Title of Note: Demarcation and the Smart Grid: An Analysis of California Public Utility Decision 10-06-47 in Relation to Federal Telecommunications Deregulation

Author: Brian Goldman

Demarcation and the Smart Grid: An Analysis of California Public Utility Decision 10-06-47 in Relation to Federal Telecommunications Deregulation

Table of Contents

Introduction

Winston Smith lives in a world in which the government does not allow a person to choose the model of his television.[1] His program provider offers just one option.[2] The government provides Mr. Smith with the television that comes with the service area in which he lives.[3] It is not actually his television to begin with.[4] The provider owns the television, and they only allow for use with the provider's services.[5] He cannot take the television with him if he moves.[6] In fact, the television does not work with other service providers at all because each provider uses proprietary standards that make the services incompatible.[7]

---

[1] This hypothetical reflects the current state of electrical generation industry regulation, during which the CPUC executed the Decision Adopting Requirements for Smart Grid Deployment Plans. *See In re* Decision Adopting Requirements for Smart Grid Deployment Plans Pursuant to Senate Bill 17 (Padilla), Chapter 327 Statutes of 2009 Cal. Pub. Util. Comm'n Decision No. 10-06-047 (June 24, 2010), *available at* http://docs.cpuc.ca.gov/WORD_PDF/AGENDA_DECISION/119685.pdf [hereinafter *Decision*]. *See generally* George Orwell, Nineteen Eighty-Four (New Am. Library 1983) (1949) (describing possible scenario in which one entity, such as government, has full control over production system).

[2] *Cf.* Robin Bromby, Lily Chan, B. A. Kim, Stephen McClelland, Pria Nakorn, P. J. Sujarto & Edward Weiss, *Asia: The Global Telecom Dynamo: Part 1 of 3*, 31-6 Telecomm. Int'l S1, S1-S10 (1997) (discussing problems facing Telkom's inability to meet demand for future mobile service).

[3] *See, e.g.*, *United Pushes Telephone Ownership*, Ocala Star Banner, June 20, 1983, at D-1 (illustrating that before 1983, individuals leased their equipment directly from utilities themselves).

[4] *See generally* State of Washington and James T. Sugarman's Amended Answer, Affirmative Defenses, and Counterclaims at 4-8, Rent-A-Center West, Inc. v. Washington, No. 08-2-05194-7 (King County Super. Ct. Jan. 29, 2008) (describing potential abuses in non-ownership system of commodity usage).

[5] *See* Fredrick Ungeheuer, Don Wedbush & Alexander L. Taylor III, *Dial M for Money*, Time, Jan. 31, 1983, http:// http://www.time.com/time/magazine/article/0,9171,951923-2,00.html (discussing monthly cost to lease telephone before deregulation occurred, and amount owners would save if they purchased phone instead).

[6] *See, e.g.*, John Healey, *Consumers to Be Allowed to Buy Cable Boxes*, San Jose Mercury News, June 12, 1998, at C-2 (explaining that before July 2000, providers only allowed customers to rent cable boxes from providers instead of purchasing them).

[7] *See id.* (explaining that not every cable box is compatible with every service provider because of differences in transmission formats and available features).

A lack of consumer choice within a regional area results in an anticompetitive environment among service providers.[8] This lack of competition leads to stagnation of innovation.[9] For example, a lack of competition prevents the creation of attachments such as DVDs, as companies have no incentive to introduce new products.[10] Moreover, the average consumer cannot discern if they are receiving adequate services because of an absence of comparable services across regions.[11] Therefore, service providers do not prioritize technological innovation or progress because of a lack of competition in the industry.[12]

---

[8] William W. Hogan, A Market Power Model with Strategic Interaction in Electricity Networks 15 (1997); Charles W. Ross, *Edison Doesn't Play Fair, SDG&E Document Says*, San Diego Union-Trib., Aug. 29, 1989, at A-1; *see* Severin Borenstein, James Bushnell & Steven Stoft, *The Competitive Effects of Transmission Capacity in a Deregulated Electricity Industry* 4 (Nat'l Bureau of Econ. Res., Working Paper No. 6293, 1997), *available at* http://www.nber.org/papers/w6293 (describing that lack of investment in transmission development yields increased competition).

[9] *See* Shelby D. Hunt, A General Theory of Competition: Resources, Competences, Productivity, Economic Growth 192 (2000); Radford Boddy & James R. Crotty, *Stagnation, Instability, and International Competition*, 66 Am. Econ. Rev. 27, 27-33 (1976) (discussing monopoly-based theory of stagnation); Rafael de Villar, *Competition and Equity in Telecommunications*, *in* Santiago Levy & Michael Walton, No Growth Without Equity? Inequality, Interests, and Competition within Mexico 321, 322 (2009).

[10] *See e.g.*, Andrew Chan, *Unwiring the Planet: The Second Coming of Mobile and Wireless Networks*, HardwareMAG, Mar. 2003, at 36-47 (differentiating Global System for mobile telecommunications and Code Division Multiple Access standards for mobile phones in United States).

[11] *See* Lorrin Philipson & H. Lee Willis, Understanding Electric Utilities and De-Regulation 282-83 (2d ed. 2006) (noting that electric utilities provided same service in 1990s as in 1940s, even if potential improvements existed).

[12] *See* EKOS, Nw. Dev. Agency with Util. Couns. & Eng'g, North West Utilities Infrastructure Study – Final Report 13 (2008); Jon Arnold, *Microsoft's Utility Industry Survey – Some Progress, but a Long Way to Go*, TCMNet.com, Mar. 19, 2010, http://smart-grid.tmcnet.com/topics/smart-grid-fa/articles/79195-microsofts-utility-industry-survey-some-progress-but-long.htm; Infrastructurereportcard.org, Am. Soc'y Civ. Eng'rs, Report Card for America's Infrastructure: Energy, http://www.infrastructurereportcard.org/fact-sheet/energy.

In today's world, this system of utility ownership seems preposterous.[13] However, this type of system is surprisingly common.[14] The hypothetical reflects the current state of the energy industry, as well as the telecommunications industry up until nationwide deregulation in the 1980s.[15] While telecommunications technology has greatly advanced within recent years, technological development in energy production has stagnated.[16] As a twentieth century relic, the California electrical system's design cannot handle the projected increase in demand for energy.[17] In 1980, California consumed 180,428 gigawatt hours ("GWh") of energy.[18] In 2010, the projected consumption was 322,421 GWh.[19] An increase in the size of the population and the proliferation of energy-based devices caused the demand increase.[20] Additionally, from

---

[13] *See* Richard J. Gilbert, *Competition and Innovation*, 1 J. Indus. Org. Educ. 1, 4 (2006), *available at* http://elsa.berkeley.edu/users/gilbert/wp/competition_and_innovation.pdf (explaining authorities concerns for innovation effects of monopolies with Microsoft antitrust case as example); *see also* United States v. Microsoft Corp. 253 F.3d 34, 51-52 (D.C. Cir. 2001); Joe Wilcox, *Judge Rules Microsoft Violated Antitrust Laws*, CNET, Apr. 3, 2000, http://news.cnet.com/2100-1001-238758.html&tag=txt.

[14] *See* Robert Britt Horwitz, The Irony of Regulatory Reform: The Deregulation of American Telecommunications 221-63 (1990). *See generally* David Lazer & Viktor Mayer Schönberger, *Governing Networks: Telecommunication Deregulation in Europe and the United States*, 27 Brook. J. Int'l L. 819, 819 (2002) (explaining necessity of balance between competition and coordination within regulated industries); Clifford Winston, *U.S. Industry Adjustment to Economic Deregulation*, 12 J. Econ. Persp. 89, 89 (1998) (explaining that large temporal gaps exist between beginning and completion of processes of industry deregulation in general).

[15] *See* Horwitz, *supra* note 14, at 221-63. *See generally* Lazer & Schönberger, *supra* note 14, at 819 (explaining necessity of balance between competition and coordination within regulated industries); Winston, *supra* note 14, at 89 (explaining that large temporal gaps exist between beginning and completion of processes of industry deregulation in general).

[16] *See* Jesse J. Knight, Jr., Speech to Cal-ISO Symposium (Oct. 19, 2010); Christine Hertzog, *Telecom Industry Lessons for Electric Utilities*, The Energy, Jan. 18, 2010, http://www.theenergycollective.com/christinehertzog/28495/telecom-industry-lessons-electric-utilities. *But see* Katie Fehrenbacher, *Smart Grid 101: Utilities are Very Risk Averse*, GigaOM, Jan. 24, 2010, http://gigaom.com/cleantech/smart-grid-101-utilities-are-very-risk-averse/ (citing differences between industries).

[17] *See* Richard Rohrer, Cal. Energy Comm'n, California Energy Demand 2000-2010, at 16-17 (2000).

[18] *Id.*

[19] *Id*

[20] *Id.*

1980-1998, the number of households in California increased at a rate of 1.4% per year.[21] At the same time, transmission investment dropped from significantly in the early twenty-first century.[22] Without adequate investments in transmission, utilities are unable to sustain the rising demand.[23]

In California, recent state legislation attempts to update this aging electric infrastructure.[24] The California Public Utility Commission's ("CPUC") has spearheaded the movement to transform California's current electric system into a Smart Grid.[25] The Smart Grid modernizes the electric grid by taking advantage of recent technological advancements.[26] These technologies include wireless home area networks, high capacity storage capabilities, and smart meters that can keep detailed accounts of energy usage and pricing.[27] Simply stated, a Smart Grid incorporates burgeoning technologies to allow power consumers and producers to have dynamic

---

[21] *Id.*

[22] Gary Rackliffe, *Transmission – The Need for New Rules and Advanced Technology*, ABB GROUP, http://www.abb.com/cawp/gad02181/7e4d9a55ca5c8227c1256ea90059e756.aspx (explaining transmission form of distribution for energy to get power from generators to substations, then carried along distribution lines to reach customers); *see* W. M. WARWICK, A PRIMER ON ELECTRIC UTILITIES, DEREGULATION, AND RESTRUCTURING OF U.S. ELECTRICITY MARKETS 4.0 (2002) (detailing complete background of energy transmission and distribution process).

[23] *See* WARWICK, *supra* note 22, at 4.6. *See generally* N.Y. CITY GOV., PLANYC PROGRESS REPORT 2010, at 7 (2010) (stating PlaNYC goals in terms of its energy infrastructure upgrade).

[24] *See* Energy Independence and Security Act, 16 U.S.C. § 2621(d) (2007); American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, 123 Stat. 115, 138; CAL. PUB. UTIL. CODE § 8362(a) (2009).

[25] *See generally Decision*, *supra* note 1, at 2-5 (determining initial steps to define Smart Grid and Smart Grid deployment in California).

[26] CAL. PUB. UTIL. COMM'N, CALIFORNIA'S SMART GRID: CALIFORNIA LEADS THE NATION IN MODERNIZING ITS ELECTRIC GRID 1 (2010), *available at* http://www.cpuc.ca.gov/NR/rdonlyres/238CADA7-EBCD-418D-8CBC-390F43E645AE/0/SGFactSheet0710.pdf (explaining California's leadership role in Smart Grid implementation).

[27] *See* Ryan Kim, *Cisco Plugs into the Grid*, S.F. CHRON., May 18, 2009, at C-1 (describing Cisco's developments in Smart Grid technology); Bob Gohn, *Smart Grid into the Home: The Battle Begins*, PIKE RES., July 20, 2010, http://www.smartgridnews.com/artman/publish/Technologies_Home_Area_Networks_News/Smart-Grid-into-the-Home-The-Battle-Begins-2720.html (explaining types of technology included within Smart Grid systems); Martin LaMonica, *DOE Smart-Grid Trials Fund Utility-Scale Energy Storage*, CNET NEWS, Nov. 24, 2009, http://news.cnet.com/8301-11128_3-10404375-54.html.

control over and access to energy consumption needs.[28] In Rulemaking 10-06-047 ("Decision"), the CPUC approved of Smart Grid implementation.[29] However, the Decision failed to implement a demarcation point, an integral component of the Smart Grid that separates utility owned and customer owned devices.[30]

This Note argues that the CPUC erred in the Decision by refusing to adopt a demarcation point within the Smart Grid until further review.[31] Part I examines the statutory background of the electric system and analogous legal precedence regarding Smart Grid implementation.[32] Part II discusses the CPUC's Decision and its rationale.[33] Part III argues that the CPUC incorrectly declined to set a demarcation point in the Decision.[34] First, the CPUC should set a demarcation point because Bill 17 mandated an interoperability standard.[35] Second, the telecommunications legal framework suggests that the electrical industry should set a demarcation point to define ownership for a successful Smart Grid.[36] Finally, public policy supports a demarcation point and other open market solutions that protect consumer choice and encourage product development for better energy use and management.[37]

---

[28] *See Decision*, *supra* note 1, at 34.
[29] *Id.* at 104.
[30] *Id.*
[31] *See infra* Part III.A-C.
[32] *See infra* Part I (presenting background on state and federal energy regulatory powers and federal telecommunications regulatory control).
[33] *See infra* Part II (presenting CPUC's Decision).
[34] *See infra* Part III (arguing CPUC incorrectly ruled on the Decision).
[35] *See infra* III.A (arguing that CPUC must establish jurisdiction in contested areas).
[36] *See infra* III.B (arguing that CPUC should use Part 68 set forth by telecommunications legal authority as template for Smart Grid implementation).
[37] *See infra* Part III.C (arguing that it is good policy to establish clear jurisdictional control to emphasize open market competition).

I. Background

After the deregulation of the electrical utility industry in the early 1990s, the electrical grid was unmanageable.[38] Utilities no longer had an incentive to maintain the grid because of external market forces that encouraged divestment and astronomical upkeep costs exceeding $1 trillion.[39] Moreover, a population increase in a society that uses energy intensive gadgets resulted in an increased system load unsupported by the current electric system.[40] A lack of available energy in California caused rolling blackouts.[41] A growing consensus of utilities, investors, and governmental entities conclude that the resolution is a national network of Smart Grids.[42]

A. Federal Energy Regulation and the Smart Grid

In 2007, Congress passed the Energy and Information and Security Act ("EISA") to address America's growing energy concerns.[43] EISA's goal was to move the United States toward greater energy independence and security by increasing the production of clean renewable fuels.[44] Congress also intended to protect consumers, increase efficiency, promote greenhouse gas capture and storage, and improve energy performance of the Government.[45] Smart Grid development became a focal point of advancement to alleviate existing concerns with the current

---

[38] David Biello, *The Start-Up Pains of a Smarter Electricity Grid: The Smart Grid Will Save Energy and Money, but Implementation May Prove Costly*, Sci. Am., May 10, 2010, http://www.scientificamerican.com/article.cfm?id=start-up-pains-of-smart-grid.
[39] *Id.*
[40] *See* Rohrer, *supra* note 17, at 16-17; Warwick, *supra* note 22, at 4.6; Katie Fehrenbacher, *FAQ: Smart Grid*, GigaOM, Jan. 26, 2009, http://gigaom.com/cleantech/faq-smart-grid/.
[41] *See* Joseph Kahn & Jonathan D. Glater, *Enron's Collapse: The Overview; Enron Auditor Raised Specter of Crime*, N.Y. Times, Dec. 13, 2001, at C-1.
[42] Martin LaMonica, *FAQ: What the Smart Grid Means to You*, CNET, July 10, 2009, http://news.cnet.com/8301-11128_3-10283295-54.html; U.S. Dep't Energy, Smart Grid, http://www.oe.energy.gov/smartgrid.htm; Alex Yu Zheng, *Smart Grid Environmental Benefits*, Smart Grid News.com, Sept. 29, 2007, http://www.smartgridnews.com/artman/publish/article_289.html.
[43] Energy Information and Security Act of 2007, 16 U.S.C. § 2621(d) (2007).
[44] *Id.*
[45] *Id.*

electric system.[46] EISA granted utilities the federal funds for Smart Grid development to modernize the U.S. electric system.[47]

The Federal Energy Regulatory Commission ("FERC") defines a Smart Grid as the application of digital technologies to the electrical grid with real-time information coordination.[48] The technologies apply the information to monitor generation supply resources, demand resources, and distributed energy resources.[49] In other words, the Smart Grid uses developing technology so that utilities can communicate directly with the energy sources to ensure optimum services.[50]

There are numerous benefits to the implementation of a Smart Grid.[51] First, a Smart Grid can increase the reliability of electric power by reducing power outages and rolling blackouts.[52]

---

[46] *Id.* § 1301; Denis Du Bois, *Summary of the Energy Independence and Security Act*, *H.R. 6*, Energy Priorities Mag., Dec. 19, 2007, http://energypriorities.com/entries/2007/12/energy_bill_summary2007.php; David J. Kopta & Davis Wright Tremaine LLP, *National Broadband Plan: Focus on Smart Grid*, Mar. 16, 2010, http://www.lexology.com/library/detail.aspx?g=11255e92-6bbe-4ecf-a0b4-86041fa9c137.

[47] 16 U.S.C. § 2621(d) (stating statute granted 20% reimbursement to Smart Grid investments).

[48] Rachelle Chong, Cal. Pub. Util. Comm'r, Is Our Electric Grid Smarter than a Fifth Grader?, Keynote Address Before the Power Association of Northern California 1 (May 4, 2009) (transcript available at http://www.cpuc.ca.gov/NR/rdonlyres/A2797223-562F-4824-BD83-067238774550/0/PANCKeynote050409finalrelease.pdf).

[49] *See* Barbara R. Alexander, Renewable Energy Mandates: An Analysis of Promises Made and Implications for Low Income Customers 8 (2009), *available at* http://www.energyandutilityconference.org/Assets/2010%20Conference/2010%20Presentations/4A_Alexander-Renewables%20HO.pdf; Paul L. Joskow, *Electricity Sectors in Transition*, 19 Energy L.J. 25, 25 (1998) (describing generation supply resources); Chong, *supra* note 48, at 1 (explaining that energy resources include assets such as fuel cells, solar, combined heat and power, microturbines, and energy storage).

[50] *See* Jeffrey D. Taft, AMI: Smart Enough? Metering Potential Limitations for Smart-Grid Design 2 (2009); Dick DeBlasio, *Smart Grid Consensus: Workable Standards Require Utility Input*, Pub. Util. Fortnightly, Feb. 2010, at 28; Chong, *supra* note 48, at 1.

[51] *See* Tom Zeller Jr., *Utilities Seek Fresh Talent for Smart Grids*, N.Y. Times, Dec. 29, 2010, at B-1; Ill. Smart Grid Initiative, Summary of Smart Grid Benefits and Issues 1-3, *available at* http://www.cnt.org/news/media/isgi-summary-of-benefits-and-issues-6-08.pdf. *See generally* U.S. Dep't Energy, *supra* note 42 (explaining benefits of a Smart Grid).

[52] *See* Ill. Smart Grid Initiative, *supra* note 51, at 1-3.

Second, a Smart Grid can help lower electricity prices by creating closer interaction between consumers and producers.[53] A Smart Grid can also facilitate the creation of new products, which allows consumers to have greater control and knowledge over their electrical usage.[54] Finally, secondary effects such as stronger security features, integration of renewable electrical generation, and improved operational efficiency round a robust set of enhancements.[55]

On the other hand, a significant concern with the Smart Grid is whether its implementation fits within the legal frameworks of relevant governing bodies.[56] Entities like the FERC have issued rulemakings and decisions detailing proper regulations within a Smart Grid.[57] As the Smart Grid discussion progresses, both types of legal proceedings help to develop the requirements for an implementation of a Smart Grid system.[58]

Another concern about the Smart Grid is the significant cost of grid modernization.[59] With the recent economic recession and slowdown of financial investment, Smart Grid

---

[53] *Id.*
[54] *Id.*
[55] *Id.*
[56] *See* American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, 123 Stat. 115; CAL. PUB. UTIL. CODE § 701 (1994); *see generally* CA.gov, California's Smart Grid, http://www.cpuc.ca.gov/PUC/energy/smartgrid.htm [hereinafter *California's Smart Grid*] (explaining overall framework of California Public Utilities Commission goals).
[57] *See, e.g.*, *Decision*, *supra* note 1, at 3; *In re* Assigned Commissioner and Administrative Law Judge's Joint Ruling Amending Scoping Memo and Inviting Comments on Proposed Policies and Findings Pertaining to the Smart Grid (Smart Grid Ruling), Cal. Pub. Util. Comm'n, Rulemaking No. 09-12-009 (Feb. 8, 2010) [hereinafter *Scoping Memo*] (showing example of ruling that commissions present to regulate utilities).
[58] *See* NAT'L ENERGY TECH. LAB., THE NETL MODERN GRID INITIATIVE: A SYSTEMS VIEW OF THE MODERN GRID 9-16 (2007).
[59] *See* Mark Jaffe, *Smart-Grid Technology: Cost of Smart-Grid Projects Shocks Consumer Advocates*, DENVER POST, Feb. 14, 2010, at K-1; Bill Chameides, *The New Smart Grid: 21st Tech for the 21st Century*, Mar. 6, 2009, http://www.nicholas.duke.edu/thegreengrok/smartgrid-pt2; *Sticker Shock: EPRI Says Smart Grid Will Cost $165 Billion Over 20 years*, SMART GRID NEWS.COM, Feb. 15, 2010, http://www.smartgridnews.com/artman/publish/Business_Policy_Regulation_News/Sticker-Shock-EPRI-Says-Smart-Grid-Will-Cost-165-Billion-Over-20-Years-1882.html (explaining that cost for grid modernization in California is set at significant $165 billion spread over twenty years).

supporters feared a decreased incentive to address grid rehabilitation.[60] States worried that without access to capital, there was no feasible way to fund the federally mandated programs.[61] In response, the President signed The American Recovery and Reinvestment Act ("ARRA") in 2009 to approve funds to help states update sagging infrastructures.[62] The ARRA allocated $4.5 billion to states to plan a modernized grid system, enhance energy security, and ensure future demand deliverability.[63] The injection of capital into infrastructural rehabilitation allowed states and businesses to begin developing the steps necessary to modernize the electric grid.[64]

B. State Energy Regulation

In 2009, the California Senate passed Senate Bill 17 ("Bill 17") in response to the ARRA fund allocation.[65] Bill 17 recognized that California's current electrical grid could not maintain safe, reliable, efficient, and secure electrical service in its current state.[66] Thus, Bill 17 proposed an update of California's electrical infrastructure to meet future growth demand.[67] Bill 17 recognized the Smart Grid as the cornerstone of the modernization strategy.[68] Bill 17 required the CPUC to develop Smart Grid requirements that were consistent with existing energy law by July 1, 2010.[69]

---

[60] Jesse Berst, *Will the Recession Kill the Smart Grid?*, SMART GRID NEWS, Nov. 20, 2008, http://www.smartgridnews.com/artman/publish/Business_Markets_Pricing_News/Will_the_Recession_Kill_the_Smart_Grid-493.html.
[61] *See generally* Paul Krugman, *Depression Economics Returns*, N.Y. TIMES, Nov. 14, 2008, at A-1 (describing lower consumer spending and lower interest rates caused economic contraction).
[62] *See California's Smart Grid*, *supra* note 56; Recovery.gov, The Recovery Act, http://www.recovery.gov/About/Pages/The_Act.aspx [hereinafter *The Recovery Act*].
[63] *The Recovery Act*, *supra* note 62.
[64] *See, e.g.*, Smart Grid Systems Act, ch. 327, 2009 Stat. 1924, 1925-26 (codified as amended at CAL. PUB. UTIL. CODE § 8360 (2009)) (portraying example of how California's Smart Grid plan will develop).
[65] *Id.*
[66] *Id.*
[67] *Id.*
[68] *See id.*
[69] *Id.*

The Smart Grid requirements are the standards and protocols for electrical corporations to ensure the functionality of and interoperability with California's Smart Grid.[70] Bill 17 recognized ten areas that the CPUC must address to implement a Smart Grid effectively.[71] One area is the need for an increased use of cost-effective digital information to reach the numerated improvements.[72] There must be dynamic optimization of grid operations and resources with cyber security measures.[73] Smart Grid deployment must integrate cost-effective resources and generation, including energy efficient resources.[74] The Smart Grid must also incorporate cost effective smart technologies for use in appliances and consumer devices.[75] The Smart Grid must also include cost-effective electricity storage technology, including electric vehicles.[76] Finally, utilities must provide timely information to customers and develop system standards to encourage interoperability and to remove barriers.[77] As the main regulatory authority for state utility providers, the CPUC developed these ten considerations.[78] Bill 17 required electrical corporations to implement the CPUC's requirements by July 1, 2011.[79]

1. The CPUC's Regulatory Authority

The CPUC is California's constitutionally mandated regulatory body that monitors the utility industries.[80] The CPUC may act as it deems to exercise its regulatory power over

---

[70] *Decision*, *supra* note 1, at 16.
[71] *See* Smart Grid Systems Act, ch. 273, 2009 Stat. 1924, 1925-26 (codified as amended at CAL. PUB. UTIL. CODE § 8360 (2009)).
[72] *Id.*
[73] *Id.*
[74] *Id.*
[75] *Id.*
[76] *Id.*
[77] *Id.*
[78] *See* CAL. CONST. art. XII.
[79] *See* Smart Grid Systems Act, ch. 273.
[80] *See* CAL. CONST. art. XII, § 3.

industries under its jurisdiction.[81] For example, the PUC grants the CPUC broad authority to supervise and regulate every public utility.[82]

Currently, the CPUC regulates the energy industry and the communications industry pursuant to state legislation under the Public Utilities Code.[83] As part of its authority, the CPUC focuses on minimizing the societal cost of electricity while encouraging efficiency.[84] On the other hand, the CPUC's regulatory control over the communications industry is narrower due to the industry's deregulation.[85] The CPUC's authority is limited to funding universal and rural service programs, as well as consumer protection from fraud.[86] Despite the difference in scope of regulatory authority over industries, the CPUC's general purpose is to encourage the deployment of services in an open market.[87] With this goal in mind, the CPUC set forth to implement the Smart Grid proposition in Bill 17.[88]

2. CPUC's Scoping Memo and Responses

To comply with Bill 17, the CPUC issued a Revised Scoping Memo ("Scoping Memo") on February 8, 2010.[89] The purpose of the Scoping Memo was to announce the CPUC's thoughts and considerations about implementing the Smart Grid in California.[90] The Scoping Memo

---

[81] CAL. PUB. UTIL. CODE § 701 (1994).
[82] *Id.*
[83] *See* CAL. PUB. UTIL. CODE §§ 216(a)-(c), 217, 218, 221-224, 230.3, 234-36 (1994); U.S. DEP'T ENERGY, COMMUNICATIONS REQUIREMENTS OF SMART GRID TECHNOLOGIES 2-5 (2010).
[84] CAL. PUB. UTIL. CODE § 701.1 (1994).
[85] *See id.* § 709 (1994); HORWITZ, *supra* note 14, at 221-63.
[86] *See* CA.gov, Cal. Pub. Util. Comm'n, General Communications Information, http://www.cpuc.ca.gov/PUC/telco/generalinfo/; Chris Koster, Mo. Att'y Gen., Slamming and Cramming, http://ago.mo.gov/publications/slamcram.htm (explaining slamming refers to practice of telephone service providers switching long distance service without notifying customers and cramming refers to adding charges to customer's bill).
[87] CAL. PUB. UTIL. CODE § 709.
[88] *See Scoping Memo*, supra note 57, at 1.
[89] *Id.*
[90] *Id.*

compiled commentary from interested parties to help the CPUC make a binding Decision regarding the Smart Grid.[91]

A common concern involved section 4.5 of the Scoping Memo, which addressed the initiation of a demarcation point.[92] A demarcation point is a term of art that determines where utility ownership of its services stops and where customer ownership begins.[93] The actual definition is the meeting point of the physical wiring owned by a utility and the wiring owned by a consumer.[94] Traditionally, this is not an issue because ownership switches from the company to a private owner at the meter through a physical point.[95] In a Smart Grid, however, defined ownership boundaries of technologies exceed traditional definitions because of the inclusion of smart meters and potential attachments.[96]

Interested parties had varying replies to the Scoping Memo regarding a set demarcation point.[97] Consumer protection groups generally advocated for a set demarcation point to determine utility fiduciary responsibility.[98] One active consumer protection group is the Division of Ratepayer Advocates ("DRA").[99] The DRA is an internal arm of the CPUC that lobbies for and defends the interests of utility customers.[100] The DRA advocated for the implementation of a demarcation point because customers should own all equipment on the customer side of the

---

[91] *See infra* Part II (discussing Decision in depth).
[92] *Decision*, *supra* note 1, at 102.
[93] *Id.* at 6-7.
[94] *See* 47 C.F.R. § 68.3 (2004); ELEC. TRAINING ASS'N, INST. OF ELEC. ENG'RS, POWER SYSTEM PROTECTION: APPLICATION 123 (1997) (defining demarcation point as point within 30 centimeters of protector, which is device that allows breaker to trip in event of power surge).
[95] *Decision*, *supra* note 1, at 6-7. *Cf.* WALTER SAPRONOV & WILLIAM H. READ, TELECOMMUNICATIONS: LAW, REGULATION, AND POLICY 87 (1998) (describing how AT&T would not allow other companies to develop direct connections with their system).
[96] *See Decision*, *supra* note 1, at 102.
[97] *See id.*
[98] *Id.* at 105.
[99] *See* CA.gov, About DRA, http://www.dra.ca.gov/DRA/about/.
[100] *See Decision*, *supra* note 1, at 102.

meter.[101] The Utility Reform Network stated its support for a demarcation point for similar reasons.[102]

Consumer businesses also expressed their support for the creation of a demarcation point in the commentary to the Scoping Memo.[103] A set demarcation point encourages open access because it does not confer advantages to one company over another.[104] This enhances the ability of companies to develop technology within the Smart Grid.[105] For example, AT&T advocated for a demarcation point to promote investment and innovation in the sphere of home energy management.[106] Setting a demarcation point also ensures that customers can purchase compatible Smart Grid devices or services from retail stores instead of directly from a utility.[107] Google, for example, argued for a set demarcation point to achieve this goal.[108]

---

[101] *Id.* at 105.
[102] *Id.* at 107.
[103] *See id.* at 105-06; Comments of Google Inc. on Proposed Policies and Findings Pertaining to the Smart Grid 9 (Mar. 9, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/114639.pdf [hereinafter *Google Opening Comments*]; Opening Comments of Walmart Stores, Inc. and Sam's West, Inc. On Proposed Decision 2 (June 10, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/119200.pdf, [hereinafter *Walmart Comments on Proposed Decision*].
[104] *Decision*, *supra* note 1, at 108, 109; Center for Energy Efficient and Renewable Technologies on Issues Identified in Amended Scoping Memo 23-24 (Mar. 9, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/114755.pdf [hereinafter *CEERT Opening Comments*]; Reply Comments of Pacific Bell Telephone Company D/B/A AT&T California (U 1001 C) 9 (Apr. 7, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/115988.pdf [hereinafter *AT&T Reply Comments*].
[105] *Google Opening Comments*, *supra* note 103, at 9; Opening Comments of the Greenlining Institute 18-20 (Mar. 9, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/114770.pdf [hereinafter *Greenlining Opening Comments*]; Opening Comments of Pacific Bell Telephone Company D/B/A AT&T California (U 1001 C) 9 (Mar. 9, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/114703.pdf.
[106] *Decision*, *supra* note 1, at 107.
[107] *Id.* at 108; *CEERT Opening Comments*, *supra* note 104, at 18-19; *see* Chris Knudsen, Dir., PG&E Tech. Innovation Ctr., Guest Lecturer at Sacramento State University Power Point, PG&E SmartGrid 44, *available at* http://www.ecs.csus.edu/CASmartGrid/lectures/100630_sacstate_lecture_final.pdf; *see, e.g.*, Google.com, Google PowerMeter, http://www.google.com/powermeter/about/about.html [hereinafter *Google PowerMeter*] (explaining how Google PowerMeter works).
[108] *Decision*, *supra* note 1, at 103.

Utility companies split in regards to a set demarcation point primarily due to the size of their customer bases.[109] Pacific Gas & Electric ("PG&E") and Southern California Edison ("SCE"), both with large customer bases, rejected the establishment of a set demarcation point.[110] PGE and SCE argued that a set demarcation point provides less control over their market shares.[111] However, San Diego Gas & Electric ("SDG&E") advocated in favor of a set demarcation point.[112] SDG&E claimed that the absence of a demarcation point creates obligations with respect to equipment and services that exceed the scope of its offered utilities.[113] This effectively forces SDG&E into a situation where its smaller customer base contributes to its inability to compete with major energy providers.[114] The potential for noncompetitive behavior withholding new technological frontiers has appeared in other industries, such as telecommunications.[115]

C. Federal Telecommunications Law

The FCC oversees the telecommunications industry, which involves a form of communication that occurs at a distance with the aid of technology.[116] Historically, one company dominated the telecommunications industry, one of the largest regulated utilities, thus ensuring

[109] *See* ROHRER, *supra* note 19, at 4 (explaining projected growth of PG&E and SCE is much higher than SDG&E, thereby creating large discrepancy between competition ability between utilities).
[110] *Decision*, *supra* note 1, at 103-04.
[111] *Id.* at 104.
[112] *Id.* at 106.
[113] *Id.*
[114] *See id.* at 108.
[115] *See, e.g.*, Hush-A-Phone Corp. v. United States, 238 F.2d 266, 266 (D.C. Cir. 1956) (showing case that ended noncompetitive behavior in telecommunications).
[116] FCC.gov, About FCC, http://www.fcc.gov/aboutus.html.

an anticompetitive atmosphere.[117] However, the deregulation of the telecommunications industry allowed for a vast number of providers and device makers.[118]

Before the deregulation of the telecommunications industry, AT&T, also known then as Bell Systems, was the largest telecommunications utility.[119] AT&T sold Customer Premise Equipment ("CPE") and telecommunications services as a bundled service.[120] CPE constituted the entire telecommunications system including the physical wiring and telephone itself.[121] AT&T's contracts with its customers also imposed an antiforeign attachment provision, which prohibited the interconnection, or physical connection, of foreign products to company equipment.[122] The FCC condoned such antiforeign attachment provisions, which contributed to the anticompetitive nature of the telecommunications industry.[123]

The overturn of antiforeign attachment provisions promoted the modernization of the telecommunications industry through the introduction of competitive products.[124] In 1956, the D.C. Circuit rejected the FCC's policy by disallowing competitive CPE practices in *Hush-A-Phone Corporation v. United States*.[125] Hush-A-Phone was a device that attached to a

---

[117] *See* Nicholas Economides, *Telecommunications Regulation: An Introduction*, June 2004, at 13, *available at* http://129.3.20.41/eps/io/papers/0407/0407008.pdf.
[118] *See generally* Telecommunications Act of 1996, 47 U.S.C. § 609 (2010) (explaining types of devices allowed within telecommunications infrastructure).
[119] *See* PETER W. HUBER, MICHAEL K. KELLOGG & JOHN THORNE, FEDERAL TELECOMMUNICATIONS LAW 415 (2d ed. 1999).
[120] *See id.*
[121] *See id.*
[122] *See* Jordaphone Corp. v. AT&T, 18 F.C.C. 644, 647 (1954); HUBER ET AL., *supra* note 119, at 416 (defining interconnection as physical connection of two networks to effect mutual exchange of telecommunications traffic).
[123] *See Jordaphone*, 18 F.C.C. at 647 (demonstrating that if customer installed unauthorized attachment, company had right to remove or suspend services); HORWITZ, *supra* note 14, at 221-63; Economides, *supra* note 117, at 13.
[124] *See* HUBER ET AL., *supra* note 119, at 416; Economides, *supra* note 117, at 3; Jerry Hausman & J. Gregory Sidak, *Telecommunications Regulation: Current Approaches with the End in Sight*, Oct. 2007, at 2, *available at* http://www.nber.org/books_in_progress/econ-reg/hausman-sidak10-5-07.pdf.
[125] Hush-A-Phone Corp. v. United States, 238 F.2d 266, 266 (D.C. Cir. 1956).

phone to lessen the amount of speaker noise during conversations.[126] Hush-A-Phone brought a complaint to the FCC to order telephone companies to permit the use of nonprovider devices.[127] The FCC dismissed the complaint.[128] On appeal, the D.C. Circuit reversed the FCC's anticompetitive policy and allowed the attachment of a CPE device if it did not cause any harm.[129] The FCC later narrowed this decision to apply only to devices that did not interact with the network itself.[130] Bell responded by creating new tariffs that further limited access to its networks.[131] The FCC used these tariffs to initiate proceedings designed to open up the telecommunication systems to create a competitive market place.[132] One such proceeding led to the creation of 47 C.F.R. § 68 ("Part 68").[133]

The FCC created Part 68 in 1975 to reinforce the sentiment that companies could achieve network protection without protective connecting arrangements.[134] Part 68 controls the direct connection of all terminal equipment to all services provided over the communications network.[135] Section 68.213 of Part 68 opens the telephone industry to competition by allowing

---

[126] Technovelgy.com, *Bring On the Hush-A-Phone*, http://www.technovelgy.com/ct/Science-Fiction-News.asp?NewsNum=301 [hereinafter *Bring On the Hush-A-Phone*] (examining 1950s era advertisement for Hush-A-Phone).
[127] *See Hush-A-Phone Corp.*, 238 F.2d at 266.
[128] *See id.*
[129] *See id.*; Decision and Order on Remand, Hush-A-Phone v. AT&T, 22 F.C.C. 112, 112 (1957); HUBER ET AL., *supra* note 119, at 416.
[130] Carterphone Device in Message Toll Telephone Service, Decision, 13 F.C.C. 2d 420, 424 (1968), *recons. denied*, 14 F.C.C. 2d 571 (1968) (describing that under definition, companies could make products such as Hush-A-Phone but not products such as message machines); HUBER ET AL., *supra* note 119, at 416.
[131] HUBER ET AL., *supra* note 119, at 416.
[132] *Id.*; *see* AT&T Transmittal No. 12321, Memorandum Opinion and Order, 53 F.C.C. 2d 473, 473 (1975).
[133] *See* 47 C.F.R. § 68 (2004); HUBER ET AL., *supra* note 119, at 417.
[134] Proposals for New or Revised Classes of Interstate and Foreign Message Toll Telephone Services (MTS) and Wide Area Telephone Services (WATS), First Report and Order, 56 F.C.C.2d 593, 593 (1975); HUBER ET AL., *supra* note 119, at 417.
[135] HUBER ET AL., *supra* note 119, at 673.

third party companies to connect products to a telecommunications company's inside wiring.[136] Part 68 requires registration of new equipment with network owners and the FCC prior to attachment to address concerns with network security.[137] Such stringent controls ensure the compatibility of equipment with national standards and protect against negative effects on the network.[138] Similar to the telecommunications sector, a wave of new technology in the electric industry is encouraging utilities to grant open access to their services.[139]

II. DECISION

In Decision 10-06-047 on June 24, 2010, the CPUC addressed the future of a Smart Grid in California.[140] The CPUC's task was to implement Bill 17's mandate to devise practical rules and guidance for utility companies and consumer businesses.[141] The CPUC referred to the both the Scoping Memo and its commentary to determine which elements should constitute California's Smart Grid.[142] In the Decision, the CPUC approved of the Smart Grid implementation, but declined to set a demarcation point, which was a Smart Grid element.[143]

The CPUC noted the arguments of the interested parties in the Decision.[144] The majority of respondents advocated setting a demarcation point.[145] A demarcation point would foster participation and innovation by third parties because openness offers opportunities for businesses

---

[136] *Id.* at 672.
[137] *Id.* at 673-74; *see* 47 C.F.R. §§ 68.102, 68.201 (2004).
[138] HUBER ET AL., *supra* note 119, at 673-74; *see* 47 C.F.R. § 68.108 (2004).
[139] *Cf.* Hush-A-Phone Corp. v. United States, 238 F.2d 266, 266 (D.C. Cir. 1956) (comparing telecommunications deregulation case); HUBER ET AL., *supra* note 119, at 417-18 (comparing process of telecommunications deregulation).
[140] *Decision, supra* note 1, at 2-5.
[141] *See id.* at 2.
[142] *See id.* at 102; *Scoping Memo, supra* note 57, at 1.
[143] *Decision*, *supra* note 1, at 102.
[144] *See id.* at 102-08; San Diego Gas & Electric Company's (U-902-E) Reply Comments 9 (Apr. 7, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/115989.pdf [hereinafter *SDG&E Reply Comments*].
[145] *Decision*, *supra* note 1, at 104-05.

to get involved.[146] Additionally, the CPUC referenced the arguments of parties who argued against setting a demarcation point.[147] First, the electricity market was too premature, young, and volatile.[148] The market needed more time to develop before the CPUC could make a decision about ownership boundaries.[149] A set demarcation point could block non-utilities from initial Smart Grid development participation if the CPUC acted too quickly in setting a demarcation point.[150] Moreover, utilities argued that the Smart Grid system was too complex for a demarcation point.[151] Risks included substantial interference with the smart grid technology and potential harm to the utilities' ability to provide safe and reliable energy to customers.[152]

Despite its express understanding of the majority opinion, the CPUC ruled against implementation of a demarcation until further review.[153] The CPUC established full support of a competitive and innovative market for customer-owned technology and devices.[154] However, the CPUC concluded that it lacked sufficient record to make a decision regarding a demarcation point and thereby delayed ruling on the issue.[155]

III. Analysis

The CPUC wrongly decided the Decision and should have instituted a demarcation point immediately.[156] First, the CPUC should set a demarcation point because Bill 17 mandated an

---

[146] *Id.*
[147] *Id.* at 98-104.
[148] *See, e.g.*, *id.* at 102-03 (citing California Cable & Telecommunications Association's arguments against setting demarcation point at time of ruling).
[149] *Id.*
[150] *Id.*
[151] *Id.* at 104.
[152] *Id.*
[153] *See id.* at 102-09 (understanding concerns of those in favor of establishing point, but claiming insufficient record to hold for demarcation point).
[154] *Id.* at 104.
[155] *Id.* at 104, 108.
[156] *See infra* Part III.A-C.

interoperability standard.[157] Second, the telecommunications industry's legal framework suggests that a demarcation point is necessary to create a successful Smart Grid.[158] Finally, public policy supports open market solutions that encourage product development for better energy use and management.[159]

A. A Set Demarcation Point Fulfills Bill 17's Express Requirements

In the Decision, the CPUC erroneously failed to adopt a demarcation point for the Smart Grid.[160] Bill 17 expressly mandated that the Smart Grid should encourage barrier removal to ensure utility and non-utility markets are interoperable.[161] A demarcation point is necessary to promote interoperability because it will help define the separation between utilities and non-utilities.[162] Therefore, by not incorporating a demarcation point, the CPUC failed to comply with Bill 17's express requirements of a Smart Grid.[163]

The CPUC's role was to create a Smart Grid implementation plan that included Bill 17's requirements for a California Smart Grid.[164] One requirement was to develop standards for communication and interoperability of appliances and equipment connected to the electric grid, including the infrastructure serving the grid.[165] This requirement includes a demarcation point

---

[157] *Decision*, *supra* note 1, at 102-15; *see infra* Part III.A.
[158] *Decision*, *supra* note 1, at 102-15; *see infra* Part III.B.
[159] *See infra* Part III.C.
[160] *See* CAL. CONST. art. XII §§ 5-6; Smart Grid Systems Act, ch. 327, 2009 Stat. 1924, 1925-26 (codified as amended at CAL. PUB. UTIL. CODE § 8360 (2009)); *Decision*, *supra* note 1, at 110-11.
[161] *See* Smart Grid Systems Act, ch. 327; *Decision*, *supra* note 1, at 117; *WalMart Comments on Proposed Decision*, *supra* note 103, at 2 (describing overall goal of Decision).
[162] *See* Smart Grid Systems Act, ch. 327; *Decision*, *supra* note 1, at 99; Comments on the California Large Energy Consumers Association on Smart Grid Issues 11 (Feb. 9, 2009), *available at* http://docs.cpuc.ca.gov/efile/CM/97179.pdf [hereinafter *CLECA Response to Scoping Memo*].
[163] *See* Smart Grid Systems Act, ch. 327; *Decision*, *supra* note 1, at 99; *CLECA Response to Scoping Memo*, *supra* note 162, at 11.
[164] *See* Smart Grid Systems Act, ch. 327; *Scoping Memo*, *supra* note 57, at 25-26. *See generally Decision*, *supra* note 1, at 104 (describing Scoping Memo question whether or not setting demarcation point was appropriate regulatory response).
[165] Smart Grid Systems Act, ch. 327.

because the latter creates a direct point for interoperability purposes within a Smart Grid network.[166] When the CPUC executed its Decision, the CPUC implied its agreement to implement a Smart Grid in California by the requirements that Bill 17 set.[167] Consequently, the CPUC's failure to set a demarcation point ignored the mandates in Bill 17.[168]

Critics maintain that a demarcation point is unnecessary to maintain the separation between utilities and non-utilities because the Decision encourages participation by non-utilities.[169] The Decision states Smart Grid implementation will not discourage the participation of third parties in deployment, investment, or marketing.[170] In fact, utilities often contract with non-utility providers to provide services such as physical meters or transmission line maintenance to consumers.[171] Therefore, the Decision meets Bill 17 requirements without demarcation point implementation because the Decision will meet interoperability standards regardless of whether a point exists.[172]

---

[166] *Cf.* 47 C.F.R. § 68.3 (2004) (describing purpose of Part 68); Global NAPs California, Inc. v. Pub. Util. Comm'n, 624 F.3d 1225, 1235 (9th Cir. 2010) (comparing how CPUC regulates interconnection); S. Cal. Gas Co. v. Pub. Util. Comm'n, 695 P.2d 186, 189 n. 5 (Cal. 1985) (examining role of CPUC in energy regulatory authority); ELEC. TRAINING ASS'N, INST. OF ELEC. ENG'RS, *supra* note 94, at 123 (defining demarcation point).

[167] *See* CAL. CONST. art. XII § 6; Smart Grid Systems Act, ch. 327; *Decision*, *supra* note 1, at 2-4 (describing Bill 17 requirements pursuant to CPUC).

[168] *See* CAL. CONST. art. XII § 6; CAL. PUB. UTIL. CODE § 364(a) (2009); *Decision*, *supra* note 1, at 2.

[169] *See* Pac. Bell v. Pac. W. Telecomm, Inc., 325 F.2d 1114, 1123 n.8 (9th Cir. 2003); *S. Cal. Gas Co.*, 695 P.2d at 189 n.5; *Decision*, *supra* note 1, at 104, 07.

[170] *See Decision*, *supra* note 1, at 118.

[171] *See Pac. W. Telecomm*, 325 F.2d at 1123 n.8; *S. Cal. Gas Co.*, 695 P.2d at 189 n.5; TEX. PUB. UTIL. COMM'N, CUSTOMER FACTS 1 (2010), *available at* http://www.puc.state.tx.us/ocp/electric/elecfacts/trees.pdf; GEpower.com, General Electric's KV2c Electronic Meter Family Product Page, http://www.gepower.com/prod_serv/products/metering/en/utility_revenue_meters/kv2c_encompass_elec.htm (serving as example of type of collaboration that utilities and non-utilities have in delivering services to customers).

[172] *See Decision*, *supra* note 1, at 100-01, 105-06; Opening Comments of Pacific Gas and Electric Company (U-39-E) on Proposed Policies and Findings Pertaining to the Smart Grid 17 (Mar. 9, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/114651.pdf [hereinafter *PG&E Opening Comments*]; Southern California Edison Company's (U-338-E) Comments to Assigned Commissioner and Administrative Law Judge's Ruling Amending Scoping Memo and Inviting

This counterargument fails because it misinterprets the involvement of third party producers within the Smart Grid.[173] Although the Decision does include language that assures the openness of the Smart Grid, the Decision does not clarify how this openness will occur.[174] Bill 17 mandates the implementation of devices beyond the mere addition of utility developed equipment.[175] Therefore, this necessitates a demarcation point in order to define regulatory authority over the utilities while keeping nonregulated industries separate.[176] The Smart Grid includes an upgrade to the standard services that utilities provide, which necessitates a clear separation of regulatory authority.[177] Thus, a demarcation should be set because it fulfills Bill 17's express requirements.[178]

Comments on Proposed Policies and Findings Pertaining to the Smart Grid 23 (Mar. 9, 2010) [hereinafter *SCE Opening Comments*].

[173] *See Decision*, *supra* note 1, at 104-10 (describing responding parties' concerns about potential lack of set demarcation point); *CEERT Opening Comments*, *supra* note 104, at 23-24; Comments of the Division of Ratepayer Advocates on Smart Grid Memo 20 (Mar. 9, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/114709.pdf [hereinafter *DRA Opening Comments*].

[174] *See Decision*, *supra* note 1, at 110-11 (stating that Commission is fully supportive of competitive and innovative market for customer-owned technology and devices); Reply Comments of the Division of Ratepayer Advocates 17 (June 15, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/119322.pdf; CEERT Opening Comments, *supra* note 104, at 23-24

[175] *See* Smart Grid Systems Act, ch. 327, 2009 Stat. 1924, 1925-26 (codified as amended at CAL. PUB. UTIL. CODE §§ 8360-64 (2009)).

[176] *See Decision*, *supra* note 1, at 104, 109; Comments of Sigma Designs, Inc. Pertaining to the Proposed Policies and Findings Concerning the Smart Gird 1 (Apr. 7, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/116724.pdf [hereinafter *Sigma Designs Reply Comments*]; Comments of Tendril on Joint Ruling Amending Scoping Memo and Inviting Comments 10-11 (Mar. 9, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/114794.pdf [hereinafter *Tendril Opening Comments*].

[177] *See* S.B. 17 § 8360(f); Global NAPs California, Inc. v. Pub. Util. Comm'n, 624 F.3d 1225, 1235 (9th Cir. 2010); S. Cal. Gas Co. v. Pub. Util. Comm'n, 695 P.2d 186, 189 n.5 (Cal. 1985).

[178] *See* Smart Grid Systems Act, ch. 327; *Decision*, *supra* note 1, at 99; *CLECA Response to Scoping Memo*, *supra* note 162, at 11.

B. The Proposed Smart Grid System Should Reflect the Deregulation of the Telecommunications Industry

The Decision erroneously stated that precedent determining the use of demarcation points in the deregulation of the telecommunications industry was not dispositive.[179] Rather, the similarities between the telecommunications industry and the energy industry as it relates to a Smart Grid are almost indistinguishable.[180] Because of the similarities, governmental agencies regulate both energy and telecommunications industries.[181] This suggests that the legal and structural framework of the telecommunications industry pursuant to Part 68 is directly applicable to the electric industry.[182] Because Part 68 supported ownership boundaries in the telecommunications industry, the CPUC should have set a demarcation point.[183]

Creating a demarcation point is directly applicable to the energy industry when the technology at issue is communication based.[184] The majority of the technology implementation

---

[179] *Decision*, *supra* note 1, at 108-09. *Cf*. Hush-A-Phone Corp. v. United States, 238 F.2d 266, 266 (D.C. Cir. 1956) (showing deregulation of telephone industry); Jordaphone Corp. v. AT&T, 18 F.C.C. 644, 647 (1954) (same).

[180] Hertzog, *supra* note 16. *Cf*. *Hush-A-Phone*, 238 F.2d at 266 (demonstrating telecommunications law example that CPUC can apply to Smart Grid implementation); *Jordaphone*, 18 F.C.C. at 647 (same).

[181] *See Decision*, *supra* note 1, at 110; Hertzog, *supra* note 16; CA.gov, Communications, http://www.cpuc.ca.gov/PUC/telco/ (explaining ways in which PUC oversees telecommunications in California).

[182] *See* Frank Domoney, Powerline Tech. Ltd., *Broadband over Powerline and the Smart Grid in Rural Telecommunications*, Int. Telecomm. Union, Nov. 19, 2008, at 2, *available at* https://www.itu.int/ITU-D/arb/ARO_2008_work/Broadband/Documents/Doc4-Domoney.ppt; David J. Leeds, *The Smart Grid in 2010: Market Segments, Applications, and Industry Players*, Green Tech Media, July 13, 2009, http://www.gtmresearch.com/report/smart-grid-in-2010; Telecom for Smart Utilities, Black & Veatch, http://www.bv.com/Markets/Telecommunications/Telecom_For_Smart_Utilities/Default.aspx.

[183] *See* sources cited *supra* note 182.

[184] *See, e.g.*, 47 C.F.R. § 68 (2004) (describing CPUC regulatory powers); Pacific Tel. & Tel. Co. v. Pub. Util. Comm'n, 62 Cal. 2d 634 (Cal. 1965) (describing case in which commission regulated utility); Leeds, *supra* note 182, (describing that Smart Grid market is finding itself at confluence of energy, telecommunication, and information technology markets).

within in the Smart Grid is largely communication based and requires interwiring to succeed.[185] Moreover, the description of a Smart Grid's communications capabilities implies that communications based technologies are one of the major components of the implementation.[186] For example, PG&E and other utilities would create their own closed-circuit communication systems under the Smart Grid.[187] This is similar to telecommunications because the closed-circuit communications directly reflect how telecommunications companies operate.[188] Consequently, the legal framework that supports the deregulation of the telecommunications industry is similarly applicable to the energy industry.[189]

The CPUC should adapt Part 68 to electric utilities because doing so ensures the creation of a demarcation point.[190] Part 68 ensured that customers could connect non-utility products, such as CPE, to the network without telecommunications protective connecting arrangements.[191] Part 68 only requires that a regulatory body register the equipment.[192] Regarding the Smart Grid,

---

[185] Martin LaMonica, *Cisco, Itron Team on Smart-Grid Networking*, CNET, Sept. 1, 2010, http://news.cnet.com/8301-11128_3-20015341-54.html?tag=mncol;txt.
[186] S.B. 17 § 8360(a), (e), (i) (Cal. 2009); *Decision*, *supra* note 1, at 2; Greenlining Opening Comments, *supra* note 105, at 18.
[187] *See* PGE.com, SmartMeter™ System: How it Works, http://www.pge.com/myhome/customerservice/smartmeter/howitworks/ (explaining that meters provide two-way communication between customer's home or businesses and utilities by using wireless technology).
[188] Opening Comments of Pacific Gas and Electric Company (U 39 E) on Smart Grid OIR 4 (Feb. 9, 2009), *available at* http://docs.cpuc.ca.gov/efile/CM/97200.pdf (discussing proactive communications with customers via in-home displays).
[189] *See* Michael Kanellos, *Phone, Internet, TV . . . and Gas?*, WIRED, Jan. 30, 2011, http://www.wired.com/epicenter/2011/01/phone-internet-tv-and-gas/; Leeds, *supra* 182; Katherine Tweed, *Bundling Energy and Telecom Down Under: Aussies Package Everything from Your Home Phone to Natural Gas in One Bill*, GREEN TECH MEDIA, Apr. 16, 2010, http://www.greentechmedia.com/articles/read/bundling-energy-and-telecom-down-under/.
[190] *See Decision*, *supra* note 1, at 110; Domoney, *supra* note 182, at 2; *Leeds*, *supra* note 182; Telecom for Smart Utilities, *supra* note 182.
[191] Proposals for New or Revised Classes of Interstate and Foreign Message Toll Telephone Service (MTS) and Wide Area Telephone Service (WATS), First Report and Order, 53 F.C.C.2d 473, 473 (1975); HUBER ET AL., *supra* note 119, at 417.
[192] *See supra* sources cited note 191.

a Part 68 based framework would provide a similar function for companies looking to develop products for the Smart Grid.[193] For example, Google currently has technology that can perform energy usage analytics for users within SDG&E's service area.[194] However, this service works solely within SDG&E's service area, and not with any other energy providers.[195] Therefore, the CPUC should adapt a demarcation point under Part 68 to ensure any customer under any energy provider could use non-utility provided services.[196]

Some critics argue that the telecommunications model is not an applicable framework for the energy industry to use to adopt a set demarcation point.[197] Many differences between the telecommunications industry and the electricity industry exist, thereby rendering Part 68 inapplicable.[198] The Smart Grid mostly incorporates wireless technology.[199] These technologies would not fit into the structure of Part 68 because there is no physical network connection to the

---

[193] *See supra* sources cited note 191.
[194] *See Google PowerMeter*, *supra* note 107.
[195] *See id.*
[196] *See* Proposals for New or Revised Classes of Interstate and Foreign (MTS) and (WATS), Second Report and Order, 58 F.C.C.2d 736 (1976); HUBER ET AL., *supra* note 119, at 417; *see also* Registration of Coin Operated Telephones Under Part 68 of the Commission's Rules and Regulations, Memorandum Opinion and Order, 57, Rad. Reg. 2d (P & F) 133 (1984).
[197] *Decision*, *supra* note 1, at 108, 110; RICHARD F. HIRSH, UNDERSTANDING DEREGULATION: RESTRUCTURING OTHER INDUSTRIES (2010), http://americanhistory.si.edu/powering/dereg/dereg3.htm (explaining existing differences between energy and telecommunications companies, including environmental impact, and differences in speed of technological innovation). *Cf.* Edison Elec. Inst., *Telecommunications Lessons for Electric Utility Companies*, Dec. 1997, at 1-2, *available at* http://findarticles.com/p/articles/mi_qa3650/is_199711/ai_n8758951/ (explaining potential similarities between telecommunications and energy industry from energy company perspective).
[198] *Decision*, *supra* note 1, at 110; HIRSH, *supra* note 197. *But see* Edison Elec. Inst., *supra* note 197, at 1-2 (explaining potential similarities between telecommunications and energy industry from energy company perspective).
[199] *See Decision*, *supra* note 1, at 55; Comments of Pacific Bell Telephone Company D/B/A AT&T California (U 1001 C) On the Proposed Decision of Commissioner Ryan 4 (June 10, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/119212.pdf; Joint Comments of the Center for Democracy & Technology and the Electric Frontier Foundation on Proposed Policies and Findings Pertaining to the Smart Grid 10 (Mar. 9, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/114696.pdf [hereinafter *CDT-EFF Opening Comments*].

inside wiring of the system.[200] Because of significant differences with the structure of the energy industry, the telecommunications framework is inapplicable.[201] Consequently, Part 68 does not suggest that the CPUC should have set a demarcation point.[202]

The critics' arguments fail because the differences between the energy and telecommunications industries are narrowing.[203] For example, the fact that non-utility companies in the energy industry will provide products for customers reflects the participation by non-utilities in the communications industry.[204] Moreover, although detractors assert that the telecommunications model is not an accurate comparison, there is no evidence that utilities made this argument outside the Decision.[205] There is no textual reference to that sentiment reflected in PG&E's actual opening statements or replies, even though such sentiment might exist.[206] This consideration leaves little justification for not implementing a demarcation point based on communications concerns.[207] Thus, the CPUC should have set a demarcation point as Part 68 suggests.[208]

---

[200] *See Decision*, *supra* note 1, at 55; *CDT-EFF Opening Comments*, *supra* note 199, at 10; *see also* HUBER ET AL., *supra* note 119, at 672 (explaining regulations applicable to inside wiring which deals with physical wires, not wireless technology).
[201] *Decision*, *supra* note 1, at 110; HIRSH, *supra* note 197. *But see* Edison Elec. Inst., *supra* note 197, at 1-2.
[202] *See Decision*, *supra* note 1, at 108; *PG&E Opening Comments*, *supra* note 172, at 17; *SCE Opening Comments*, *supra* note 172, at 23.
[203] *See* Kanellos, *supra* 189; Leeds, *supra* 182; Tweed, *supra* 189.
[204] *See Bring On the Hush-A-Phone*, *supra* note 126 (describing Hush-A-Phone function); Cisco Smart Grid Solutions, http://www.cisco.com/web/strategy/energy/smart_grid_solutions.html (discussing Cisco's Smart Grid investments); *Google PowerMeter*, *supra* note 107 (describing Google's Smart Grid services).
[205] *Compare Decision*, *supra* note 1, at 110 (explaining PG&E and SCE argued that telecommunications model is not applicable to energy law), *with PG&E Opening Comments*, *supra* note 172, at 1-19 (showing that PG&E failed to provide argument), *and SCE Opening Comments*, *supra* note 172, at 1-33 (showing utilities never actually made such arguments in their replies to Scoping Memo).
[206] *See supra* note 205.
[207] *See supra* note 205.
[208] 47 C.F.R. § 68.3 (2004); *Decision*, *supra* note 1, at 110; HUBER ET AL., *supra* note 119, at 415.

C. Demarcation Point Implementation Ensures That Market Forces Continue to Develop a Robust Smart Grid in Furtherance of Public Interest

The Decision was erroneous because it rejected the public policy of fully modernizing California's electrical transmission and distribution system.[209] This is especially true within the integration of cost effective consumer devices and increased security features.[210] For true consumer choice of available products, there must be the ability for an open market system to flourish.[211] Security services within a Smart Grid infrastructure must secure the Smart Grid from physical and cyber attacks and satisfy consumer privacy concerns.[212] Setting a demarcation point is necessary to make sure these goals are met.[213]

The Decision implied that the implementation of a demarcation point would stymie development and defeat the goal of more consumer choice.[214] However, there is little incentive to compete in the Grid because utilities are the sole provider of the product.[215] Without the regulatory clarification, there is no reason for utilities to let other companies freely participate

---

[209] *See* Smart Grid Systems Act, ch. 327, 2009 Stat. 1924, 1925-26 (codified as amended at CAL. PUB. UTIL. CODE § 8360-64 (2009)); *Decision*, *supra* note 1, at 1; *Scoping Memo*, *supra* note 57, at 1.
[210] Smart Grid Systems Act, ch. 327.
[211] *See* ROY PERRY & KENNETH WACKS, CREATING A ROBUST MARKET FOR RESIDENTIAL ENERGY MANAGEMENT THROUGH AN OPEN ENERGY MARKET ARCHITECTURE 2 (2010); Thomas DeLay, *Bringing Consumer Choice to Electricity*, HERITAGE FOUND., Apr. 18, 1997, http://www.heritage.org/research/lecture/hl582nbsp-bringing-consumer-choice; Garret A. Screws, Jr., *A Time to Recap; The Next Phase in Renewable Transportation*, ACORE, http://www.acore.org/node/20280.
[212] *See Decision*, *supra* note 1, at 59-64.
[213] *Id.* at 104-10; *Sigma Designs Reply Comments*, *supra* note 176, at 1; *Tendril Opening Comments*, *supra* note 176, at 10-11.
[214] *See Decision*, *supra* note 1, at 108-09 (stating that parties argue demarcation point allows for increased innovation, however, CPUC will not adopt demarcation point at this time).
[215] *See generally* STEPHEN J. BROWN & DAVID S. SIBLEY, THE THEORY OF UTILITY PRICING 1-5 (1986) (explaining how market based decisions do not necessarily strictly influence utilities); WALTER J. PRIMEAUX, DIRECT UTILITY COMPETITION: THE NATURAL MONOPOLY MYTH 3 (1985) (arguing that regulators should not maintain as monopolies); Elaine Davis & Richard Davis, *Municipalization and Subsidized Utility Competition: The Taxpayers' Perspective*, CAL-TAX DIG., Apr. 1997, http://www.caltax.org/MEMBER/digest/apr97/apr97-3.htm (explaining possible competition within energy industries).

within the grid.[216] From a historical perspective, more openness in the technological center leads to greater product viability and further technological development.[217] Non-utility companies are investing in developing products in anticipation of a Smart Grid.[218] Without an open system, there is less opportunity to participate, and consequently, there is less implementation of consumer business innovations.[219] Thus, a demarcation point furthers consumer choice by encouraging technological innovation and allowing outside companies to compete directly with each other.[220]

Additionally, a demarcation point defines boundaries for development of Smart Grid security.[221] One of the greatest concerns a utility has with outside development is the security of

---

[216] *See Decision*, *supra* note 1, at 111; Comments of the California Large Energy Consumers Association in Response to the Joint Ruling Amending Scoping Memo and Inviting Comments on Proposed Policies and Findings Pertaining to Smart Grid 11 (Mar. 9, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/115086.pdf [hereinafter *CLECA Opening Comments*]; Editorial, *Wise Bets on a Smarter Grid*, WALL ST. J., Mar. 3, 2010, http://www.smartmoney.com/investing/stocks/wise-bets-on-a-smarter-grid/ (explaining how open market can provide multiple investment opportunities in businesses developing technology and tools for Smart Grids).

[217] *See Decision*, *supra* note 1, at 108-09 (describing CEERT and Sigma's assertion that demarcation point allows for more innovation); *CEERT Opening Comments*, *supra* note 104, at 23-24 (describing that demarcation point allows for more innovation). *See generally* AT&T, NETWORKING FOR SUSTAINABILITY: THE NETWORK OFFSET EFFECT: A WHITE PAPER 3 (2009) (describing achieving potential benefits through network participation in Smart Grid realm).

[218] *See* ATT.com, Smart Grid Solutions from AT&T, https://www.wireless.att.com/businesscenter/promotions/industry/utilities-smart-grid-solutions.jsp (explaining AT&T's Smart Grid intentions); Cisco Smart Grid Solutions, *supra* note 204*; Google PowerMeter*, *supra* note 107 (describing Google's Smart Grid services).

[219] *Cf.* ALEXANDER COSMAS, THE EVOLUTION OF NETWORK COMPETITION IN TRANSATLANTIC AVIATION AND THE EFFECTS OF REGULATORY LIBERALIZATION 3 (Mass. Inst. Tech. 2009). *See generally Bell Atlantic Agrees to Open Network*, N.Y. TIMES, June 4, 1996, at D-3 (explaining Bell's decision to open its network for competitive purposes); ATT.com, Environmental Sustainability, http://www.att.com/gen/press-room?pid=2644 (explaining potential benefits of AT&Ts participation in greenhouse gas reduction).

[220] *See e.g.*, *Decision*, *supra* note 1, at 108-09 (explaining that consumer choice helps competition), *AT&T Reply Comments*, *supra* note 104, at 9 (explaining that consumer choice helps competition); *CEERT Opening Comments*, *supra* note 104, at 23-24 (explaining that consumer choice helps competition).

[221] *See Decision*, *supra* note 1, at 99, 1102-03; *CLECA Opening Comments*, *supra* note 216, at 11; *SDG&E Reply Comments*, *supra* note 144, at 9.

the Grid itself.[222] A demarcation point helps strengthen security by limiting a utility's control within a household while also limiting a company's breach into utilities' services.[223] Furthermore, it helps define the weakest point of entry into the Grid from a cyber security standpoint, so companies can standardize security measures.[224] Therefore, a demarcation point is necessary to meet the policy concerns concerning defending the Grid.[225]

Finally, a demarcation point furthers public policy by allowing market forces to protect consumer privacy.[226] A demarcation point enhances energy security because it allows companies to develop security products for electricity customers by separating utility and non-utility responsibilities.[227] Without a set demarcation point, there is no open access and companies are

---

[222] Energy Information and Security Act of 2007, 16 U.S.C. § 2621(d) (2007); Smart Grid Systems Act, ch. 327, 2009 Stat. 1924, 1925-26 (codified as amended at CAL. PUB. UTIL. CODE § 8360 (2009)); *The Recovery Act*, *supra* note 62.

[223] *See Decision*, *supra* note 1, at 108-09; *CEERT Opening Comments*, *supra* note 104, at 23-24; *Sigma Designs Reply Comments*, *supra* note 176, at 1.

[224] *See Decision*, *supra* note 1, at 106, 109; *SCE Opening Comments*, *supra* note 172, at 104; *Sigma Designs Reply Comments*, *supra* note 176, at 1.

[225] *See Decision*, *supra* note 1, at 109; *Sigma Designs Reply Comments*, *supra* 176, at 1; Southern California Edison Company's (U-338-E) Reply Comments to Assigned Commissioner and Administrative Law Judge's Joint Ruling Amending Scoping Memo and Inviting Comments on Proposed Policies and Findings Pertaining to the Smart Grid 24 (Apr. 7, 2010), *available at* http://docs.cpuc.ca.gov/efile/CM/115972.pdf.

[226] *See* Paula M. Carmody, Md. People's Couns., Harvard Energy Pol'y Group, *Smarting from Resistance to Smart Grid*, Sept. 29, 2010, at 10, *available at* http://www.hks.harvard.edu/hepg/Papers/2010/Paula_Carmody_HEPGSept2010.pdf; Editorial, *Consumer Protection Rules for a Smart Grid Era*, UCAN, Mar. 5, 2010, http://www.ucan.org/energy/electricity/advanced_metering/consumer_protection_rules_smart_grid_era; Adrian Tuck, *A Consumer Grid Begins with Information*, TENDRIL, Oct. 18, 2010, http://www.tendrilinc.com/blog/a-consumer-smart-grid-begins-with-information/.

[227] *See* Karen Mercedes Goetzel, *Introduction to Software Security*, DEP'T HOMELAND SEC., Jan. 9, 2009, at 1-5, *available at* https://buildsecurityin.us-cert.gov/bsi/547-BSI.html; *see, e.g.*, McAfee, http://www.mcafee.com/us/ (showing example of a security product); Symantec, http://www.symantec.com/index.jsp (showing example of a security product).

unable to produce customer protection services.[228] Therefore, to ensure policy that allows electricity consumers to access such services, the CPUC should set a demarcation point.[229]

Conclusion

The implementation of a demarcation point seems like a relatively minor point within the overall framework of the overhaul of the energy industry.[230] However, as the above analysis provides, a demarcation point clarifies and enhances Smart Grid implementation in key areas.[231] First, the CPUC should set a demarcation point because Bill 17 mandated an interoperability standard.[232] A defined demarcation point falls within the mandate created by Bill 17, and therefore, the CPUC should have implemented one within the Decision.[233] Second, California should apply a telecommunications legal framework to the electrical industry to set a demarcation point to define ownership for a successful Smart Grid.[234] Establishing Part 68 to a Smart Grid enables the Grid to meet Bill 17's goals.[235] Finally, public policy supports a demarcation point and other open market solutions that enhance consumer choice and protect the Grid.[236] A demarcation point enables companies to compete while maintaining safety measures

---

[228] *See, e.g.*, Hush-A-Phone Corp. v. United States, 238 F.2d 266 (D.C. Cir. 1956); Jordaphone Corp. v. AT&T, 18 F.C.C. 644, 647 (1954); *Decision*, *supra* note 1, at 110 (explaining how openness lead to more products available for consumers).
[229] *Decision*, *supra* note 1, at 110; *see, e.g.*, *Hush-A-Phone*, 238 F.2d at 266 (showing how deregulation worked in telecommunications industry); *Jordaphone* 18 F.C.C. at 647 (showing how deregulation worked in telecommunications industry).
[230] *Contra* Dada Gudbolade, Director of R&D, Honeywell Automation and Control Solutions, Remarks at The Brookings Institution: Smart Grid's Future: Evaluating Policy Opportunities and Challenges after the Recovery Act (July 14, 2010), *available at* http://www.brookings.edu/~/media/Files/events/2010/0714_smart_grid/20100715_smart_grid_transcript_panel_three.pdf (explaining importance of demarcation points within Smart Grid system, and how energy utilities can apply telecommunications laws).
[231] *See supra* Part III.
[232] *See supra* Part III.A.
[233] *See supra* Part III.A.
[234] *See supra* Part III.B.
[235] *See supra* Part III.B
[236] *See supra* Part III.C.

for Smart Grid customers.[237] Therefore, the CPUC should have implemented a demarcation point within the necessary requirements for the creation of California's Smart Grid.[238]

[237] *See supra* Part III.C.
[238] *See supra* Conclusion.