</sup> United Nations Economic Commission for Europe
- <sup>15</sup> Available at [http://www.unece.org/press/pr2010/10trans\\_p06.htm](http://www.unece.org/press/pr2010/10trans_p06.htm)
- <sup>16</sup> Roadmap on Regulations and Standards for the Electrification of Cars [http://ec.europa.eu/enterprise/sectors/automotive/files/pagesbackground/competitiveness/roadmap-electric-cars\\_en.pdf](http://ec.europa.eu/enterprise/sectors/automotive/files/pagesbackground/competitiveness/roadmap-electric-cars_en.pdf)
- <sup>17</sup> The plugging system is the cornerstone of the standardisation of electric vehicles.
- <sup>18</sup> The Transatlantic Economic Council (TEC) is focusing on such issues and may undertake very useful input for coordination between both sides of the Atlantic.
- <sup>19</sup> This issue may lead to particularly tricky situations in the European Union, since Directive 2009/103/EC *relating to insurance against civil liability in respect of the use of motor vehicles* imposes an obligation on Member States to ensure that all vehicles are insured, but does not specify the conditions of how this obligation applies. Thus, the rules determining who is under the obligation to insure the battery will be national ones, with 27 possible configurations.
- <sup>20</sup> An example is the German company Loser Chemie GmbH, which originally specialised in water chemical treatment but which developed recycling technologies for photovoltaic waste. [http://www.loserchemie.de/index\\_eng.html](http://www.loserchemie.de/index_eng.html)

---

Mayer Brown is a leading global law firm serving many of the world's largest companies, including a significant portion of the Fortune 100, FTSE 100, DAX and Hang Seng Index companies and more than half of the world's largest investment banks. We provide legal services in areas such as Supreme Court and appellate; litigation; corporate and securities; finance; real estate; tax; intellectual property; government and global trade; restructuring, bankruptcy and insolvency; and environmental.

OFFICE LOCATIONS AMERICAS: Charlotte, Chicago, Houston, Los Angeles, New York, Palo Alto, São Paulo, Washington DC  
ASIA: Bangkok, Beijing, Guangzhou, Hanoi, Ho Chi Minh City, Hong Kong, Shanghai  
EUROPE: Berlin, Brussels, Cologne, Frankfurt, London, Paris  
TAUIL & CHEQUER ADVOGADOS in association with Mayer Brown LLP: São Paulo, Rio de Janeiro  
ALLIANCE LAW FIRMS: Spain (Ramón & Cajal); Italy and Eastern Europe (Tonucci & Partners)

Please visit our web site for comprehensive contact information for all Mayer Brown offices. [www.mayerbrown.com](http://www.mayerbrown.com)

IRS CIRCULAR 230 NOTICE. Any advice expressed herein as to tax matters was neither written nor intended by Mayer Brown LLP to be used and cannot be used by any taxpayer for the purpose of avoiding tax penalties that may be imposed under US tax law. If any person uses or refers to any such tax advice in promoting, marketing or recommending a partnership or other entity, investment plan or arrangement to any taxpayer, then (i) the advice was written to support the promotion or marketing (by a person other than Mayer Brown LLP) of that transaction or matter, and (ii) such taxpayer should seek advice based on the taxpayer's particular circumstances from an independent tax advisor.

Mayer Brown is a global legal services organization comprising legal practices that are separate entities (the Mayer Brown Practices). The Mayer Brown Practices are: Mayer Brown LLP, a limited liability partnership established in the United States; Mayer Brown International LLP, a limited liability partnership incorporated in England and Wales; Mayer Brown JSM, a Hong Kong partnership, and its associated entities in Asia; and Tauil & Chequer Advogados, a Brazilian law partnership with which Mayer Brown is associated. "Mayer Brown" and the Mayer Brown logo are the trademarks of the Mayer Brown Practices in their respective jurisdictions.

This Mayer Brown publication provides information and comments on legal issues and developments of interest to our clients and friends. The foregoing is not a comprehensive treatment of the subject matter covered and is not intended to provide legal advice. Readers should seek specific legal advice before taking any action with respect to the matters discussed herein.

© 2011. The Mayer Brown Practices. All rights reserved.