

**AUGUST 2014**

**TESLA MOTORS:  
INTELLECTUAL PROPERTY, OPEN INNOVATION,  
AND THE CARBON CRISIS**



**DR MATTHEW RIMMER**

AUSTRALIAN RESEARCH COUNCIL FUTURE FELLOW

ASSOCIATE PROFESSOR

THE AUSTRALIAN NATIONAL UNIVERSITY

COLLEGE OF LAW

The Australian National University College of Law,

Canberra, ACT, 0200

Work Telephone Number: (02) 61254164

E-Mail Address: [drmatthewrimmer@gmail.com](mailto:drmatthewrimmer@gmail.com)

## Introduction

Tesla Motors is an innovative United States manufacturer of electric vehicles. In its annual report for 2012, the company summarizes its business operations:

We design, develop, manufacture and sell high-performance fully electric vehicles and advanced electric vehicle powertrain components. We own our sales and service network and have operationally structured our business in a manner that we believe will enable us to rapidly develop and launch advanced electric vehicles and technologies. We believe our vehicles, electric vehicle engineering expertise, and operational structure differentiates us from incumbent automobile manufacturers.

We are the first company to commercially produce a federally-compliant electric vehicle, the Tesla Roadster, which achieves a market-leading range on a single charge combined with attractive design, driving performance and zero tailpipe emissions. As of December 31, 2012, we had delivered approximately 2,450 Tesla Roadsters to customers in over 30 countries. While we have concluded the production run of the Tesla Roadster, its proprietary electric vehicle powertrain system is the foundation of our business. We modified this system for our Model S sedan and plan to continue to enhance it for use in our future electric vehicles, including our Model X crossover.<sup>1</sup>

The company notes that ‘the commercial production of a highway capable, fully electric vehicle that meets consumers’ range and performance expectations requires substantial design, engineering, and integration work on almost every system of our vehicles’.<sup>2</sup> Tesla Motors makes much of its inventive labour force: ‘Our roots in Silicon Valley have enabled us to recruit engineers with strong skills in electrical engineering, power electronics and

---

<sup>1</sup> Tesla Motors, ‘Annual Report for the Fiscal Period ended December 31, 2012’, <http://ir.teslamotors.com/secfiling.cfm?filingID=1193125-13-96241&CIK=1318605>

<sup>2</sup> Ibid.

software engineering’.<sup>3</sup> The company observes: ‘We believe these capabilities, coupled with our focus solely on electric vehicle technology as well as our strong in-house engineering and manufacturing capacity, will enable us to sustain the electric vehicle industry leadership we created through the production of the Tesla Roadster and Model S.’<sup>4</sup>

The chief executive officer and product architect of Tesla Motors, Elon Musk has established a reputation for being an innovative entrepreneur, across a range of technological fields, including information technology, clean technology, electric cars, and spacecraft. His Tesla Motors’ biography gives a sense of this diverse array of interests:

At Tesla, Elon has overseen product development and design from the beginning, including the all-electric Tesla Roadster, Model S and Model X. Transitioning to a sustainable energy economy, in which electric vehicles play a pivotal role, has been one of his central interests for almost two decades, stemming from his time as a physics student working on ultracapacitors in Silicon Valley.

At SpaceX, Elon is the chief designer, overseeing development of rockets and spacecraft for missions to Earth orbit and ultimately to other planets...

In addition, Elon is the non-executive chairman and principal shareholder of SolarCity, which he helped create. SolarCity is now the leading provider of solar power systems in the United States.

Prior to SpaceX, Elon co-founded PayPal, the world's leading Internet payment system, and served as the company's Chairman and CEO. Before PayPal, Mr. Musk co-founded Zip2, a provider of Internet software to the media industry.<sup>5</sup>

---

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Telsa Motors, ‘Executives: Elon Musk’, <http://www.teslamotors.com/executives>

Musk has shown a particular interest in the impact of disruptive technologies upon established business models. There are also striking synergies between his various ventures. Tesla Motors is reinforced by such infrastructure projects as SolarCity<sup>6</sup> and the Gigafactory.<sup>7</sup>

Traditionally, Tesla Motors had professed to take a strict approach to the protection of intellectual property. In 2012, the company observed: ‘Our business will be adversely affected if we are unable to protect our intellectual property rights from unauthorized use or infringement by third parties.’<sup>8</sup> Tesla Motors warned:

Any failure to protect our proprietary rights adequately could result in our competitors offering similar products, potentially resulting in the loss of some of our competitive advantage and a decrease in our revenue which would adversely affect our business, prospects, financial condition and operating results. Our success depends, at least in part, on our ability to protect our core technology and intellectual property. To accomplish this, we rely on a combination of patents, patent applications, trade secrets, including know-how, employee and third party nondisclosure agreements, copyright laws, trademarks, intellectual property licenses and other contractual rights to establish and protect our proprietary rights in our technology. We have also received from third parties patent licenses related to manufacturing our vehicles.<sup>9</sup>

The strategy of the company was to rely upon a combination of patent law, and other intellectual property rights, to protect the core technology of the company.

---

<sup>6</sup> SolarCity, <http://www.solarcity.com/company/team>

<sup>7</sup> Tesla Motors, ‘Gigafactory’, 26 February 2014, <http://www.teslamotors.com/blog/gigafactory>

<sup>8</sup> Tesla Motors, ‘Annual Report for the Fiscal Period ended December 31, 2012’, <http://ir.teslamotors.com/secfiling.cfm?filingID=1193125-13-96241&CIK=1318605>

<sup>9</sup> Ibid.

On the 12th June 2014, Elon Musk, the chief executive officer of the electric car manufacturer, Tesla Motors, announced in a blog that ‘all our patents belong to you.’<sup>10</sup> He explained that the company would adopt an open source philosophy in respect of its intellectual property in order to encourage the development of the industry of electric cars, and address the carbon crisis. Elon Musk made the dramatic, landmark announcement:

Yesterday, there was a wall of Tesla patents in the lobby of our Palo Alto headquarters. That is no longer the case. They have been removed, in the spirit of the open source movement, for the advancement of electric vehicle technology.<sup>11</sup>

Elon Musk observed that ‘Tesla Motors was created to accelerate the advent of sustainable transport.’<sup>12</sup> He maintained: ‘If we clear a path to the creation of compelling electric vehicles, but then lay intellectual property landmines behind us to inhibit others, we are acting in a manner contrary to that goal.’<sup>13</sup> Elon Musk promised: ‘Tesla will not initiate patent lawsuits against anyone who, in good faith, wants to use our technology.’<sup>14</sup> This statement has attracted a wide range of interest, because it raises important issues in respect of intellectual property; open source strategies; business; and innovation in clean technologies to address climate change.

---

<sup>10</sup> Elon Musk, ‘All Our Patents Belong to You’, Tesla Motors, 12 June 2014, <http://www.teslamotors.com/blog/all-our-patent-are-belong-you>

<sup>11</sup> Ibid,

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> Ibid.

This paper will consider Tesla Motors, and evaluate its statements in respect of intellectual property, open innovation, and climate change. It is worth situating the story in the context of the growing literature on intellectual property and clean technologies. Professor Peter Menell from the University of California, Berkeley, and Sarah Tran reviewed the canon of key articles in the field in *Intellectual Property, Innovation, and the Environment*.<sup>15</sup> Scottish scholar Abbe Brown has edited a number of contemporary papers on intellectual property and climate change.<sup>16</sup> Professor Estelle Derclaye from the University of Nottingham has written widely on intellectual property and climate change in the European Union.<sup>17</sup> Professor Tine Summer from Aarhus University, Denmark, has explored the patenting of environmentally sound technologies.<sup>18</sup> The International Centre for Trade and Sustainable Development - in collaboration with the European Patent Office and the United Nations Environment Programme - has focused upon patent landscapes and clean technologies.<sup>19</sup> Eric Lane from the Thomas Jefferson School of Law has explored intellectual property management and commercialisation in his book, *Clean Tech Intellectual Property*, and the Green Patent

---

<sup>15</sup> Peter Menell and Sarah Tran (ed.), *Intellectual Property, Innovation, and the Environment*, Cheltenham (UK) and Northampton (MA): 2014.

<sup>16</sup> Abbe Brown (ed.), *Environmental Technologies, Intellectual Property and Climate Change: Accessing, Obtaining, and Protecting*, Cheltenham (UK) and Northampton (MA): Edward Elgar 2013.

<sup>17</sup> Estelle Derclaye, 'Not only Innovation But Also Collaboration, Funding, Goodwill and Commitment: Which Role for Patent Laws in Post-Copenhagen Climate Change Action', (2010) 9 (3) *The John Marshall Review of Intellectual Property Law* 657-673.

<sup>18</sup> Tine Summer, *Can the Law Make Life (Too) Simple: From Gene Patents to the Patenting of Environmentally Sound Technologies*, Djoef Publishing, 2013.

<sup>19</sup> Konstantinos Karachalios, Nikolaus Thumm, Ahmed Abdel Latif, Pedro Roffe, Benjamin Simmons, and Tahir Amin, *Patents and Clean Energy: Bridging the Gap Between Evidence and Policy*, Geneva: the United Nations Environment Programme, the European Patent Office, and the International Centre for Trade and Sustainable Development, 30 September 2010, <http://www.epo.org/topics/issues/clean-energy/study.html>

Blog.<sup>20</sup> A number of other North American writers have made important contributions to the study of international law, intellectual property, and climate change.<sup>21</sup>

This paper has five parts. First, it considers Tesla Motors' shifting strategies in respect of patent law, policy, and practice. Second, the paper explores Tesla Motors' embrace of an open source philosophy. Third, it analyses the larger issues about business development. Fourth, the paper examines Tesla Motors' use of trade mark law and related rights in its marketing and branding. Fifth, this paper concludes by considering Tesla Motors in light of larger initiatives in respect of clean technologies, renewable energy and climate change. Of particular note is sustainable transportation; the development of a Gigafactory; and Elon Musk's complementary work at SolarCity in promoting solar technologies.

## 1. Patent Law

---

<sup>20</sup> Eric Lane, *Clean Tech Intellectual Property: Eco-Marks, Green Patents, and Green Innovation*, Oxford: Oxford University Press, 2011.

<sup>21</sup> Keith Maskus and Ruth Okediji, *Intellectual Property Rights and International Technology Transfer to Address Climate Change: Risks, Opportunities and Policy Options*, ICTSD Programme on IPRs and Sustainable Development, December 2012, <http://www.ictsd.org/downloads/2011/12/intellectual-property-rights-and-international-technology-transfer-to-address-climate-change.pdf> Joshua Sarnoff, 'Government Choices in Innovation Funding (with Reference to Climate Change)', (2013) 62 *Emory Law Journal* 1087-1157; Jerome Reichman, Arti Rai, Richard Newell and Jonathan Weiner, 'Intellectual Property and Alternatives: Strategies for Green Innovation', in Mario Cimoli, Giovanni Dosi, Keith Maskus, Ruth Okediji, and Joseph Stiglitz (ed.), *Intellectual Property Rights: Legal and Economic Challenges for Development*, Oxford: Oxford University Press, 2014; and Corey Allan, Adam Jaffe and Isabelle Sin, 'Diffusion of Green Technology: A Survey', Motu Working Paper 14-04, Motu Economic and Public Policy Research, 2014, [http://motu-www.motu.org.nz/wpapers/14\\_04.pdf](http://motu-www.motu.org.nz/wpapers/14_04.pdf)



*The Tesla Motors Patent Wall, Wikipedia*

Tesla Motors has assembled a significant portfolio of patents. In its annual report for 2012, the company explains its intellectual property portfolio in respect of its technology:

Our battery pack and electric powertrain system has enabled us to deliver market-leading range capability on our vehicles at what we believe is a compelling battery cost per kilowatt-hour. Our battery packs use commercially available lithium-ion battery cells and contain two to three times the energy of any other commercially available electric vehicle battery pack, thereby significantly increasing the range capabilities of our vehicles. Designing an electric powertrain and a vehicle to exploit its energy efficiency has required extensive safety testing and innovation in battery packs, motors, powertrain systems and vehicle engineering.

Our proprietary technology includes cooling systems, safety systems, charge balancing systems, battery engineering for vibration and environmental durability, customized motor design and the software and electronics management systems necessary to manage battery and vehicle



performance under demanding real-life driving conditions. These technology innovations have resulted in an extensive intellectual property portfolio—as of December 31, 2012, we had 117 issued patents and more than 258 pending patent applications with the United States Patent and Trademark Office and internationally in a broad range of areas.<sup>22</sup>

The company stressed: ‘Our design and vehicle engineering capabilities, combined with the technical advancements of our powertrain system, have enabled us to design and develop zero tailpipe emission vehicles that we believe overcome the design, styling, and performance issues that we believe have historically limited broad consumer adoption of electric vehicles’.<sup>23</sup> Tesla Motors insisted that its comparative advantages included long range and recharging flexibility; energy efficiency and cost of ownership; and high performance without compromised design or functionality.

Assessing its intellectual property portfolio, Tesla Motors stressed in 2012:

Our success depends, at least in part, on our ability to protect our core technology and intellectual property. To accomplish this, we rely on a combination of patents, patent applications, trade secrets, including know-how, employee and third party nondisclosure agreements, copyright laws, trademarks, intellectual property licenses and other contractual rights to establish and protect our proprietary rights in our technology. As of December 31, 2012, we had 117 issued patents and more than 258 pending patent applications with the United States Patent and Trademark Office and internationally in a broad range of areas. Our issued patents start expiring in 2026. We intend to continue to file additional patent applications with respect to our technology. We do not know whether any of our pending patent applications will result in the issuance of patents or whether the examination process will require us to

---

<sup>22</sup> Tesla Motors, ‘Annual Report for the Fiscal Period ended December 31, 2012’, <http://ir.teslamotors.com/secfiling.cfm?filingID=1193125-13-96241&CIK=1318605>

<sup>23</sup> Ibid.

narrow our claims. Even if granted, there can be no assurance that these pending patent applications will provide us with protection.<sup>24</sup>

This approach certainly seems to be one that is focused the protection of intellectual property through patent law, and a combination of other supplementary forms of intellectual property.

Maulin Shah has provided a useful analysis of the patent portfolio of Tesla Motors in terms of infographics.<sup>25</sup> Shah comments:

120 of Tesla's patents are related to battery and charging technologies, and not surprisingly, this technology makes up the vast majority of its patent portfolio. Tesla also owns 20 patents related to electric motor and drive control, 10 patents on vehicle frames and chassis, followed by a handful of patents related to doors/latches, air conditioning technology, sunroofs (note the signature panoramic roofs of the Model S), and user interfaces/displays.<sup>26</sup>

Shah notes the competition in the area: 'However, while Tesla may not have much competition in the commercial marketplace for purely electric vehicles, automotive giants such as General Motors, Toyota, Honda, Ford, Nissan, and Daimler have all amassed significant patent portfolios related to electric vehicle technology.'<sup>27</sup>

---

<sup>24</sup> Ibid.

<sup>25</sup> Maulin Shah, 'Auto Industry May Ignore Tesla's Patents', Enivision IP, 26 June 2014, <http://envisionip.com/blog/2014/06/26/auto-industry-may-ignore-tesla-patents/>

<sup>26</sup> Ibid.

<sup>27</sup> Ibid.

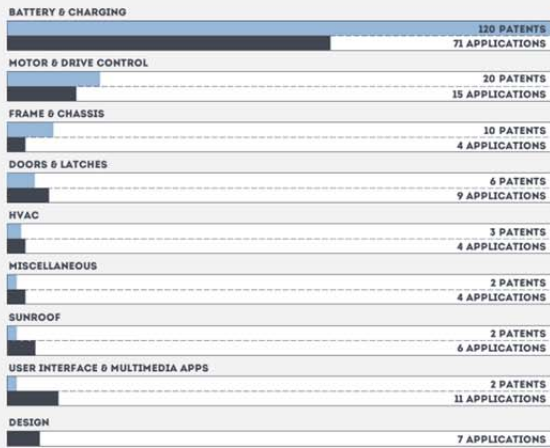


# TESLA PATENT INFOGRAPHIC

AN INFOGRAPHIC BY DELTASIGHT.COM & ENVISIONIP.COM

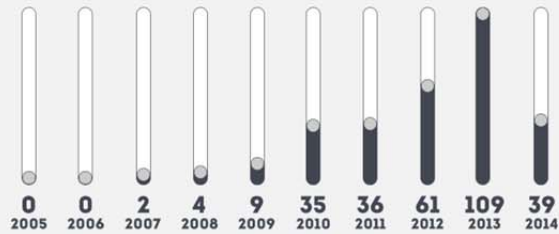
**172** ISSUED  
PATENTS

**123** PUBLISHED  
APPLICATIONS



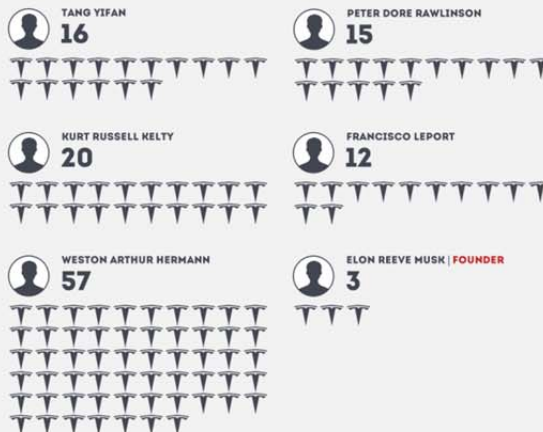
## ACTIVITY OVER TIME

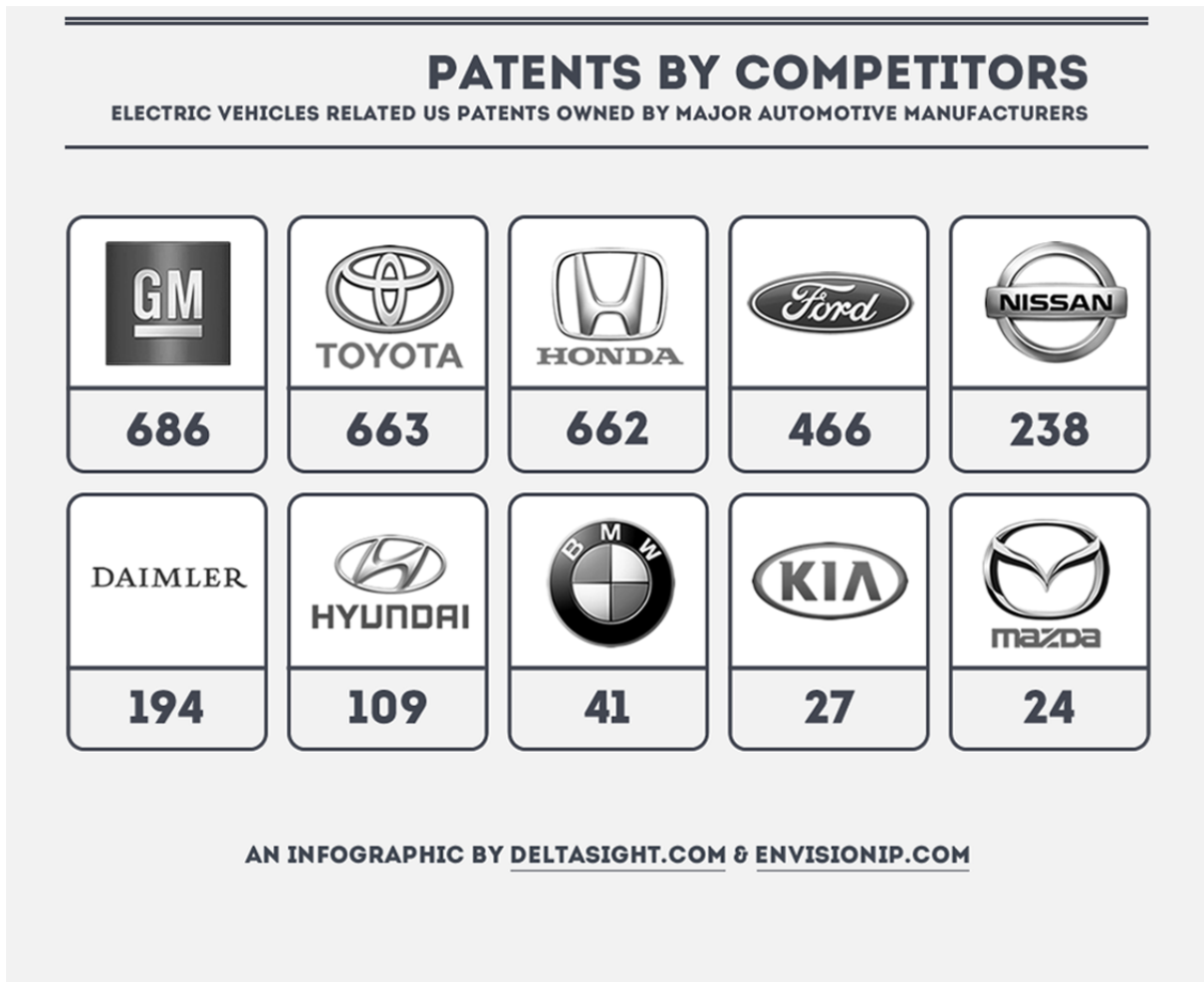
PATENT PUBLICATIONS PER YEAR



## PATENTS BY INVENTORS

FOUNDER AND TOP INVENTORS BY NUMBER OF PATENTS





The company emphasized that ‘the protection provided by the patent laws is and will be important to our future opportunities.’<sup>28</sup> However, Tesla Motors recognised that ‘such patents and agreements and various other measures we take to protect our intellectual property from use by others may not be effective for various reasons.’<sup>29</sup> The company was conscious that ‘our patents, if issued, may not be broad enough to protect our proprietary rights.’ Tesla Motors recognised that ‘the patents we have been granted may be challenged, invalidated or circumvented because of the pre-existence of similar patented or unpatented intellectual

<sup>28</sup> Tesla Motors, ‘Annual Report for the Fiscal Period ended December 31, 2012’, <http://ir.teslamotors.com/secfiling.cfm?filingID=1193125-13-96241&CIK=1318605>

<sup>29</sup> Ibid.

property rights or for other reasons.’<sup>30</sup> The company also noted that ‘the costs associated with enforcing patents, confidentiality and invention agreements or other intellectual property rights may make aggressive enforcement impracticable.’<sup>31</sup> Tesla Motors was also aware that ‘current and future competitors may independently develop similar technology, duplicate our vehicles or design new vehicles in a way that circumvents our patents.’<sup>32</sup> Tesla Motors admitted that ‘The status of patents involves complex legal and factual questions and the breadth of claims allowed is uncertain’.<sup>33</sup> The company was also conscious: ‘In addition, patents issued to us may be infringed upon or designed around by others and others may obtain patents that we need to license or design around, either of which would increase costs and may adversely affect our business, prospects, financial condition and operating results.’<sup>34</sup> Such reservations are an important context for the announcement in 2014.

In his blog post in 2014, Elon Musk of Tesla Motors discussed his growing disenchantment with the patent system:

When I started out with my first company, Zip2, I thought patents were a good thing and worked hard to obtain them. And maybe they were good long ago, but too often these days they serve merely to stifle progress, entrench the positions of giant corporations and enrich those in the legal profession, rather than the actual inventors. After Zip2, when I realized that receiving a patent really just meant that you bought a lottery ticket to a lawsuit, I avoided them whenever possible.<sup>35</sup>

---

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

<sup>32</sup> Ibid.

<sup>33</sup> Ibid.

<sup>34</sup> Ibid.

<sup>35</sup> Elon Musk, ‘All Our Patents Belong to You’, Tesla Motors, 12 June 2014,

<http://www.teslamotors.com/blog/all-our-patent-are-belong-you>

He showed a particular sensitivity to the problems of patent lawsuits.

Elon Musk noted that Tesla Motors, at first, sought to build a significant patent portfolio: ‘At Tesla, however, we felt compelled to create patents out of concern that the big car companies would copy our technology and then use their massive manufacturing, sales and marketing power to overwhelm Tesla’.<sup>36</sup> The company developed a significant portfolio of patents in respect of electric cars and associated infrastructure. Elon Musk observed, though, that such an assumption was incorrect: ‘The unfortunate reality is the opposite: electric car programs (or programs for any vehicle that doesn’t burn hydrocarbons) at the major manufacturers are small to non-existent, constituting an average of far less than 1% of their total vehicle sales.’<sup>37</sup> He lamented: ‘At best, the large automakers are producing electric cars with limited range in limited volume’.<sup>38</sup> Musk observed that some automobile manufacturers produced ‘no zero emission cars at all’.<sup>39</sup>

Tesla Motors has been involved in a number of legal skirmishes in respect of intellectual property. In a 2013 dispute, Tesla Motors was involved in a skirmish with pointSET.<sup>40</sup> The dispute involved a battle over the remote control of temperature in cars. As Eric Loveday:

---

<sup>36</sup> Ibid.

<sup>37</sup> Ibid.

<sup>38</sup> Ibid.

<sup>39</sup> Ibid.

<sup>40</sup> Michelle Jones, ‘Tesla Strikes First Legal Blow in Patent Dispute’, Value Walk, 14 June 2013,

<http://www.valuwalk.com/2013/06/tesla-patent-dispute/>

The Tesla Model S features a system that allows owners to remotely access the climate control settings. This system essentially allows owner to pre-cool or pre-heat the cabin of a plugged-in Model S. Of course, this is a feature that we're sure all Model S owners use on almost a daily basis. However, there may be an issue that could prevent Model S owners from accessing this feature in the future. It seems Tesla's remote access system may infringe upon a patent held by pointSET.<sup>41</sup>

On the 30th April 2013, an attorney for pointSET sent a letter to Tesla Motors, alleging that 'Tesla induces infringement of claim 6 of United States Patent No. 7,379,541.'<sup>42</sup> The patent concerned a 'method and apparatus for setting programmable features of a motor vehicle.'<sup>43</sup> The letter stated that 'pointSET is offering a one-time, fully-paid licensing flat fee of \$500,000' that 'will cover both past and future use of the technology.'<sup>44</sup>

In response, Tesla Motors sought a declaratory judgment of patent non-infringement in the United States District Court for the Northern District of California.<sup>45</sup> Tesla Motors requested a judgment that 'Tesla does not infringe and has not infringed, directly or indirectly, the '541 patent.'<sup>46</sup> Tesla Motors also asked for a ruling that 'the Model S Beta app does not infringe and has not infringed, directly or indirectly, the '541 patent.'<sup>47</sup> Tesla Motors requested that

---

<sup>41</sup> Eric Loveday, 'Tesla in Patent Dispute with pointSET over How Automaker Remotely Controls Cabin Temperature of Model S', Inside EVs, 2013, <http://insideevs.com/tesla-in-patent-dispute-with-pointset-over-how-automaker-remotely-controls-cabin-temperature-of-model-s/>

<sup>42</sup> Ibid.

<sup>43</sup> Ibid.

<sup>44</sup> Ibid.

<sup>45</sup> *Tesla Motors Inc. v Pointset Corporation*, United States District Court for the Northern District of California (2013) <http://pdfserver.amlaw.com/ca/TESLAsuit.pdf>

<sup>46</sup> Ibid.

<sup>47</sup> Ibid.

‘pointSET, and all persons acting on its behalf or in concert with it, be permanently enjoined and restrained from charging, orally or in writing, that the ‘514 patent is infringed, directly or indirectly, by Tesla or the Model S Beta app.’<sup>48</sup> The company asked that ‘Tesla be awarded its costs, expenses and reasonable attorneys’ fees in this action’.<sup>49</sup> Moreover, the company asked that ‘Tesla be awarded such other and further relief as the Court may deem appropriate.’<sup>50</sup>

Such disputes are not uncommon. In my 2011 book *Intellectual Property and Climate Change: Inventing Clean Technologies*, I considered the significant patent litigation in respect of green cars and transportation.<sup>51</sup> There was an epic dispute between Paice LLC and Toyota Motors over patents regarding hybrid cars, such as the Toyota Prius. Toyota Motors was indignant at the litigation, calling its opponent a ‘patent shark’. However, the company fared poorly in the long-winded litigation. This conflict was eventually settled, with Toyota Motors paying royalties to Paice LLC. The dispute highlighted that there are major patent thickets surrounding green cars and green transportation.

The San Francisco civil society group, the Electronic Frontier Foundation (EFF), welcomed the decision of Tesla Motors to adopt an open source philosophy in respect of intellectual property. Adi Kamdar of the EFF commented: ‘Patent trolls run rampage while some big

---

<sup>48</sup> Ibid.

<sup>49</sup> Ibid.

<sup>50</sup> Ibid.

<sup>51</sup> Matthew Rimmer, *Intellectual Property and Climate Change: Inventing Clean Technologies*, Cheltenham (UK) and Northampton (Mass.): Edward Elgar, September 2011.



companies spend more money on patent wars than research and development.’<sup>52</sup> He observed: ‘This is why it is so encouraging when companies commit to openness, ensuring their patents do not obstruct future innovation.’<sup>53</sup> Adi Kamdar observed that the EFF had published a guide to alternative patent licensing.<sup>54</sup> He implored: ‘We would love to see Tesla commit their patents explicitly under an agreement like the Defensive Patent License, which sets a clear standard that patents are to be both shared and used for good.’<sup>55</sup> Kamdar observed that Musk’s stance on patent law was supported by a recent study by MIT’s Catherine Tucker on ‘The Effect of Patent Litigation and Patent Assertion Entities on Entrepreneurial Activity’ [PDF].<sup>56</sup> Kamdar hoped that the initiative of Tesla Motors would inspire others: ‘We are encouraged by Tesla’s announcement, and hope other companies—large and small—follow suit.’<sup>57</sup>

---

<sup>52</sup> Adi Kamdar, ‘A Welcome Alternative to Current Trends, Tesla Motors Opens Up Entire Patent Portfolio’, Electronic Frontier Foundation, 12 June 2014, <https://www.eff.org/deeplinks/2014/06/welcome-alternative-current-trends-tesla-motors-opens-entire-patent-portfolio>

<sup>53</sup> Ibid.

<sup>54</sup> Ibid.

<sup>55</sup> The Defensive Patent License, <http://www.defensivepatentlicense.com/>

<sup>56</sup> Catherine Tucker, ‘The Effect of Patent Litigation and Patent Assertion Entities on Entrepreneurial Activity’, 15 May 2014, <https://www.eff.org/files/2014/06/12/tucker-report-5.16.14.pdf>

<sup>57</sup> Adi Kamdar, ‘A Welcome Alternative to Current Trends, Tesla Motors Opens Up Entire Patent Portfolio’, Electronic Frontier Foundation, 12 June 2014, <https://www.eff.org/deeplinks/2014/06/welcome-alternative-current-trends-tesla-motors-opens-entire-patent-portfolio>

Brad Greenberg wondered about the practicalities of enforcing Tesla Motors' promise not to sue for patent infringement.<sup>58</sup> He wondered: 'Just how legally enforceable would Tesla's declaration be? That is, if a technologist practiced one of Tesla's patents, would they really be free from liability?' Greenberg ponders whether the statements by Musk by themselves would be sufficient:

Sure, Tesla may be estopped from enforcing its patents—though estoppel requires reasonable reliance and this announcement is so vague that it's difficult to imagine the reliance that would be reasonable—and Tesla isn't in the patent trolling business anyway. (Sorry, patent-assertion-entity business). But what if Tesla sold its patents or went bankrupt. Could a third party not enforce the patents? If it could, patents promised to be open source would seem a rich market for PAEs.

Tesla is not to first to pledge its patents as open source. In fact, as Clark Asay pointed out, IBM has already been accused of reneging the promise. (See: "IBM now appears to be claiming the right to nullify the 2005 pledge at its sole discretion, rendering it a meaningless confidence trick.") The questions raised by the Tesla announcement are, thus, not new. And, given enough time, courts will have to answer them.<sup>59</sup>

There has been similar issues arising in the context of battles over gene patents – there has been much discussion as to whether Genetic Technologies Limited would be estopped from taking action, in light of its statements.<sup>60</sup>

---

<sup>58</sup> Brad Greenberg, 'Tesla Encourages Free Use of its Patents – But Will that Protect Users from Liability?', *Concurring Opinions*, 13 June 2014, <http://www.concurringopinions.com/archives/2014/06/tesla-encourages-free-use-of-its-patents-but-will-that-protect-users-from-liability.html>

<sup>59</sup> Ibid.

<sup>60</sup> See Matthew Rimmer, 'The Alchemy of Junk: Patent Law and Non-Coding DNA' (2006) 3 (2) *The University of Ottawa Law and Technology Journal* 539-599.

The decision of Tesla Motors has been a fillip for the patent reform movement. Julie Samuels of the public policy think tank, Engine, commented: ‘What you’re looking at here is the beginning of a new culture with regard to patents.’<sup>61</sup> She observed: ‘A lot of companies in the high tech space are dismayed with how the system is shaping up, so they’re trying to come up with creative ways to navigating around that system and get back to the business of innovating and creating.’<sup>62</sup> The announcement of Tesla Motors may help provide impetus for President Barack Obama’s efforts to address the problem of patent trolls and reduce patent litigation.

Some members of the intellectual property profession have defended the legitimacy of the patent regime in light of Elon Musk’s comments. Philip Totaro provided a thoughtful riposte.<sup>63</sup> He observed: ‘While this is a noble and well-intentioned move, unfortunately, this thought process represents a widely held misconception about intellectual property: that it is only a legal matter, rather than a commercial one.’<sup>64</sup> Totaro responded:

Patents are not just about hitting the ‘litigation lottery’ as Mr. Musk put it. Patents are the codification of innovation and they represent the investment of time and effort from the innovative and creative people who have their names on them. Making the investment in intellectual property protection in the first place presumes that you are willing and able to enforce your rights. In any market there will be

---

<sup>61</sup> Julie Samuels quoted in Klint Finley, ‘With Patent Giveaway, Tesla shows Silicon Valley What Ingenuity Means’, *Wired*, 13 June 2014, [http://www.wired.com/2014/06/tesla-patents/?mbid=social\\_twitter](http://www.wired.com/2014/06/tesla-patents/?mbid=social_twitter)

<sup>62</sup> Ibid.

<sup>63</sup> Philip Totaro, ‘In Defense of IPR: The Timing of the Tesla Move will Diminish the Company’s Value’, *Green Patent Blog*, 19 June 2014, <http://www.greenpatentblog.com/2014/06/19/in-defense-of-ipr-the-timing-of-the-tesla-move-will-diminish-the-company%e2%80%99s-value/>

<sup>64</sup> Ibid.

those who are driven by greed, and we have seen the exploitation of intellectual property by so-called “patent trolls.”<sup>65</sup>

Totaro maintained that one should not be cynical about the intellectual property regime. He wondered whether the move would undercut the value of Tesla Motors. Totaro argued that Musk could do more if he was truly committed to an open source model: ‘If Mr. Musk would be willing to redistribute his wealth to the employees and investors who made the commitment to create value for the company in the first place, then this move to open source their patents during the formative stages of the EV industry might make more sense.’<sup>66</sup>

It should also be noted that Tesla Motors has not abandoned its intellectual property entirely. The company has only offered access for ‘good faith’ uses of its patents—which still leaves open the prospect of the company taking action against ‘bad faith’ uses of its patents. Professor Orly Lobel from the University of San Diego commented: ‘There’s a lot of thinking in the research these days on the gap between the codified knowledge that is patentable and gets disclosed versus tacit knowledge that really exists in how you actually produce’.<sup>67</sup> She noted: ‘That gap is probably relevant in this market.’<sup>68</sup> Her work has particularly the importance of the use of confidential information and non-disclosure agreements in Silicon Valley.<sup>69</sup>

---

<sup>65</sup> Ibid.

<sup>66</sup> Ibid.

<sup>67</sup> Walter Frick, ‘What Tesla Knows that Other Patent-Holders Don’t’, Harvard Business Review, 12 June 2014, <http://blogs.hbr.org/2014/06/what-tesla-knows-that-other-patent-holders-dont/>

<sup>68</sup> Ibid.

<sup>69</sup> Orly Lobel, *Talent Wants to be Free: Why We Should Learn to Love Leaks, Raids, and Free Riding*, New Haven and London: Yale University Press, 2013.

## 2. An Open Source Philosophy

There was much excitement over Elon Musk's support for open innovation.<sup>70</sup> In his address, Elon Musk commented: 'We believe that applying the open source philosophy to our patents will strengthen rather than diminish Tesla's position in this regard.'<sup>71</sup>

The use of open source strategies to encourage collaboration and disseminate new technologies has a long tradition. Richard Stallman was groundbreaking in his use of free software licences to ensure that computer code was accessible.<sup>72</sup> Open source developers used open source licensing to support their information technology products and services. Lawrence Lessig helped set up the Creative Commons in order to facilitate accessible licensing across a wide range of copyright works.<sup>73</sup> Open source strategies have also been adopted in other fields of endeavour. There has been open source tactics deployed in respect of plant breeding and agriculture. As documented by Glyn Moody, the biological sciences have used open source licensing in response to the proliferation of gene patents and

---

<sup>70</sup> Abby Martin, 'Tesla's Electric Car Patent Revolution', Breaking the Set, 13 June 2014, <https://www.youtube.com/watch?v=acEi1RG2uIw&feature=youtu.be>

<sup>71</sup> Elon Musk, 'All Our Patents Belong to You', Tesla Motors, 12 June 2014, <http://www.teslamotors.com/blog/all-our-patent-are-belong-you>

<sup>72</sup> Richard Stallman, <https://stallman.org/>

<sup>73</sup> Lawrence Lessig, *Code And Other Laws Of Cyberspace*, New York, NY: Basic Books, 1999; Lawrence Lessig, *The Future Of Ideas: The Fate Of The Commons In A Connected World*, New York: Random House, 2001; Lawrence Lessig, *Free Culture: How Big Media Uses Technology And Law To Lockdown Culture And Control Creativity*, New York: Penguin, 2004; and Lawrence Lessig, *Remix: Making Art and Commerce Thrive in the Hybrid Economy*, New York: The Penguin Press, 2008.

commercial databases.<sup>74</sup> There has been experimentation with open source strategies in the field of medicine—such as in open drug discovery.

Elon Musk’s decision to adopt an open source philosophy in respect of electric cars has precedents in the area of clean technologies. In my book *Intellectual Property and Climate Change: Inventing Clean Technologies*, I explored a number of examples of co-operative strategies in respect of intellectual property and clean technologies.<sup>75</sup> There has been a great deal of interest in innovation networks, patent pools, technology clearing houses, and open source strategies. The UNFCCC Climate Technology Centre and Network has been established to encourage research, development, and diffusion of clean technologies.<sup>76</sup> The UNEP is hosting the centre, and co-ordinating a network of climate innovation centres. The Creative Commons movement, along with Nike and Best Buy, helped establish GreenXChange.<sup>77</sup> However, this venture is no longer active. While at IBM, David Kappos was instrumental in establishing the Eco-Patent Commons.<sup>78</sup> This initiative was designed ‘to provide an avenue by which innovations and solutions may be easily shared to accelerate and facilitate implementation to protect the environment and perhaps lead to further innovation.’ After Kappos left IBM to lead the United States Patent and Trademark Office, the Eco-Patent

---

<sup>74</sup> Glyn Moody, *Digital Code of Life: How Bioinformatics is Revolutionizing Science, Medicine, and Business*, Hoboken (NJ): John Wiley & Sons, 2004.

<sup>75</sup> Matthew Rimmer, *Intellectual Property and Climate Change: Inventing Clean Technologies*, Cheltenham (UK) and Northampton (Mass.): Edward Elgar, September 2011.

<sup>76</sup> UNFCCC Climate Technology Centre and Network, [http://unfccc.int/tclear/templates/render cms\\_page?TEM\\_tcn](http://unfccc.int/tclear/templates/render cms_page?TEM_tcn) and <http://www.unep.org/climatechange/ctcn/>

<sup>77</sup> The Green XChange, <http://greenxchange.cc/>

<sup>78</sup> The Eco-Patent Commons, <http://www.wbcsd.org/work-program/capacity-building/eco-patent-commons.aspx>

Commons has struggled to have an impact. There have also been a number of open source initiatives in respect of individual clean technology projects. More recently, the World Intellectual Property Organization has established WIPO Green to promote the diffusion of green technology.<sup>79</sup>

Eric Lane, a Law Professor at the Thomas Jefferson School of Law, considered the strategy of Tesla Motors in the Green Patent Blog.<sup>80</sup> He considered the precedent of the Eco-Patent Commons, and its mixed success. Lane observed: ‘So the Tesla-Patent Commons is very significant, and unlike any prior (small “e”) eco-patent commons, but the commercial and legal realities of dealing with patents and positioning technological businesses to be free to operate are always extremely complex.’<sup>81</sup> He commented upon the gambit by Tesla Motors: ‘Ultimately, the impact of Musk’s decision may turn on to what extent other such players will be motivated to invest in manufacturing vehicles, batteries, etc. using Tesla’s patented and patent-pending technology with the obvious upside being the proven innovation that technology brings and the down side being no exclusivity, instead of investing in their own R&D and patent protection where the upside may be exclusivity and the down side may be inferior or unproven technologies.’<sup>82</sup>

Don Tapscott and Anthony Williams have argued for the use of open source strategies in respect of clean technologies. In their 2010 book *MacroWikinomics*, Tapscott and Williams

---

<sup>79</sup> WIPO GREEN, <https://www3.wipo.int/wipogreen/en/about/>

<sup>80</sup> Eric Lane, ‘Elon Musk Launches the Tesla-Patent Commons’, *The Green Patent Blog*, 14 June 2014, <http://www.greenpatentblog.com/2014/06/14/elon-musk-launches-the-tesla-patent-commons/>

<sup>81</sup> Ibid.

<sup>82</sup> Ibid.

called for the establishment of a green technology commons.<sup>83</sup> The pair recognised: ‘It is quickly becoming clear that climate change will be the biggest issue that human civilisation has ever had to deal with.’<sup>84</sup> Tapscott and Williams were concerned about the limitations of existing responses to the problem of climate change. The writers promoted open and collaborative responses to climate change: ‘Tackling climate change will not only require unprecedented transformations in our systems of commerce and industry, it will also require fundamental changes to our way of life.’<sup>85</sup> The pair concluded: ‘We need to take the sum of mankind’s knowledge about sustainable technologies and industries, and share it for the sake of the planet and the future generations that will inhabit it.’<sup>86</sup>

Similarly, the futurist Jeremy Rifkin considers the rise of collaborative commons in his recent book, *The Zero Marginal Cost Society*.<sup>87</sup> He has observed that ‘a powerful new technology revolution is emerging that is going to fundamentally alter our economic life.’<sup>88</sup> Rifkin predicts: ‘The plummeting of marginal costs is spawning a hybrid economy—part capitalist market and part Collaborative Commons—with far reaching implications for society.’<sup>89</sup> Rifkin envisages: ‘Millions of people are already transferring parts of their economic lives to

---

<sup>83</sup> Don Tapscott, and Anthony Williams, *MacroWikinomics: New Solutions for a Connected Planet*, London: Atlantic Books, 2010.

<sup>84</sup> Ibid.

<sup>85</sup> Ibid.

<sup>86</sup> Ibid.

<sup>87</sup> Jeremy Rifkin, *The Zero Marginal Cost Society: The Internet of things, The Collaborative Commons, and the Eclipse of Capitalism*, New York: Palgrave MacMillan, 2014.

<sup>88</sup> Ibid.

<sup>89</sup> Ibid.



the global Collaborative Commons.’<sup>90</sup> He observes: ‘Prosumers are plugging into the fledgling Internet of Things (IoT) and making and sharing their own information, entertainment, green energy, and 3D-printed products at near zero marginal cost.’<sup>91</sup> Rifkin’s thesis is that monopoly capitalism will be displaced by a collaborative commons.<sup>92</sup> He contends that the car is a particularly acute metaphor for the transformation from ownership to access. Rifkin observes: ‘If ever proof were needed that the capitalist era, wedded to the exchange of property in markets, is ceding ground to the access of services in the Collaborative Commons, the changing relationship to the automobile is prima facie evidence of the great transformation at hand.’<sup>93</sup>

---

<sup>90</sup> Ibid.

<sup>91</sup> Ibid.

<sup>92</sup> Ibid, 226-231.

<sup>93</sup> Ibid., 231.

### 3. Technology Leadership



The announcement by Tesla Motors also promoted a wider discussion about economics, business, and innovation in respect of the automobile industry. Professor Joshua Gans, an economist from the University of Toronto, commented, ‘It is 448 words that I believe (despite its length) may well become the Gettysburg Address for entrepreneurship and innovation.’<sup>94</sup>

In his address, Elon Musk emphasized: ‘Technology leadership is not defined by patents, which history has repeatedly shown to be small protection indeed against a determined competitor, but rather by the ability of a company to attract and motivate the world’s most

<sup>94</sup> Joshua Gans, ‘Intellectual Property Strategy as Public Relations’, Digitopoly, 12 June 2014, <http://www.digitopoly.org/2014/06/12/intellectual-property-strategy-as-pr/>

talented engineers.’<sup>95</sup> He hopes that his open source stratagem will enable him to compete with the big automobile manufacturers.<sup>96</sup> Elon Musk has long desired to turn Tesla into the car company of the future.<sup>97</sup>

In its annual report, Tesla Motors identifies a wide range of risks and challenges in terms of its business model.<sup>98</sup>

Elon Musk’s embrace of an open source philosophy will also be powerful in terms of marketing and public relations—both within the industry, and with the wider community. Associated Press noted: ‘The open-source movement has long appealed to the egalitarian mindset of most technologists, so the patent decision could help recruit talent.’<sup>99</sup>

---

<sup>95</sup> Elon Musk, ‘All Our Patents Belong to You’, Tesla Motors, 12 June 2014, <http://www.teslamotors.com/blog/all-our-patent-are-belong-you>

<sup>96</sup> Pat McGrath, ‘Electric Car Maker Opens Access to Patents in Effort to Take on Big Manufacturers’, *The World Today*, 13 June 2014, <http://www.abc.net.au/worldtoday/content/2014/s4024647.htm>

<sup>97</sup> Joshua Davis, ‘How Elon Musk Turned Tesla into the Car Company of the Future’, *Wired*, 27 September 2010, [http://www.wired.com/2010/09/ff\\_tesla/](http://www.wired.com/2010/09/ff_tesla/)

<sup>98</sup> Tesla Motors, ‘Annual Report for the Fiscal Period ended December 31, 2012’, <http://ir.teslamotors.com/secfiling.cfm?filingID=1193125-13-96241&CIK=1318605>

<sup>99</sup> Associated Press, ‘Tesla Hands Over the Keys to its Electric Car Technology’, *The Guardian*, 14 June 2014, [http://www.theguardian.com/environment/2014/jun/13/tesla-elon-musk-electric-cars-patent-technology?CMP=tw\\_t\\_gu](http://www.theguardian.com/environment/2014/jun/13/tesla-elon-musk-electric-cars-patent-technology?CMP=tw_t_gu)

In his book *Clean Disruption of Energy and Transportation*, Tony Seba has considered the electric vehicle as a disruptive technology.<sup>100</sup> He was enthusiastic about the rise of Tesla Motors, and its rapid growth in the automobile marketplace:

Tesla fashions itself a Silicon Valley computer company, closer in spirit and thinking to Apple and Google than to its Detroit forebears. Elon Musk, Tesla's CEO, did not deny the possibility of his own company being acquired by a "deep pockets" company like Apple. Prizes are one thing, but when the rubber hits the proverbial road, unit sales are what matter in the auto industry. When market figures for the second quarter of 2013 were released, Tesla had outsold Mercedes Benz, BMW, and Audi in the "large luxury" category, according to Green Car reports.<sup>101</sup>

Seba maintained that 'the electric vehicle will disrupt the gasoline car industry (and with it the oil industry) swiftly and permanently.'<sup>102</sup> He observed that 'even worse from the standpoint of gasoline and diesel cars, the EV is not just a disruptive technology; the whole business model that the auto industry has built over the past century will be obliterated.'<sup>103</sup>

Seba suggested that there are nine reasons why the electric vehicle industry will be disruptive. He noted that the electric motor is more energy efficient; the electric vehicle is cheaper to charge; and it is cheaper to maintain. Seba noted that the electric vehicle will disrupt the gasoline car aftermarket. He wondered about the potential for wireless charging.

---

<sup>100</sup> Tony Seba, *Clean Disruption of Energy and Transportation: How Silicon Valley will Make Oil, Nuclear, Natural Gas, Coal, Electric Vehicles and Conventional Cars Obsolete by 2030*, Silicon Valley, Clean Planet Ventures, 2014.

<sup>101</sup> Ibid., 102.

<sup>102</sup> Ibid., 103.

<sup>103</sup> Ibid., 104.

Seba was impressed by the modular design architecture of electric vehicles. He has also emphasized the combination of big data and fast product development:

The difference between the value of Tesla's electric miles and GM's gasoline miles has to do with data. Think of an electric vehicle as a mobile computer. Electric Vehicles generate vast amounts of data. A car company sifting through this data can learn and adapt far more quickly than a company without user data. A car company that collects data about its cars can understand customer usage patterns and technology stresses and failures. It can quickly fix mistakes, download new software to the cars, and develop new products and services. The electric vehicle product development process is shortened; it resembles the computer industry's ultra-fast development cycles. Tesla and the other electric vehicle companies will be on a product development cycle at the exponential speeds of Moore's Law; Detroit will be on conventional linear speeds.<sup>104</sup>

Seba also makes the point that solar and electric vehicles are more land efficient. Moreover, electric vehicles can contribute to grid storage and other services. Seba concludes that the 'electric vehicle changes the basis of competition in the transportation industry.'<sup>105</sup> He predicts that 'neither the high-end or low-end gasoline car stands a chance against electric vehicles once electric vehicles are in the same price range.'<sup>106</sup>

Seba also makes the interesting argument that electric cars will be enhanced by technology convergence in respect of clean technologies. He commented: 'In the clean energy field, the disruptors (solar, electric vehicles, and autonomous cars), complement and accelerate one another's adoption'.<sup>107</sup> He maintained that 'solar, the electric vehicle, and the autonomous

---

<sup>104</sup> Ibid., 111.

<sup>105</sup> Ibid., 126.

<sup>106</sup> Ibid., 127.

<sup>107</sup> Ibid., 7.

vehicle started out as different sets of products and markets, but their symbiosis will complement and accelerate one another's technological development and adoption in the marketplace.'<sup>108</sup> Seba envisaged:

Increasing investments in electricity storage technologies in the automotive industry have led to more innovation and a subsequent drop in the cost of batteries like Lithium-Ion. As Li-on batteries become cheaper, they can increasingly be used – and economically be used – for solar and wind energy storage. The increased demand from solar and wind increases the scale of existing Li-on providers, which in turn pushes down the cost of electric vehicles, solar, and wind.

The increasing demand for electric vehicles and solar will attract even more investment in these technologies. Innovative companies that can invent new ways to push costs down and push quality up will thrive. This virtuous cycle of increasing demand, increasing investment, and increasing innovation will dramatically lower costs; it will exponentially improve the quality benefits to both the clean energy and clean transportation industries; it will also lead to a convergence in which batteries can be used for transportation and grid storage. Electric vehicles can be charged at work and become a source as well as a user of energy for the home. The result will be a swift transition from liquid-energy transportation to electric transportation.<sup>109</sup>

Seba admits that 'an electric vehicle is still more expensive to purchase upfront, mainly due to battery costs'.<sup>110</sup> He predicts that 'like other technology products, the technology cost curve of electric vehicles points to a disruption soon; innovative business models will only accelerate the transition from gasoline to electric vehicles.'<sup>111</sup> It is certainly notable that Elon Musk has investments in both electric cars and solar energy. The entrepreneur obviously sees synergies in respect of his ventures.

---

<sup>108</sup> Ibid., 9.

<sup>109</sup> Ibid. 9.

<sup>110</sup> Ibid., 8.

<sup>111</sup> Ibid., 8.

Silicon Valley entrepreneur Aaron Levie, the CEO of Box Inc observed: ‘By opening its patents, Tesla rightly realises it’s better to be the best product in a large industry than the only product in a niche one.’<sup>112</sup>

Tesla Motors has been in discussions with BMW about standardizing electric cars. A BMW spokesman said: ‘Both companies are strongly committed to the success of electro-mobility and discussed how to further strengthen the development of electro-mobility on an international level.’<sup>113</sup> There has been speculation about the development of a long-term deal between the two companies.<sup>114</sup>

Writing in *Slate*, Will Oremus considered the announcement of Tesla Motors from a business perspective. He recognised: ‘This might seem like a rash move for a company that still faces big hurdles on its path to long-term, mainstream success.’<sup>115</sup> Oremus anticipated a polarised

---

<sup>112</sup> Associated Press, ‘Tesla Hands Over the Keys to its Electric Car Technology’, *The Guardian*, 14 June 2014, [http://www.theguardian.com/environment/2014/jun/13/tesla-elon-musk-electric-cars-patent-technology?CMP=tw\\_t\\_gu](http://www.theguardian.com/environment/2014/jun/13/tesla-elon-musk-electric-cars-patent-technology?CMP=tw_t_gu)

<sup>113</sup> Edward Taylor, ‘BMW and Tesla Executives Meet to Discuss Electric Cars’, *Business Insider*, Reuters, 13 June 2014, <http://www.businessinsider.com/r-bmw-and-tesla-executives-meet-to-discuss-electric-cars-2014-13?IR=T>

<sup>114</sup> Neil Winton, ‘Tesla Giveaway Spurs Speculation of Possible Deal with BMW’, *Forbes*, 13 June 2014, <http://www.forbes.com/sites/neilwinton/2014/06/13/tesla-patent-giveaway-spurs-speculation-of-possible-deal-with-bmw/>

<sup>115</sup> Will Oremus, ‘Tesla is Opening Its Patents to All. That’s Not as Crazy as it Sounds’, *Slate*, 12 June 2014, [http://www.slate.com/blogs/future\\_tense/2014/06/12/tesla\\_opens\\_patents\\_to\\_public\\_what\\_is\\_elon\\_musk\\_thinking.html](http://www.slate.com/blogs/future_tense/2014/06/12/tesla_opens_patents_to_public_what_is_elon_musk_thinking.html)

reaction to the address of Elon Musk: ‘Some will hail Musk as a hero, while others might dismiss him as a naïve idealist when he says that his ultimate goal is fighting climate change.’<sup>116</sup> He stressed, though, that ‘Musk isn’t naive, and Tesla isn’t a charity.’<sup>117</sup> Oremus observed that Tesla Motors was concerned about ‘the much greater struggle between electric cars and their gas-powered counterparts.’<sup>118</sup> He commented: ‘Viewed in that context, the obstacles to Tesla’s success aren’t the Nissan Leaf and the BMW i3—they’re the constraints of technology, cost, infrastructure, and customer expectations.’<sup>119</sup> Oremus concluded: ‘Best of all, if Musk’s gambit works, it could pave the way for forward-thinking CEOs in other fields to take similar steps.’<sup>120</sup>

There was recognition that Musk’s position was not an entirely altruistic one.<sup>121</sup> Jacob Sherkow from Stanford Law School noted: ‘Even if other competitors copy Tesla’s design, Tesla still gets to sell them batteries, and that’s pretty awesome.’<sup>122</sup>

Timothy B. Lee considered the business strategy of Tesla Motors.<sup>123</sup> He observed: ‘In practice, the biggest challenge many inventors face isn’t fending off copycats, it’s developing

---

<sup>116</sup> Ibid.

<sup>117</sup> Ibid.

<sup>118</sup> Ibid.

<sup>119</sup> Ibid.

<sup>120</sup> Ibid.

<sup>121</sup> Justin Moyer, ‘Why Elon Musk is Not Henry Ford’, *The Washington Post*, 13 June 2014, <http://www.washingtonpost.com/news/morning-mix/wp/2014/06/13/why-elon-musk-is-not-henry-ford/>

<sup>122</sup> Ibid.

<sup>123</sup> Timothy Lee, ‘Tesla is freeing all of its Patents. Here’s Why That’s Not Crazy’, *Vox*, 12 June 2014, <http://www.vox.com/2014/6/12/5804168/tesla-is-freeing-all-of-its-patents-heres-why-thats-not-crazy>



a market for the product in the first place.’<sup>124</sup> He noted: ‘In a new industry, competitors can actually help with this by helping spread news about the invention, pioneering better sales techniques, and developing improvements that make the product more attractive.’<sup>125</sup>

Virgin.Com entrepreneur, Richard Branson, was admiring of Elon Musk’s gambit in respect of patent law: ‘I hope many more entrepreneurs follow his spirit of ingenuity and initiative’.<sup>126</sup> He reflected upon the initiative:

Patents have often been seen as a necessary evil required to protect innovators from having their ideas stolen. However, they can also limit the development of a new industry, keep innovation at bay, and smother technological advancement. If we are to use business as a force for good, then we should welcome competition and relax fixation on intellectual property. Very impressed by the news that electric car company, Tesla Motors have frozen their patent portfolio to help accelerate sustainable transport. In the spirit of the open source movement, the company’s CEO, Elon Musk announced that Tesla won’t raise patent lawsuits against anyone who uses their technology in good faith. Just last week, a wall of patents was removed from the company’s Palo Alto headquarters to demonstrate the message.<sup>127</sup>

Branson provides a somewhat scrambled account of the nature and the role of patent law. Branson cited former The B Team CEO, Derek Handley who said: ‘By holding on tightly to the knowledge and protection of ideas and intellectual property that is enabling this race to gain momentum, they are holding the world back from getting to where we all want it to

---

<sup>124</sup> Ibid.

<sup>125</sup> Ibid.

<sup>126</sup> Richard Branson, ‘Breaking Down the Patent Wall’, Virgin.com, 19 June 2014, <http://www.virgin.com/richard-branson/breaking-down-the-patent-wall>

<sup>127</sup> Ibid.

be.’<sup>128</sup> He commented: ‘At Virgin, we welcome competition – it challenges us to constantly innovative and improve.’<sup>129</sup> Branson was of the view: ‘We have never sought to monopolise a market, but instead to disrupt, improve and reimagine the current state of play to the benefit of customers.’<sup>130</sup> He affirmed the announcement by Tesla Motors: ‘This latest Tesla announcement is a win for innovation, technology and customers, and great step in the right direction for business.’<sup>131</sup> Branson sounds a little envious of the marketing success of Elon Musk’s announcement in respect of open innovation.

Branson has also been a supporter of Musk’s efforts.<sup>132</sup> He has commented: ‘My good friend Elon Musk is in the fast lane of electric vehicle development as Tesla power ahead with sales and growth’.<sup>133</sup> Branson noted: ‘However some Virgin staff notified me that Tesla are facing some opposition from industry incumbents who want to prevent Tesla from selling directly to customers.’<sup>134</sup> He observed: ‘Whilst nobody wants to undermine peoples livelihoods, if we are to conduct our businesses and industries in ways that profitably help people and the planet some things will have to change.’<sup>135</sup> Branson argued: ‘In this instance, I think that, by shaking up the United States automaker industry, Tesla are doing a very good thing, and I

---

<sup>128</sup> Ibid.

<sup>129</sup> Ibid.

<sup>130</sup> Ibid.

<sup>131</sup> Ibid.

<sup>132</sup> Richard Branson, ‘Allow Tesla Motors to Sell Directly to Consumers’, Virgin.Com, 19 August 2013, <http://www.virgin.com/richard-branson/allow-tesla-motors-to-sell-directly-to-consumers>

<sup>133</sup> Ibid.

<sup>134</sup> Ibid.

<sup>135</sup> Ibid.

would greatly encourage you to sign this White House petition (organised by the public) to allow Tesla Motors to sell directly to consumers in all 50 states.’<sup>136</sup>

There has been pessimism amongst some critics that the automobile industry will squander the present offered by Tesla Motors. Jason Perlow wrote an incisive piece entitled, ‘Why Detroit will Squander Tesla’s Patent Present.’<sup>137</sup> He suggested: ‘I suspect that one of the reasons behind Elon Musk’s open source motivations is that he is looking for large partners to finance and build the many “gigafactories” needed to mass-produce the batteries at scale, which is the single largest component cost of his cars, and the patent portfolio of Tesla is the “carrot.”’<sup>138</sup> Perlow wondered whether traditional manufacturers would invest in electric cars: ‘In order for the Big Three and the rest to make that leap, even with the patents, they will need to make substantial investments, on the order of many billions of dollars.’<sup>139</sup> He observed that there were longstanding relationships between the automobile manufacturers and the oil industry. Perlow concluded: ‘Unless our world governments step in and give them huge incentives to do otherwise, I don’t see the big auto manufacturers taking advantage of Musk’s gifts and breaking up a century-old romance with Big Oil.’<sup>140</sup>

---

<sup>136</sup> Ibid.

<sup>137</sup> Jason Perlow, ‘Why Detroit Will Squander Tesla’s Patent Present’, ZDNet, 17 June 2014, <http://www.zdnet.com/why-detroit-will-squander-teslas-patent-present-7000030497/>

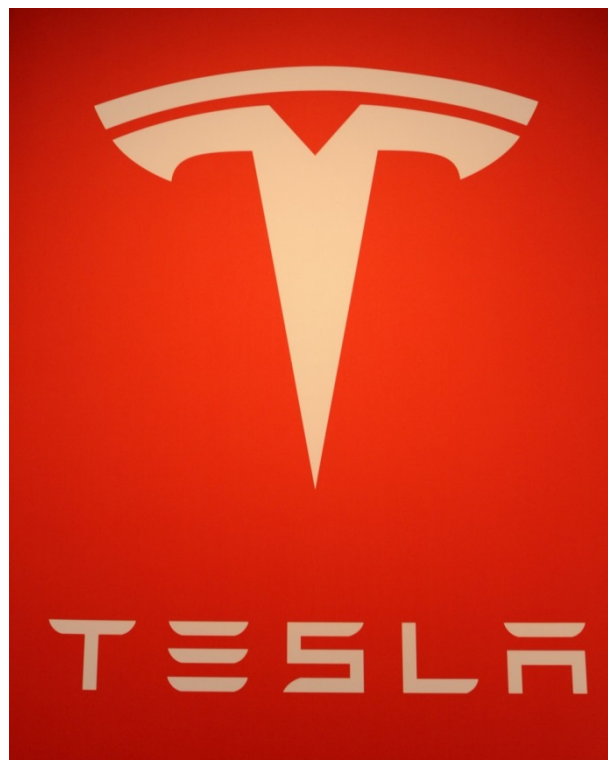
<sup>138</sup> Ibid.

<sup>139</sup> Ibid.

<sup>140</sup> Ibid.

James Bessen, an economist from the Boston University School of Law, provided a thoughtful historical analysis of Tesla's patent-sharing in the *Harvard Business Review*.<sup>141</sup> He suggested that 'the conditions that make knowledge sharing advantageous today won't last forever.'<sup>142</sup> Bessen predicted: 'Eventually electric vehicles will replace much of the market for gasoline-powered cars.' He observed that at that stage, 'competition from other electric vehicle makers will affect Tesla's profits and such extensive sharing might no longer be beneficial.'<sup>143</sup>

#### 4. Trade Mark Law, Branding, and Marketing



---

<sup>141</sup> James Bessen, 'History Backs up Tesla's Patent-Sharing', *Harvard Business Review*, 13 June 2014, <http://blogs.hbr.org/2014/06/history-backs-up-teslas-patent-sharing/>

<sup>142</sup> Ibid.

<sup>143</sup> Ibid.

There has sometimes been concern about the failure of the clean technology industry to engage in marketing. In its annual report, Tesla Motors highlights the role of marketing in respect of electric cars. The company notes: ‘As the first company to commercially produce a federally-compliant, fully electric vehicle that achieves market-leading range on a single charge, we have been able to generate significant media coverage of our company and our vehicles, and we believe we will continue to do so’.<sup>144</sup> Tesla Motors has certainly excelled at marketing and branding clean technology (which has sometimes been rather dour by comparison to other sectors). Elon Musk has certainly shown a Steve Jobs-like elan and bravura at salesmanship and promotion.

The company Tesla Motors has also been involved in battles over other forms of intellectual property—most notably, in respect of trade marks relating to the United States,<sup>145</sup> and China.<sup>146</sup> It is striking that the company has not espoused an open source philosophy when it comes to trade mark law.

In its annual report for 2012, Tesla Motors highlighted that its trademark applications in certain countries remain subject to outstanding opposition proceedings:

---

<sup>144</sup> Tesla Motors, ‘Annual Report for the Fiscal Period ended December 31, 2012’, <http://ir.teslamotors.com/secfiling.cfm?filingID=1193125-13-96241&CIK=1318605>

<sup>145</sup> Kirsten Korosec, ‘Tesla Drops Model E Trademark, but Ford Hangs On’, *Fortune*, 7 May 2014, <http://fortune.com/2014/05/07/tesla-drops-model-e-trademark-but-ford-hangs-on/>

<sup>146</sup> John Voelcker, ‘Tesla Gets its Brand Name Back in China, via Court Decision’, *Green Car Reports*, 24 January 2014, [http://www.greencarreports.com/news/1089903\\_tesla-gets-its-brand-name-back-in-china-via-court-decision](http://www.greencarreports.com/news/1089903_tesla-gets-its-brand-name-back-in-china-via-court-decision)

We currently sell and market our vehicles in various countries under our Tesla marks. We have filed trademark applications for our Tesla marks and opposition proceedings to trademark applications of third parties in various countries in which we currently sell and plan to sell our vehicles. Certain of our trademark applications are subject to outstanding opposition proceedings brought by owners or applicants alleging prior use of similar marks. If we cannot resolve these oppositions and thereby secure registered rights in these countries, our ability to challenge third party users of the Tesla marks will be reduced and the value of the marks representing our exclusive brand name in these countries will be diluted. In addition, there is a risk that the prior rights owners could in the future take actions to challenge our use of the Tesla marks in these countries. Such actions could have a severe impact on our position in these countries and may inhibit our ability to use the Tesla marks in these countries. If we were prevented from using the Tesla marks in any or all of these countries, we would need to expend significant additional financial and marketing resources on establishing an alternative brand identity in these markets.<sup>147</sup>

The company seems particularly sensitive to some of the challenges in respect of trademark law. Tesla Motors noted: ‘Existing trademark and trade secret laws and confidentiality agreements afford only limited protection.’<sup>148</sup> The company emphasized: ‘In addition, the laws of some foreign countries do not protect our proprietary rights to the same extent as do the laws of the United States, and policing the unauthorized use of our intellectual property is difficult.’<sup>149</sup>

---

<sup>147</sup> Tesla Motors, ‘Annual Report for the Fiscal Period ended December 31, 2012’, <http://ir.teslamotors.com/secfiling.cfm?filingID=1193125-13-96241&CIK=1318605>

<sup>148</sup> Ibid.

<sup>149</sup> Ibid.

In the United States, Tesla Motors was involved in an interesting conflict with Ford Motors over a trade mark application in respect of the name, ‘Model E’.<sup>150</sup> On the 5<sup>th</sup> August 2013, Tesla Motors filed a trademark in respect of the name ‘Model E’ for goods, such as “Automobiles and structural parts thereof”. In response, on the 3<sup>rd</sup> December 2013, Ford’s lawyers filed a trademark application in respect of the name ‘Model E.’ Clearly, the company was conscious of its historical tradition of using letters to name cars – most famously, with the Model T. In April 2014, Tesla Motors’ abandoned its trademark application in respect of the ‘Model E’.<sup>151</sup> There seems to have been an amicable resolution of the dispute between the car companies.

In China, Tesla Motors encountered a number of troubles in respect of trademark law.<sup>152</sup> Professor Eric Lane from Thomas Jefferson School of Law has been following the longstanding conflict, and has provided a useful summary of the dispute:

As it sought to expand into the Chinese market, the electric car maker encountered a businessman named Zhan Baosheng who owned registrations for the TESLA (or “Te Si La” transliterated) trademark in China in both English and Chinese. While Zhan’s trademark rights initially blocked Tesla from using the mark there, in early 2014 the company announced that **it had resolved the matter** though a court decision granting it the right to use the TESLA mark in China. So Tesla seemed

---

<sup>150</sup> Mandour & Associates, ‘Ford and Tesla Clash Over “Model E” Trademark’, Orange County Trademark Attorney Blog, 10 January 2014, <http://www.orangecountytrademarkattorney.pro/2014/01/ford-and-tesla-clash-over-model-e-trademark.html>

<sup>151</sup> Kirsten Korosec, ‘Tesla Drops Model E Trademark, but Ford Hangs On’, *Fortune*, 7 May 2014, <http://fortune.com/2014/05/07/tesla-drops-model-e-trademark-but-ford-hangs-on/>

<sup>152</sup> Tian Ying and Alan Ohnsman, ‘Bloomberg, Tesla Sued by Businessman Claiming China Trademark Right’, Bloomberg, 9 July 2014, <http://www.bloomberg.com/news/2014-07-07/tesla-sued-in-china-for-trademark-infringement.html>

to be in the clear until Mr. Zhan, apparently unsatisfied, **decided to sue Tesla for trademark infringement**. He... demanded that Tesla stop all sales and marketing activities in China, shut down showrooms and charging facilities, and pay him 23.9 million yuan (\$3.85 million) in compensation. It appears that Zhan finally got his pay day. Tesla recently said it resolved the dispute – this time via a direct settlement with Zhan rather than relying on the Chinese court system.<sup>153</sup>

In August 2014, Tesla Motors finally reached a settlement to end the China trademark dispute. There appeared to be a settlement, in return for the ownership of the trademarks, and the website names registered in China, such as tesla.cn and teslamotors.cn.<sup>154</sup> The company observed ‘Mr. Zhan has agreed to have the Chinese authorities complete the process of cancelling the Tesla trademarks that he had registered or applied for, at no cost to Tesla.’<sup>155</sup> The company noted: ‘Collectively, these actions remove any doubt with respect to Tesla’s undisputed rights to its trademarks in China.’<sup>156</sup> Tesla Motors declined to discuss the financial settlement in respect of the transfer of the ownership of the domain names.

There have been similar battles over foreign trademarks in China – with the United States information technology company, Apple and the Australian wine-maker, Penfolds.<sup>157</sup>

---

<sup>153</sup> Eric Lane, ‘Tesla Resolves Chinese Trademark Dispute (Again, This Time with Cash)’, Green Patent Blog, 14 August 2014, <http://www.greenpatentblog.com/2014/08/14/tesla-resolves-chinese-trademark-dispute-again-this-time-with-cash/>

<sup>154</sup> Alan Ohnsman, ‘Tesla Reaches Settlement to End China Trademark Dispute’, Bloomberg, 7 August 2014, <http://www.bloomberg.com/news/2014-08-06/tesla-reaches-settlement-to-end-china-trademark-dispute.html>

<sup>155</sup> Ibid.

<sup>156</sup> Ibid.

<sup>157</sup> Angus Griggs, ‘Chinese Trademark Squatters Have Penfolds over a Barrel’, Australian Financial Review, 14 July 2014,



Historically, there have been many similar conflicts in trade mark law, especially with franchising and licensing, the globalisation of trade, and the expansion of the internet domain name system.<sup>158</sup>

In addition to trademark law, Tesla Motors has also been involved in unsuccessful defamation litigation in the United Kingdom against BBC over disparaging reviews of the performance of its cars on the show Top Gear.<sup>159</sup> Tesla Motors complained about Jeremy Clarkson, saying: ‘Although Tesla say it will do 200 miles, we worked out that on our track it would run out after just 55 miles and if it does run out, it is not a quick job to charge it up again.’<sup>160</sup> Tesla Motors pleaded that there had been libel and malicious falsehood. The British Courts were sceptical of such claims. In the Court of Appeals, Lord Moore-Bick observed: ‘In my view the case pleaded in support of the claim for special damages is, to say the least, very thin on its own terms’.<sup>161</sup> He commented: ‘Moreover, on the basis of the material currently before the court I do not think that there is any real prospect of Tesla's being able to demonstrate at trial that it has suffered any quantifiable loss by reason of any of the actionable statements.’<sup>162</sup>

---

[http://www.afr.com/p/marketing/chinese\\_trademark\\_squatters\\_have\\_ABq1XbD3mSTQMiWicm38PO](http://www.afr.com/p/marketing/chinese_trademark_squatters_have_ABq1XbD3mSTQMiWicm38PO) and Kim Lester, ‘Penfolds, Tesla, and Apple: Trade Mark Squatting in China’, Drive, ABC 666 Radio, 16 July 2014.

<sup>158</sup> Jess Collen, ‘Tesla's Trademark Problems In China Are Hardly Electrifying News’, *Forbes*, 7 July 2014, <http://www.bloomberg.com/news/2014-07-07/tesla-sued-in-china-for-trademark-infringement.html>

<sup>159</sup> *Tesla Motors Ltd & Anor v British Broadcasting Corporation (BBC)* [2013] EWCA Civ 152 (05 March 2013)

<sup>160</sup> Ibid.

<sup>161</sup> Ibid.

<sup>162</sup> Ibid.

There has also been a conflict over defamation and contract law between Martin Eberhard, one of the founders of Tesla Motors, and its current CEO, Elon Musk.<sup>163</sup> Musk has denied that Eberhard was the inventor of Tesla, claiming ‘he had no technology of his own, he did not have a prototype and he owned no intellectual property relating to electric cars.’<sup>164</sup>

## **5. Sustainable Transportation, Clean Technology, and Climate Change**

In his address, Elon Musk emphasized the need to build clean technologies to address the problem of climate change. He observed: ‘Given that annual new vehicle production is approaching 100 million per year and the global fleet is approximately 2 billion cars, it is impossible for Tesla to build electric cars fast enough to address the carbon crisis.’ Musk recognised: ‘By the same token, it means the market is enormous.’<sup>165</sup> He maintained: ‘Our true competition is not the small trickle of non-Tesla electric cars being produced, but rather the enormous flood of gasoline cars pouring out of the world’s factories every day.’<sup>166</sup> Musk commented that there was a need to develop the innovation ecology in respect of electric cars: ‘We believe that Tesla, other companies making electric cars, and the world would all benefit from a common, rapidly-evolving technology platform.’<sup>167</sup>

---

<sup>163</sup> Eric Lane, ‘Roadster Rage: Tesla Founder Sues CEO for Defamation; Alleges Tesla Breached Contracts’, *The Green Patent Blog*, 28 June 2009, <http://www.greenpatentblog.com/2009/06/28/roadster-rage-tesla-founder-sues-ceo-for-defamation-alleges-tesla-breached-contracts/>

<sup>164</sup> Uccilia Wang, ‘Tesla’s Elon Musk Rebuts Claims by Martin Eberhard’, *Greentech Media*, 22 June 2009, <http://www.greentechmedia.com/articles/read/teslas-elon-musk-rebuts-claims-by-martin-eberhard>

<sup>165</sup> Elon Musk, ‘All Our Patents Belong to You’, *Tesla Motors*, 12 June 2014, <http://www.teslamotors.com/blog/all-our-patent-are-belong-you>

<sup>166</sup> Ibid.

<sup>167</sup> Ibid.

## A. Sustainable Transportation

The decision to open source electric cars was praised by environmental leaders—such as the Sierra Club and the Climate Council in Australia. Jeff Tittel of the New Jersey Sierra Club has maintained: ‘We need zero-emission vehicles, which means we also need to educate consumers and inform them about the benefits of owning an electric car.’<sup>168</sup> Mark Ruffalo—the actor famous for playing the Incredible Hulk in the Avengers—was also admiring of Elon Musk’s elan, commenting: ‘Bravo Elon Musk you are a real super hero! So proud to know you. Such a cool thing to do!’<sup>169</sup>

In its 2014 report upon mitigation, the Intergovernmental Panel on Climate Change devoted a chapter to the topic of Transportation.<sup>170</sup> The executive summary noted that ‘Reducing global transport greenhouse gas (GHG) emissions will be challenging since the continuing growth in passenger and freight activity could outweigh all mitigation measures unless transport emissions can be strongly decoupled from GDP growth.’<sup>171</sup> The report warned: ‘Without aggressive and sustained mitigation policies being implemented, transport emissions could increase at a faster rate than emissions from the other energy end-use sector and reach around

---

<sup>168</sup> Jeff Tittel, ‘Tesla-Friendly Bill Helps Consumers Environment’, NJ.Com, 8 June 2014, [http://www.nj.com/opinion/index.ssf/2014/06/opinion\\_tesla-friendly\\_bill\\_helps\\_consumers\\_environment.html](http://www.nj.com/opinion/index.ssf/2014/06/opinion_tesla-friendly_bill_helps_consumers_environment.html)

<sup>169</sup> Mark Ruffalo, ‘Twitter’, 14 June 2014, <https://twitter.com/MarkRuffalo/status/477764433620779008>

<sup>170</sup> Intergovernmental Panel on Climate Change, ‘Chapter 8: Transport’, IPCC 5th Assessment Report *Climate Change 2014: Mitigation of Climate Change*, 2014, [http://report.mitigation2014.org/drafts/final-draft-postplenary/ipcc\\_wg3\\_ar5\\_final-draft\\_postplenary\\_chapter8.pdf](http://report.mitigation2014.org/drafts/final-draft-postplenary/ipcc_wg3_ar5_final-draft_postplenary_chapter8.pdf)

<sup>171</sup> Ibid.

12 Gt CO<sub>2</sub>eq/yr by 2050.’<sup>172</sup> The report recommended: ‘Avoided journeys and modal shifts due to behavioural change, uptake of improved vehicle and engine performance technologies, low-carbon fuels, investments in related infrastructure, and changes in the built environment, together offer high mitigation potential (high confidence).’<sup>173</sup> Amongst other things, the report considered the use of electric vehicles.

President Barack Obama has been keen to make electric cars more affordable and accessible to the American public.<sup>174</sup> In his 2011 State of the Union address, he observed: ‘With more research and incentives, we can break our dependence on oil with biofuels, and become the first country to have a million electric vehicles on the road by 2015.’<sup>175</sup> He has sought to encourage United States innovators and entrepreneurs in the field of clean technology. Tesla has been supported by the United States Government through a US. Energy Department Vehicle Loan. Tesla was able to repay the loan to the government in 2013.<sup>176</sup>

---

<sup>172</sup> Ibid.

<sup>173</sup> Ibid.

<sup>174</sup> The White House, ‘Fact Sheet: President Obama’s Plan to Make the U.S. the First Country to Put One Million Advanced Vehicles on the Road’ <http://www.whitehouse.gov/sites/default/files/other/fact-sheet-one-million-advanced-technology-vehicles.pdf>

<sup>175</sup> President Barack Obama, ‘The State of the Union Address – 2011’, the White House, 25 January 2011, <http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address>

<sup>176</sup> Angela Greiling Keane, ‘Tesla First to Repay Obama EV Loan After Failures’, *Bloomberg*, 23 May 2013, <http://www.bloomberg.com/news/2013-05-22/tesla-repaying-loan-for-losers-gives-obama-green-win.html>



President Barack Obama, Commencement Address, UC Irvine, 14 June 2014.

As part of his agenda to act on climate change, President Barack Obama has been keen to promote United States innovation in respect of clean technologies—such as electric vehicles and other advanced green automobiles. On the 14th June 2014, President Barack Obama gave a commencement address to the University of California, Irvine. He told his audience:

We need scientists to design new fuels. We need farmers to help grow them. We need engineers to invent new technologies. We need entrepreneurs to sell those technologies. We need workers to operate assembly lines that hum with high-tech, zero-carbon components. We need builders to hammer into place the foundations for a clean energy age. We need diplomats and businessmen and women, and Peace Corps volunteers to help developing nations skip past the dirty phase of development and transition to sustainable sources of energy.<sup>177</sup>

---

<sup>177</sup> President Barack Obama, ‘Remarks by the President at the University of California-Irvine Commencement Ceremony’, The White House, 14 June 2014, <http://www.dailykos.com/story/2014/06/14/1307018/-President-Obama-s-remarks-at-UC-Irvine-commencement-ceremony>

Obama recommended greater investment in renewable energy, and divestment from fossil fuels: ‘You need to invest in what helps, and divest from what harms.’<sup>178</sup> He observed: ‘You’ve got to remind everyone who represents you, at every level of government, that doing something about climate change is a prerequisite for your vote.’<sup>179</sup>

It remains to be seen whether Elon Musk’s gift of patents will help President Barack Obama achieve his target of a 1 million electric vehicles on the road by 2015, and his larger ambition of reducing greenhouse gas emissions in the transportation sector.

## **B. Gigafactory**

In February 2014, Tesla Motors announced its ambition to establish a Gigafactory:

As we at Tesla reach for our goal of producing a mass market electric car in approximately three years, we have an opportunity to leverage our projected demand for lithium ion batteries to reduce their cost faster than previously thought possible. In cooperation with strategic battery manufacturing partners, we’re planning to build a large scale factory that will allow us to achieve economies of scale and minimize costs through innovative manufacturing, reduction of logistics waste, optimization of co-located processes and reduced overhead.

The Gigafactory is designed to reduce cell costs much faster than the status quo and, by 2020, produce more lithium ion batteries annually than were produced worldwide in 2013. By the end of the first year of volume production of our mass market vehicle, we expect the Gigafactory will have driven down the per kWh cost of our battery pack by more than 30 percent.<sup>180</sup>

---

<sup>178</sup> Ibid.

<sup>179</sup> Ibid.

<sup>180</sup> Tesla Motors, ‘Gigafactory’, 26 February 2014, <http://www.teslamotors.com/blog/gigafactory>

The company has provided a vision of its proposed centre.<sup>181</sup> There has been intense competition between a number of states to be home to the Gigafactory.<sup>182</sup> Californian business leaders have made an intense pitch for Californian legislators and voters to have the Gigafactory in California.<sup>183</sup>

### C. SolarCity

In addition to electric vehicles and batteries, Elon Musk has also shown a strong commitment to solar energy, chairing the SolarCity venture.

In its annual report for 2013, SolarCity emphasizes the importance of intellectual property:

Our intellectual property is an essential element of our business, and our success depends, at least in part, on our ability to protect our core technology and intellectual property. To accomplish this, we rely on a combination of patent, trade secret, trademark, copyright and other intellectual property laws, confidentiality agreements and license agreements to establish and protect our intellectual property rights.<sup>184</sup>

---

<sup>181</sup> Tesla Motors, ‘Gigafactory’, [http://www.teslamotors.com/sites/default/files/blog\\_attachments/gigafactory.pdf](http://www.teslamotors.com/sites/default/files/blog_attachments/gigafactory.pdf)

<sup>182</sup> Dana Hull, ‘Competition Heats Up for Tesla’s Gigafactory’, *San Jose Mercury News*, 17 August 2014, [http://www.mercurynews.com/business/ci\\_26353827/competition-heats-up-teslas-gigafactory](http://www.mercurynews.com/business/ci_26353827/competition-heats-up-teslas-gigafactory)

<sup>183</sup> Jim Wunderman, ‘Tesla’s “Gigafactory” is worth the Fight’, *SF Gate*, 17 August 2014, <http://www.sfgate.com/opinion/openforum/article/Tesla-s-Gigafactory-is-worth-the-fight-5694357.php?cmpid=twitter>

<sup>184</sup> SolarCity Corporation, ‘Annual Report for 2013’, <http://investors.solarcity.com/sec.cfm?DocType=Annual&Year=&FormatFilter=>

The company noted: ‘As of December 31, 2013, we had 9 patents issued and 48 pending applications with the U.S. Patent and Trademark Office’.<sup>185</sup> SolarCity explained: ‘These patents and applications relate to our installation and mounting hardware, our finance products, our monitoring solutions and our software platforms’.<sup>186</sup> The company emphasized: ‘Our issued patents start expiring in 2025.’<sup>187</sup> The company stressed: ‘We intend to continue to file additional patent applications’.<sup>188</sup> In contrast to Tesla Motors, there is certainly no promotion of an open access philosophy to patents in respect of SolarCity.

SolarCity is very much dependent upon trade mark protection: “SolarCity,” “SolarGuard,” “SolarLease,” “PowerGuide,” “SolarStrong,” “SunRaising,” “PowerSavings Plan,” “Rooftop Rewards,” “Solar Made Simple,” “Zep Solar” and “Zep Groove” are our registered trademarks in the United States and, in some cases, in certain other countries.’<sup>189</sup> The company also notes: ‘Our other unregistered trademarks and service marks in the United States include: “Better Energy,” “SolarBid,” “SolarWorks” and “DemandLogic.”’<sup>190</sup>

SolarCity also takes a strict approach to trade secrets: ‘All of our employees and independent contractors are required to sign agreements acknowledging that all inventions, trade secrets,

---

<sup>185</sup> Ibid.

<sup>186</sup> Ibid.

<sup>187</sup> Ibid.

<sup>188</sup> Ibid.

<sup>189</sup> Ibid.

<sup>190</sup> Ibid.



works of authorship, developments and other processes generated by them on our behalf are our property and assigning to us any ownership that they may claim in those works.’<sup>191</sup>

In June 2014, Elon Musk, Peter Rive, and Lyndon Rive wrote a piece called, ‘Solar at Scale’.<sup>192</sup> The operators of SolarCity expressed a desire to acquire Silevo:

SolarCity has signed an agreement to acquire Silevo, a solar panel technology and manufacturing company whose modules have demonstrated a unique combination of high energy output and low cost. Our intent is to combine what we believe is fundamentally the best photovoltaic technology with massive economies of scale to achieve a breakthrough in the cost of solar power. Although no other acquisitions are currently being contemplated, SolarCity may acquire additional photovoltaics companies as needed to ensure clear technology leadership and we plan to grow internal engineering significantly.<sup>193</sup>

Musk, Rive, and Rive noted: ‘We are in discussions with the state of New York to build the initial manufacturing plant, continuing a relationship developed by the Silevo team’.<sup>194</sup> The team had grand ambitions for the project: ‘At a targeted capacity greater than 1 GW within the next two years, it will be one of the single largest solar panel production plants in the world.’<sup>195</sup>

---

<sup>191</sup> Ibid.

<sup>192</sup> Elon Musk, Pete Rive and Lyndon Rive, ‘Solar at Scale’, *SolarCity Blog*, 16 June 2014, <http://blog.solarcity.com/silevo>

<sup>193</sup> Ibid.

<sup>194</sup> Ibid.

<sup>195</sup> Ibid.

The leaders of SolarCity explained why the company was keen to adopt solar panel technology and manufacturing company:

Given that there is excess supplier capacity today, this may seem counter-intuitive to some who follow the solar industry. What we are trying to address is not the lay of the land today, where there are indeed too many suppliers, most of whom are producing relatively low photonic efficiency solar cells at unconvincing costs, but how we see the future developing. Without decisive action to lay the groundwork today, the massive volume of affordable, high efficiency panels needed for unsubsidized solar power to outcompete fossil fuel grid power simply will not be there when it is needed.

SolarCity was founded to accelerate mass adoption of sustainable energy. The sun, that highly convenient and free fusion reactor in the sky, radiates more energy to the Earth in a few hours than the entire human population consumes from all sources in a year. This means that solar panels, paired with batteries to enable power at night, can produce several orders of magnitude more electricity than is consumed by the entirety of human civilization. A cogent assessment of sustainable energy potential from various sources is described well in this Sandia paper: [www.sandia.gov/~jytsao/Solar%20FAQs.pdf](http://www.sandia.gov/~jytsao/Solar%20FAQs.pdf).

Even if the solar industry were only to generate 40 percent of the world's electricity with photovoltaics by 2040, that would mean installing more than 400 GW of solar capacity per year for the next 25 years. We absolutely believe that solar power can and will become the world's predominant source of energy within our lifetimes, but there are obviously a **lot** of panels that have to be manufactured and installed in order for that to happen. The plans we are announcing today, while substantial compared to current industry, are small in that context.<sup>196</sup>

There has been much debate about whether this strategy of SolarCity will be successful.

More generally, there has been a great optimism about the widespread adoption and diffusion of solar photovoltaics. Tony Seba has highlighted that solar energy – coupled with innovative

---

<sup>196</sup> Ibid.

financial models – will disrupt traditional business models in respect of energy.<sup>197</sup> In his book on *Sustainable Energy Solutions for Climate Change*, Mark Diesendorf highlights the significance of solar photovoltaics.<sup>198</sup> He emphasized: ‘PV’s low and decreasing prices, huge resource, low environmental and health impacts, low land use compared with agriculture and widely available materials (at least for silicon crystal technologies) gives confidence that, with geographic diversity of collectors, it can make a substantial contribution to future electricity demand.’<sup>199</sup>

In his essay, ‘The New Turning Point’, Al Gore has emphasized that the key question in addressing climate change is how ‘quickly we can accelerate and complete the transition to a low-carbon civilization’.<sup>200</sup> He has been particularly enthusiastic about solar photovoltaics:

There is surprising – even shocking – good news: Our ability to convert sunshine into usable energy has become much cheaper far more rapidly than anyone had predicted. The cost of electricity from photovoltaic, or PV, solar cells is now equal to or less than the cost of electricity from other sources powering electric grids in at least 79 countries. By 2020 – as the scale of deployments grows and the costs continue to decline – more than 80 percent of the world's people will live in regions where solar will be competitive with electricity from other sources.<sup>201</sup>

---

<sup>197</sup> Tony Seba, *Clean Disruption of Energy and Transportation: How Silicon Valley will Make Oil, Nuclear, Natural Gas, Coal, Electric Vehicles and Conventional Cars Obsolete by 2030*, Silicon Valley, Clean Planet Ventures, 2014.

<sup>198</sup> Mark Diesendorf, *Sustainable Energy Solutions for Climate Change*, Sydney: UNSW Press, 2014.

<sup>199</sup> Ibid., 44.

<sup>200</sup> Al Gore, ‘The Turning Point: New Hope for the Climate’, *Rolling Stone*, 18 June 2014, <http://www.rollingstone.com/politics/news/the-turning-point-new-hope-for-the-climate-20140618>

<sup>201</sup> Ibid.

He envisaged that countries like the United States would be transformed by solar energy: ‘We are witnessing the beginning of a massive shift to a new energy-distribution model – from the "central station" utility-grid model that goes back to the 1880s to a "widely distributed" model with rooftop solar cells, on-site and grid battery storage, and microgrids.’<sup>202</sup> Gore has been particularly impressed by the adoption of solar in India and Bangladesh: ‘In poorer countries, where most of the world's people live and most of the growth in energy use is occurring, photovoltaic electricity is not so much displacing carbon-based energy as leapfrogging it altogether.’<sup>203</sup> Gore stressed that ‘each of the trends described above – in technology, business, economics and politics – represents a break from the past’.<sup>204</sup> He was hopeful: ‘Taken together, they add up to genuine and realistic hope that we are finally putting ourselves on a path to solve the climate crisis.’<sup>205</sup>

---

<sup>202</sup> Ibid.

<sup>203</sup> Ibid.

<sup>204</sup> Ibid.

<sup>205</sup> Ibid.

## Biography

Dr Matthew Rimmer is an Australian Research Council Future Fellow, working on Intellectual Property and Climate Change. He is an associate professor at the ANU College of Law, and an associate director of the Australian Centre for Intellectual Property in Agriculture (ACIPA). He holds a BA (Hons) and a University Medal in literature, and a LLB (Hons) from the Australian National University. He is a member of the ANU Climate Change Institute. Dr Rimmer is the author of *Digital Copyright and the Consumer Revolution: Hands off my iPod*, *Intellectual Property and Biotechnology: Biological Inventions*, and *Intellectual Property and Climate Change: Inventing Clean Technologies*. He is an editor of *Patent Law and Biological Inventions*, *Incentives for Global Public Health: Patent Law and Access to Essential Medicines*, and *Intellectual Property and Emerging Technologies: The New Biology*. Rimmer has published widely on copyright law and information technology, patent law and biotechnology, access to medicines, clean technologies, and Indigenous intellectual property. His work is archived at *SSRN Abstracts* and *Bepress Selected Works*.