

# WEST VIRGINIA LAW REVIEW



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MERGERS IN WESTERN COAL MARKETS:  
CONFORMING ANTITRUST ANALYSIS  
TO THE NEW REALITY

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Recent years have seen several consolidations and restructurings in the United States coal market. Every indication is that this trend of consolidation and restructuring will continue and that the antitrust enforcement and regulatory agencies (the "Agencies"), the Federal Trade Commission ("FTC") and the Department of Justice-Antitrust Division ("DOJ"), will, therefore, continue to be called upon to review mergers and acquisitions in the United States coal industry.

This Article outlines the Agencies' historical analyses of the coal industry, and discusses some subsequent changes in the market and market forces which, the article concludes, warrant a more relaxed scrutiny of mergers and acquisitions in the coal industry.<sup>1</sup> The first section of this Article discusses how the Agencies analyze mergers generally under the 1992 Merger Guidelines. The second section then describes how the Agencies are likely to apply the general merger analysis to coal mergers with particular emphasis on the Agencies' approach in light of the extensive coal industry analysis undertaken by the DOJ in the early 1980s. Finally, the Article describes the dramatic changes that have occurred in coal production, transportation and use since the DOJ's industry-wide analysis, and explains how the Agencies should modify their analysis of subsequent transactions in the coal industry to take account of these new realities.

#### I. ANTITRUST ANALYSIS OF MERGERS

The primary purpose of antitrust scrutiny of mergers is to prevent a proposed merger from resulting in the creation or exercise of "market power" by a single firm, or a group of firms acting collusively. Market power is defined as

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<sup>1</sup> The FTC has already taken a significant step in this direction. On March 25, 1996, the FTC announced that it had amended its Hart-Scott-Rodino ("H-S-R") regulations to exempt "acquisitions of coal reserves and certain associated productions and exploration assets valued at \$200 million or less" because "experience has taught us that certain categories of acquisitions do not raise competitive concerns." See *FTC Enacts New Exemptions from Merger Regulations, Plan Will Ease Regulatory Burden on Business*, FTC NEWS, Mar. 25, 1996. While the FTC action merely raises the threshold size of coal transactions subject to H-S-R's prior notification requirements, this article advocates a substantive change in the analysis of coal mergers.

the ability to maintain prices profitably above competitive levels, or to exclude competitors or to reduce output for a significant period of time.<sup>2</sup> The primary federal antitrust statute governing mergers is section 7 of the Clayton Act ("the Act").<sup>3</sup> The legislative history of the Act evinces a strong congressional intent to prevent, in their "incipiency," mergers that could create or enhance market power.<sup>4</sup> In interpreting and applying the Act, the federal courts have developed a significant body of case law analyzing mergers.<sup>5</sup> Largely, that case law relies on the size of the merging parties' market shares in the relevant market to make inferences concerning post merger market power.<sup>6</sup>

Not completely satisfied by the analytical constructs developed by the courts, the Agencies developed, then subsequently revised, Horizontal Merger Guidelines to guide their analysis of proposed mergers. The current version of the Merger Guidelines was adopted in 1992 (the "Merger Guidelines").<sup>7</sup> Although the Merger Guidelines self consciously incorporate the basic approach adopted by the federal courts to analyze mergers, they also add significant economic precision and structure to the methodology. The Merger Guidelines generally prescribe a four-step process for identifying and analyzing any competitive risks raised by a proposed merger: (1) definition of the relevant product and geographic market, (2) identification of the participants in those markets, (3) calculation of market concentration, and (4) balancing of competitive effects.

#### A. *Definition of Relevant Markets*

The first step in the Merger Guidelines analysis is to identify the relevant

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<sup>2</sup> Notice, 57 Fed. Reg. 41,552, 41,553 (1992) (section 0.1) [hereinafter Merger Guidelines].

<sup>3</sup> 15 U.S.C. § 18 (1994).

<sup>4</sup> *Brown Shoe Co. v. United States*, 370 U.S. 294, 315-23 (1962).

<sup>5</sup> See *Horizontal Mergers: Law and Policy*, Monograph 12, ABA Antitrust Section, 1986.

<sup>6</sup> See *Brown Shoe Co.*, 370 U.S. at 315-23. Over time, the courts have become increasingly more sophisticated in this process by integrating such factors as buyer power, barriers to entry and changing market realities into their analysis. See *United States v. General Dynamics Corp.*, 415 U.S. 486 (1974) (rebutting market power presumption by depleting reserves); *FTC v. Elders Grain, Inc.*, 868 F.2d 901 (7th Cir. 1989) (rebutting market power presumption by evidence of sophisticated buyers); *United States v. Waste Management, Inc.*, 743 F.2d 976 (2d Cir. 1984) (rebutting market power presumption by evidence of entry).

<sup>7</sup> Merger Guidelines, *supra* note 3.

product and geographic markets in which the merging firms compete.<sup>8</sup> According to the Merger Guidelines, a relevant market is defined as:

a product or group of products and a geographic area in which it is produced or sold such that a hypothetical, profit-maximizing firm, not subject to price regulations, that was the only present and future producer or seller of those products in that area likely would impose at least a "small but significant and nontransitory" increase in price, assuming the terms of the sale of all other products are held constant.<sup>9</sup>

When defining a relevant product market under the Merger Guidelines, the analyst initially selects a particular product from one of the merging firms, and asks whether a hypothetical monopolist would find it profitable to increase the product's price above the current level by five percent or more. If the answer is yes, that product is deemed a relevant market for further consideration, and the analyst moves on to the next product.<sup>10</sup> If the answer is no, that particular product alone is deemed too narrow to constitute a relevant market. The analyst repeats the process using a broader set of products that includes the next best set of substitutes.<sup>11</sup> Then, the analyst inquires whether a sole provider of both the product and the next best set of substitutes could profitably increase the price by five percent. If yes, a relevant market contains that set of products.<sup>12</sup> If no, the analyst adds the next best set of substitutes and repeats the process.<sup>13</sup> A relevant product market consists of the *smallest* set of products for which a hypothetical monopolist would find it profitable to increase prices by five percent.<sup>14</sup> The analyst delineates markets for all of the products from each merging firm. Next one must compare the two sets of product markets to determine whether the merging firms are participants in any of the same product markets. If the product

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<sup>8</sup> *Id.* at 41,554-55 (section 1.11).

<sup>9</sup> *Id.* at 41,554 (section 1.0).

<sup>10</sup> *Id.* at 41,554-55 (section 1.11).

<sup>11</sup> *Id.*

<sup>12</sup> Merger Guidelines, *supra* note 2 at 41,554-55 (section 1.11).

<sup>13</sup> *Id.*

<sup>14</sup> *Id.*

markets overlap, the merger is deemed "horizontal" and analysis of any potential anticompetitive effects resulting from the merger continues.

The Merger Guidelines define geographic markets in an analogous manner.<sup>15</sup> Beginning with the location of each merging firm, the analyst asks whether a sole provider of the relevant product in that location could raise its price by five percent.<sup>16</sup> If the answer is no, the geographic area must be expanded to include the next best substitute for production and repeats the analysis.<sup>17</sup> This process continues until the test is satisfied. For any given merger, there can be multiple relevant product and geographic markets, each addressing a different possible exercise of market power.

In markets in which price discrimination occurs, i.e., where identical products are sold at different prices to different customers, each customer or group of customers that receives a distinct price may constitute a separate relevant market.<sup>18</sup> This is very important for delineation of coal markets because most western coal (approximately ninety percent) is sold to electric utilities.<sup>19</sup> Since the process by which coal is sold to large utilities frequently takes the form of competitive bidding for individual contracts, and since there is often considerable variation in individual contracts and market conditions, the resulting individual pricing is like price discrimination. As a result, geographic markets for the sale of coal can be as small as the coal mines capable of serving a single large utility.

#### *B. Identification of Market Participants*

After defining the relevant markets, the next step is to identify the participants in those markets. According to the Merger Guidelines, the participants in the relevant market are those firms that currently produce in the relevant market and those firms that could produce in the relevant market within one year without incurring substantial sunk costs.<sup>20</sup> Thus, the Merger Guidelines require that the Agencies take account of the possibility of new entry in the

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<sup>15</sup> *Id.* at 41555-56 (section 1.21).

<sup>16</sup> *Id.*

<sup>17</sup> Merger Guidelines, *supra* note 2 at 41555-56 (section 1.21).

<sup>18</sup> *Id.*

<sup>19</sup> See Mark Sievers, *An Economic Analysis of Utility-Coal Company Relationships*, 8 J. ENERGY L. & POL'Y 27, 29 (1987).

<sup>20</sup> Merger Guidelines, *supra* note 3, at 41,556-57 (section 1.3).

relevant market after the merger before drawing any conclusions about likely post-merger market concentration. Entry that is sufficiently likely, timely and substantial in magnitude can overcome the presumption of increased market power that arises when a proposed merger would otherwise result in increased market concentration.<sup>21</sup>

### C. *Calculation of Market Concentration*

After identifying the firms that participate in the relevant markets, each firm's market share is calculated. Market share figures are used to calculate the Herfindal-Hirschman index of market concentration ("HHI's") for the post-merger markets and the change in concentration resulting from the merger.<sup>22</sup> The Merger Guidelines consider post-merger HHI's of 1800 or higher to represent highly concentrated markets.<sup>23</sup> Mergers that increase the HHI by more than 100 points are rebuttably presumed to create market power.<sup>24</sup>

### D. *Competitive Effects Analysis*

Transactions that exceed the acceptable HHI standards are not necessarily determined to be anticompetitive, however. The Agencies merely use the HHI standards as thresholds to identify mergers with sufficient anticompetitive potential to warrant more particularized scrutiny. Even for mergers with high HHI's, the Agencies must develop a credible scenario under which the particular merger would cause market power to increase before a proposed merger will be challenged. The "competitive effects" section of the Merger Guidelines provides a framework for developing such a competitive analysis.<sup>25</sup> In this process, efficiencies that will accrue specifically from the merger must be taken account of to determine whether they are sizeable enough to outweigh any competitive

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<sup>21</sup> *Id.* at 41,561 (section 3.0).

<sup>22</sup> The formula for calculating the HHI is the sum of the squared market shares. *Id.* at 41,558 (section 1.51). For example, if a market consists of five firms, each with a 20% market share, then the HHI is  $20^2 + 20^2 + 20^2 + 20^2 + 20^2$ , or 2000.

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

<sup>25</sup> Merger Guidelines, *supra* note 2, at 41,558 (section 2.0).

danger from the merger.<sup>26</sup>

## II. AGENCY ANALYSIS OF COAL MERGERS

In addition to the Merger Guidelines themselves, one other source of information gives important insight into how the Agencies are likely to analyze any particular proposed merger in the coal industry. Between 1979 and 1983, pursuant to a congressional mandate imposed by section 8 of the Federal Coal Leasing Amendments Act of 1976,<sup>27</sup> DOJ published a series of reports entitled *Competition in the Coal Industry* (the "Competition Reports") setting forth a detailed competitive analysis of the United States coal market.<sup>28</sup>

Though somewhat dated, these Competition Reports continue to play a significant role in the Agencies' review of proposed coal mergers under the Merger Guidelines for two reasons. First, the Competition Reports, in many respects, represent the latest in-depth study of the United States coal industry. Second, the Competition Reports share common authors and prescribe a similar analytical process as the later adopted Merger Guidelines. Accordingly, they provide likely starting places for Agency analysis.<sup>29</sup>

### A. *Definition of Relevant Markets*

In the early Competition Reports, the DOJ concluded that the relevant product market for coal is comprised of all varieties of bituminous and lignite coals (notwithstanding variations in sulfur, BTU or ash contents), but excludes anthracite coals.<sup>30</sup> Importantly, the Competition Reports also concluded that

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<sup>26</sup> *Id.* at 41,562 (section 4).

<sup>27</sup> 30 U.S.C. § 208-2 (1994) (repealed 1995).

<sup>28</sup> The "Competition in the Coal Industry" reports contain extensive in-depth analysis. Each report addresses one or more issues relevant to competitive analysis; e.g., the appropriate product and geographic market definition, the proper measurement of concentration, transportation issues, alternative fuel substitutability, entry and expansion, likelihood of collusion, etc. Taken together, these reports provide a comprehensive (but dated) evaluation of competitiveness in the coal industry.

<sup>29</sup> In a recent article, Gregory Werden of the DOJ endorsed the DOJ's earlier model of coal geographic markets. See *Identifying Market Power in Electric Generation*, PUB. UTIL. FORT., Feb. 15, 1996, at 16, 19.

<sup>30</sup> U.S. DEP'T OF JUSTICE, *COMPETITION IN THE COAL INDUSTRY*, May 1978, at 39 [hereinafter 1978 *COMPETITION REPORT*]. Coal is typically classified into four types based on carbon content and heat generated: lignite, subbituminous, bituminous and anthracite. At one end of the spectrum is lignite



alternative energy sources were not properly included in the same product market as coal.<sup>31</sup> The DOJ specifically analyzed interfuel substitutability between both coal and nuclear fuel and coal and oil, but did not discuss at length the substitution possibilities between coal and natural gas.<sup>32</sup> In sum, the DOJ's position, at least at the time of the 1978 and 1979 Competition Reports, was that substitution between coal and oil, natural gas, nuclear, and bulk power was sufficiently attenuated to preclude delineation of a product market broader than coal.<sup>33</sup> This conclusion dramatically affects the scope of the market and the likelihood of finding any potentially adverse competitive effects from any particular proposed merger. The DOJ has not issued any subsequent statements retracting or even drawing into question these earlier conclusions.

The DOJ Competition Reports also devote extensive analysis to defining geographic markets in the coal industry. In its first Competition Report to Congress in 1978, the DOJ defined two relevant western geographic markets for coal — the "Northern Plains" (Montana, North Dakota, South Dakota and Wyoming) and the "Southwest" (Arizona, Colorado, New Mexico and Utah).<sup>34</sup> The DOJ's conclusions in these early reports are consistent with several economic studies in the late 1970s that also defined rather narrow relevant geographic markets for coal.<sup>35</sup>

In 1982, the DOJ revisited its geographic market analysis, citing two important changes in the economic environment. First, the DOJ identified a rapid

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which generates the least heat and has the smallest carbon content. At the other end of the spectrum is anthracite which is a harder coal with a high heat content. Just below lignite is subbituminous coal. Finally, bituminous coal, which falls between subbituminous coal and anthracite, comprises the bulk of domestic coal production.

<sup>31</sup> *Id.*

<sup>32</sup> U.S. DEP'T OF JUSTICE, COMPETITION IN THE COAL INDUSTRY, May 1979, at 12-15 [hereinafter 1979 COMPETITION REPORT]. 1978 COMPETITION REPORT, *supra* note 30, at 28-38.

<sup>33</sup> *Id.*

<sup>34</sup> The report also defined Appalachia and the Midwest as separate markets. See 1978 COMPETITION REPORT, *supra* note 30, at 49-50. The same report also considered the possibility of additional smaller markets. *Id.* at 43-44 n.92.

<sup>35</sup> See, e.g., Ronald E. Shrieves, *Geographic Market Area and Market Structure in the Bituminous Coal Industry*, 23 ANTITRUST BULL. 589, 602 (1978) (defining markets smaller than the Northern Plains and the Southwest); Kenneth G. Elzinga & Thomas G. Hogarty, *The Problem of Geographic Market Delineation Revisited: The Case of Coal*, 23 ANTITRUST BULL., 1, 12 (1978) (also defining markets smaller than the Northern Plains and the Southwest).

escalation in rail rates for coal transportation between 1977 and 1982, thereby significantly restricting the geographic area to which a coal consumer could reasonably turn for a supply of coal.<sup>36</sup> Second, the DOJ acknowledged that tighter regulations promulgated by the Environmental Protection Agency ("EPA") for sulfur dioxide emissions from coal burning utility plants had placed a premium on so-called low sulfur coals.<sup>37</sup> As a result of these changes, the 1982 Competition Report concluded that the Powder River Basin had become a separate relevant geographic market distinct from the Northern Plains.<sup>38</sup>

In identifying the relevant geographic markets in its 1982 Competition Report, the DOJ employed analytical methods consistent with those later prescribed in the Merger Guidelines. The DOJ used the Coal and Electric Utilities Model ("CEUM") constructed by ICF, Inc.<sup>39</sup> Similar to the test adopted in the Merger Guidelines, the model purported to simulate the impact of a hypothetical price increase on the profits of the aggregate of firms in various coal producing regions.<sup>40</sup>

The CEUM model found that there were three relevant geographic markets in the West: (1) the Powder River Basin market, consisting of the very low sulfur/low BTU coal producing region of northeastern Wyoming and southeastern Montana; (2) the Southwest market, including a variety of coal producing regions located in Colorado, Utah, Arizona, New Mexico and the non-Powder River Basin region of Wyoming; and (3) the Northern Plains market, consisting of the primarily lignite coal areas in northeastern Wyoming, Montana, and the Dakotas.<sup>41</sup>

#### 1. Powder River Basin

The 1982 Competition Report found that "[t]he Powder River Region is the most important coal-producing region in the West, accounting for

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<sup>36</sup> U.S. DEP'T OF JUSTICE, COMPETITION IN THE COAL INDUSTRY, Dec. 1982, at 16-18 [hereinafter 1982 COMPETITION REPORT].

<sup>37</sup> *Id.*

<sup>38</sup> *Id.* at 36.

<sup>39</sup> *Id.* at 24. ICF, Inc. is an independent economic consulting firm.

<sup>40</sup> *Id.* at 33.

<sup>41</sup> 1982 COMPETITION REPORT, *supra* note 36, at 35.

approximately two-thirds of western coal reserves."<sup>42</sup> However, the Report also recognized that "the great bulk [of this Powder River Basin coal] is shipped over a wide area of the West and especially the Midwest, with very large quantities going to Texas and significant quantities crossing the Mississippi River."<sup>43</sup> Because of this, the Competition Report concluded, "Powder River coal competes to varying degrees against most other deposits in the West as well as those in the Midwest and Texas."<sup>44</sup>

The conclusion that the Powder River Region constituted a separate geographic market resulted primarily from the DOJ's perception that Powder River Basin coal possessed unique qualities and uses. In particular, DOJ found that EPA regulations governing sulfur dioxide emissions played a decisive role in many large utility's decisions regarding their choice of fuels.<sup>45</sup> Indeed, in recognition of this unique position, the Powder River Basin's very low sulfur coal is often referred to as "compliance" coal. On the other hand, the 1982 Competition Report also identified a competitive disadvantage of Powder River coal, its relatively low heat content meant that relatively large boilers must be used in order to attain a given level of power output.<sup>46</sup>

## 2. The Southwest Market

The 1982 Competition Report also identified a Southwest market composed of a number of regions producing relatively high BTU/low sulfur coal in New Mexico, Arizona, Utah and Southern Colorado.<sup>47</sup> These coals were transported over a wide area and thus were found to compete to some extent with other western, midwestern and eastern coals. The 1982 Competition Report concluded, however, that:

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<sup>42</sup> *Id.* at 36.

<sup>43</sup> *Id.*

<sup>44</sup> *Id.*

<sup>45</sup> *Id.* at 16-18; 1979 COMPETITION REPORT, *supra* note 32, at 9-12.

<sup>46</sup> 1982 COMPETITION REPORT, *supra* note 36, at 36. Boilers designed for higher BTU coal generally suffer a "derate" in power output if Powder River coal is used, and boilers designed to use the relatively cheap Powder River coal generally find it uneconomic to switch to more expensive, higher BTU coal.

<sup>47</sup> *Id.* at 37.

[f]or most customers, Powder River coal has a lower delivered price and is therefore much more attractive [than Southwest coal]. The higher heat content of [Southwestern coal], however, can make it more economical for some customers, particularly those far away from both regions, because it is cheaper to transport on a BTU basis.<sup>48</sup>

The wide shipment and competitive area of the Southwestern coal led the DOJ to conclude that none of the individual areas within the Southwest constituted a separate geographic market.

### 3. The Northern Plains

Finally, the 1982 Competition Report identified the Northern Plains as a separate geographic market.<sup>49</sup> The Northern Plains market includes Northeast Montana, North Dakota and South Dakota.<sup>50</sup> Northern Plains coal is primarily lignite, a low BTU "brown" coal.<sup>51</sup> According to the DOJ, Northern Plains coal "is mined exclusively in low-cost surface mines" and "[t]ransportation of lignite is costly and difficult."<sup>52</sup> As a result, "the great bulk of the coal produced in the Northern Plains Region is consumed locally in minemouth plants."<sup>53</sup> Therefore, Northern Plains coals were not determined to be sufficiently competitive with coals produced in other regions to warrant their inclusion in a broader geographic market.

#### *B. Identification of Market Participants*

Having defined the relevant product and geographic markets, the DOJ, in later reports, set out to identify the participants in those markets, and, in particular, to determine whether new entry was sufficiently likely to warrant

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<sup>48</sup> *Id.*

<sup>49</sup> *Id.* at 35.

<sup>50</sup> *Id.* at 36.

<sup>51</sup> 1982 COMPETITION REPORT, *supra* note 36, at 36.

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

consideration of those not currently active in the identified markets when computing market concentration figures. The 1983 Competition Report concluded that new entry into the coal markets that the DOJ had delineated was unlikely because most such entries would have to occur through the leasing of federal coal reserves.<sup>54</sup> The DOJ concluded that unleased federal reserves were unavailable for two reasons. First, the Competition Report noted that, "[a]t the time the Department adopted this treatment, there had been no significant federal coal leasing for some time."<sup>55</sup> Second, the Competition Report acknowledged that, "[a] major reason for the Department's continued treatment of unleased federal reserves as unavailable is the time-consuming process that is required to lease coal under present law", "tak[ing] at least two and a half years to lease a coal tract."<sup>56</sup>

### C. *Calculation of Market Concentration*

Having defined the relevant product and geographic markets, the DOJ next turned in its 1983 Competition Report to the issue of market shares and concentration.<sup>57</sup> According to the DOJ, the most meaningful measure for computing market shares for purposes of assessing the relative competitive importance of coal firm's was each firm's share of "uncommitted" coal reserves.<sup>58</sup> That is, coal reserves that are available and economically minable but not already committed for sale under contracts for future delivery. Two principal methods of measuring output as a basis for computing market shares are recognized in the economic literature: annual sales and capacity.<sup>59</sup> Sales are generally viewed as a superior basis for measuring output when products are differentiated, e.g., when brands or advertising play a major role in consumer choice; however, capacity is considered a better measure of output when products are homogeneous.<sup>60</sup> The

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<sup>54</sup> U.S. DEP'T OF JUSTICE, *COMPETITION IN THE COAL INDUSTRY*, Apr. 1983, at 10 [hereinafter 1983 COMPETITION REPORT].

<sup>55</sup> *Id.*

<sup>56</sup> *Id.*

<sup>57</sup> *Id.*

<sup>58</sup> *Id.* at 7.

<sup>59</sup> 1992 Horizontal Merger Guidelines, *supra* note 3, at 41,557 (section 1.41).

<sup>60</sup> *Id.*

DOJ concluded that the proper output measure in the coal industry was a capacity measure because coal is a relatively homogeneous product typically purchased by large informed customers.<sup>61</sup> The DOJ chose uncommitted reserves as the best capacity measure because it concluded that available reserves not committed by prior contract best represented a coal mine's ability to compete for new coal contracts.<sup>62</sup> The DOJ attempted to measure the amount of uncommitted reserves in the West utilizing certain criteria for inclusion as a reserve and information on contractual commitments as of 1983. As of that time, the DOJ concluded that concentration was not unduly high in the West.<sup>63</sup> The authors are not aware of any update of this reserve measurement exercise.<sup>64</sup>

#### D. *Competitive Effects Analysis*

Ultimately, the DOJ Competition Reports concluded that the identified coal markets were "workably competitive."<sup>65</sup> In the DOJ's words,

While concentration in the Northern Plains is higher, and that in the Southwest is quite high, evaluation of other structural factors and the nature of the competitive process in those markets leads to a conclusion that those markets, too, are workably competitive. The factors leading to this conclusion include heterogeneity of the product, countervailing buyer power, diversity of sellers, ease of entry, and the predominant use of long-term, complex supply contracts. Together, these factors suggest the existence of a strong rivalry among sellers to win long-term supply contracts with buyers whose size gives them significant bargaining leverage. In this environment, a course of interdependent anticompetitive behavior would be more difficult to sustain than

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<sup>61</sup> *Id.*

<sup>62</sup> 1983 COMPETITION REPORT, *supra* note 54, at 8.

<sup>63</sup> *Id.* at 5.

<sup>64</sup> Operationally, using uncommitted coal reserves as a basis for calculating market shares is difficult. It requires data concerning not only each firm's reserves but also their existing coal contracts to determine how much of their existing reserves are committed. Most private parties will not have such information and will need to compute market shares by annual sales or production, or by annual capacity or total reserves.

<sup>65</sup> 1978 COMPETITION REPORT, *supra* note 30, at 130.

in markets characterized by spot transactions, relatively weak buyers and simple products.<sup>66</sup>

The DOJ did not consider the possibility of a unilateral exercise of market power, a category of analysis introduced by the Merger Guidelines. Instead, it specifically considered only the likelihood of collusion, stating that "the possibility of single firm exercises of market power is remote."<sup>67</sup> Under the Merger Guidelines, analysis of the possibility of unilateral market power may be required.<sup>68</sup>

### III. ANTITRUST ANALYSIS OF WESTERN COAL MERGERS: ACCOUNTING FOR NEW REALITIES

Several significant changes in the coal industry itself, and in electrical power generation and transmission, since the Competition Reports were last published in 1983 draw into question several of the fundamental premises used in the DOJ's earlier conclusions. Accordingly, significant modifications in the approach undertaken by the Agencies in analyzing coal mergers, or at least the starting points for that analysis, may be warranted. These industry changes portend dramatic consequences on the proper definition of the relevant product and geographic markets, suggesting that the DOJ may need to expand previously defined product markets to include non-coal energy sources and drawing into serious question the geographic markets identified in the Competition Reports.

#### A. *Definition of Relevant Markets*

##### 1. Product Market

Perhaps the most important change that has occurred in the coal industry since the DOJ Competition Reports involves the analysis of the product market in coal mergers. Because of dramatic deregulation of natural gas pipelines, falling gas prices and improved technology in natural gas turbines, natural gas is

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<sup>66</sup> *Id.* at 130.

<sup>67</sup> 1983 COMPETITION REPORT at 5.

<sup>68</sup> Merger Guidelines, *supra* note 3, at 41,560 (section 2.2). Unilateral market power becomes an issue under the Merger Guidelines when the combined market share of the merged firms exceeds 35%. *Id.* at 41,560 (section 2.211). The possibility of unilateral market power also assumes oligopoly rivalry between coal producers.

now a genuine substitute for coal for power generation.<sup>69</sup> The likelihood and extent of this substitution obviously depends on the relative prices of coal and natural gas. By one estimate, in order for coal to be preferred to natural gas it must have an approximately \$1.65 per million BTU price advantage over natural gas. At present, however, coal's price advantage is only approximately ninety cents per million BTU.<sup>70</sup>

Moreover, most new electric generating capacity has been the result of non-utility growth.<sup>71</sup> Since natural gas fuels most non-utility electric generation and the growth trend among non-utility generators will likely continue into the future, the importance of natural gas as a source for electrical power generation is likely to increase.<sup>72</sup> Consequently, the proper coal product market may now include other competing forms of energy, and, particularly, natural gas. A

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<sup>69</sup> See, e.g., *Business Bulletin*, WALL ST. J., Nov. 16, 1995, at A1. According to the *Wall Street Journal*:

Jet-Engine Technology lifts output of natural-gas turbines. General Electric's latest mode pushes electricity-generation costs down to about 3.2 cents per kilowatt hour. Gas is abundant and cheap. So, gas turbines become a marketplace weapon: Lower our rates, large manufacturers say to utilities, or we will buy our own power plant.

*Id.*; see also *Fuel Switching Between Coal and Gas*, PUB. UTIL. FORT., June 15, 1995; *The Choice of Fuel in Competitive Generation*, EPRI FUEL INSIGHTS, May 1995. This is significant because the vast majority of U.S. coal (75.9 %) is used in electric generation. Only 4.6% of U.S. coal is used in steel, 7.7% is consumed in other industrial uses, and the balance is exported. Western coal consumed by electric utilities is an even higher proportion, approximately 90%. See Sievers, *supra* note 19, at 29.

<sup>70</sup> See Robert Smock, *Utilities View Changes in Coal Purchasing Patterns*, ELECTRIC LIGHT & POWER, May 1995, at 33.

<sup>71</sup> Independent power capacity added in 1990 for the first time exceeded the amount of capacity added by electric utilities. See Edison Elec. Inst. (1990), *Capacity and Generation of Non-Utility Source of Energy* (1992); see also Michael Baly III, *The Natural Gas Industry in 1995: The Only Constant Was Change*, GAS ENERGY REV., Jan. 1996, at 2 ("[G]as-fired cogeneration is likely to increase rapidly when construction of electric generating capacity resumes. . . . A.G.A. expects this trend to continue, as new technologies such as reduced NOX boilers . . . supplement traditional boiler and process uses.").

<sup>72</sup> Non-utility generation includes two categories of facilities, Qualified Facilities ("QF's") and Exempt Wholesale Generators ("EWG's"). QF's consist of co-generation and small power producers ("QP's") that receive special regulatory treatment under the Public Utility Regulatory Policy Act of 1978 ("PURPA"). Typically, QF's sell power either directly to utilities, or compete directly with utilities, for power sales to large industrial customers. The Energy Policy Act of 1992 defines exempt wholesale generators as producers exclusively in the business of power generation for wholesale that make an appropriate filing with FERC.



combined product market consisting of coal and natural gas would be profoundly unconcentrated, eliminating virtually any concerns raised by consolidation among coal producers.

## 2. Geographic Market

There is little doubt that the DOJ's earlier defined geographic markets cannot stand in light of subsequent developments. Certainly, if the product market was expanded to include other fuels, the geographic market would have to be broadened accordingly. But, even assuming a product market consisting only of coal, the DOJ's geographic markets should be broadened for several reasons.

First, the trend toward higher transportation costs, earlier relied on by the DOJ to define narrower geographic markets, has been reversed. Transportation costs for most coal producers have fallen significantly since 1983, primarily as a result of new railroad investment in the area and new rail competition serving the key, coal-producing regions.<sup>73</sup> The barge industry has also significantly increased shipping efficiency.<sup>74</sup> As a result, current shipping patterns of western coal have lengthened. The significance of these changes should not be underestimated. One early economic study of coal markets concluded that lower transportation costs could make the western United States a single coal market.<sup>75</sup>

Second, contrary to the situation in 1982, utility boilers are no longer as wedded to a specific BTU coal content. New technologies are making high and low BTU coal head to head competitors. Recent studies have acknowledged a "[s]urprising ability to use subbituminous coals cost-effectively in boilers designed

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<sup>73</sup> For example, the Chicago & Northwestern railroad, Union Pacific's partner in the region, has invested \$1.7 billion in capital improvements such as new tracks and locomotives. See Smock, *supra* note 70, at 33; Gus Welty, *Coal Comes on Strong. Can We Cope?*, RAILWAY AGE, Feb. 1995, at 25. Coal is typically transported by unit train. A unit train is usually comprised of approximately 100 cars, each car carrying approximately 100 tons of coal, and three to five locomotives. Unit train rates are substantially lower than those of other types of service because of economies resulting from the dedication of an entire train to the needs of a single or small number of utilities.

<sup>74</sup> See Henry Stein, *Coal Supply and Transportation Changes As They Climb*, ELECTRIC LIGHT & POWER, June 1994, at 27.

<sup>75</sup> See Thomas C. Campell & Ming-Jeng Hwang, *Market Area Analysis of Three Major Coal Markets in the U.S.*, 6 ATLANTIC ECON. J. 66, 71 (1978) (stating that the entire west is considered one market).

for bituminous coals.<sup>76</sup> And other industry sources have noted that the substitutability between different types of coal has been much more than previously anticipated.<sup>77</sup>

Third, the costs of complying with the Clean Air Act have been less than anticipated. Stockpiling of allowances has allowed utilities to defer for years the more stringent requirements of the law scheduled to begin in 2000, permitting utilities to use alternatives to low sulfur Powder River Basin coal in the interim.<sup>78</sup>

Finally, utility deregulation has increased the ability of utilities to substitute away from high priced coal by buying bulk power from other generation plants. Many utilities have entered into regional power agreements, effectively permitting them to buy "coal by wire" from other suppliers or regions.<sup>79</sup> As deregulation increases, accessibility to the high voltage transmission system, coal-by-wire will likely grow in popularity. For example, the Federal Energy Regulatory Commission ("FERC") has approved the governing agreements for the Western Regional Transmission Association, an association of retail producers that pool power resources. Such groups increase the options to utilities faced with a price increase by coal procedures. Rather than purchase coal at high prices, members of the retail power pool can purchase power from utilities using coal from other geographic markets.<sup>80</sup>

State public utility commissions ("PUCs") that regulate the retail sale of electricity energy have also joined the deregulation bandwagon. Traditionally, most public utilities have consisted of vertically integrated supply systems owning

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<sup>76</sup> Jeremy Platt, *Compliance and Allowances: Why Are Prices So Low?*, MIT ENERGY POL'Y WORKSHOP, Oct. 5-6, 1995.

<sup>77</sup> Cate Jones, *Re-engineering Powerplants to Compete in the Era of Deregulation*, POWER, Aug. 1995, at 13; Dallas Burtraw, *Regulatory Issues in Title IV Compliance*, MIT ENERGY POL'Y WORKSHOP, Oct. 5-6, 1995; JAMES N. HELLER, FIELDSTON CO., INC., *Lessons of Deregulation: Strategic Assessment of Regional Coal Supply and Transportation Markets*.

<sup>78</sup> Jeff Bailey, *Utilities Over Comply with Clean Air Act, Are Stockpiling Pollution Allowances*, WALL ST. J., Nov. 15, 1995, at A6.

<sup>79</sup> Coal-by-wire involves building a power plant near a mine rather than where the power is used. The power, rather than the coal, is transmitted long distance over high voltage lines. See RESOURCE DATA INT'L, *COMPETITIVE POWER MARKETS AND DEREGULATION*; BRADLEY C. LEWIS, JOHN T. BOYT CO., *DEREGULATION-THE DOUBLE EDGED KILOWATT SWORD* (Oct. 1995).

<sup>80</sup> To the extent that customers of utilities are military bases, the 1996 Department of Defense spending bill includes a provision to allow Department of Defense installations to solicit bids for the lowest cost source of electricity regardless of the utility with the retail franchise for the installations location.

generator plants, transmission lines and distribution systems with a monopoly franchise to wheel retail power. Under pressure from large industrial customers, many PUCs have adopted initiatives that allow customers to circumvent the utility's monopoly franchise at the local level. As a result, utilities that use one source of coal will be forced to compete at the retail level with utilities using other sources of coal, thereby placing downward pressure on the price of coal.

Notwithstanding these dramatic changes, there may still be circumstances where narrower geographic markets, even markets limited to a single, isolated customer, may be appropriate. In cases where the merged firms have particular advantages in serving particular customers (e.g., local transportation cost advantages, particular coal qualities, etc.), and, where prices could be selectively increased to those customers, the Agencies will still likely be concerned about potential exercises of market power in such smaller, "price discrimination" markets. As a result, parties proposing coal mergers may still need to undertake a customer by customer analysis to determine whether the proposed merger substantially disadvantages any particular customer (such as by going from two to one alternative sources of supply).<sup>81</sup> Even when such price discrimination markets are possible, however, the merging parties may assuage any agency concerns of isolated anti-competitive effects by acting proactively to address the potential problem before it occurs. For example, the merging parties could mitigate any concerns about such vulnerable customers before the merger by granting them a long-term contract at a favorable price. In addition, the Agencies' concern may be mitigated by the fact that most coal purchases are made on an F.O.B. mine basis, with the customer arranging for transportation. As a result, prices can be stated in common terms, and customers can determine whether they are being quoted discriminatory prices.

### *B. Identification of Market Participants*

Subsequent developments also draw into question the Competition Reports' conclusion that only current market participants should be included in the market analysis because entry into the western coal markets is unlikely because of regulatory difficulties in acquiring new sources for coal. The process of obtaining a federal coal lease has been substantially streamlined and "decertified," such that individuals can now obtain federal leases more quickly and easily. As a result, unlike the period prior to 1983, significant federal leases have been granted through the lease by application process. Therefore, a persuasive argument can be made that private parties could respond to any

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<sup>81</sup> Being tied to a particular coal deposit also generally results in being tied to a particular railroad as well.

increase in coal prices by leasing federal coal reserves, and/or that the government could rectify any perceived competitive problem resulting from a merger through the strategic granting of coal leases.<sup>82</sup>

### C. *Calculation of Market Concentration*

Although the Competition Reports endorse measuring market concentration using shares of uncommitted non-federal reserves, this is a difficult task for private parties proposing a merger. Competitors generally do not have access to data regarding reserves or current coal contracts. However, alternative measures are generally available that also accurately reflect competitive realities and are more easily computed. Other candidate measures include other categories of reserves (e.g., in-place, demonstrated, recoverable), alternative measures of capacity (e.g., proven, air permit, equipment), and historical production.<sup>83</sup> When applied, these measures uniformly find a lack of concentration for any markets broader than those proposed by the DOJ, indicating that little competitive danger is likely to accompany additional consolidation in the coal industry.

### D. *Competitive Effects Analysis*

Finally, in addition to the structural factors that the DOJ pointed to in concluding that coal markets are "workably competitive," a persuasive case can be made that market power is not likely to be exercised in the coal industry, even if the relevant markets were concentrated, because of the method by which most coal supply contracts are awarded. The recent "bidding model" economic analysis that has already found significant acceptance at the Agencies supports this conclusion.

These bidding models have been derived from the extensive economic

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<sup>82</sup> The government's significant control over entry into coal markets distinguishes coal from most industries that the Agencies scrutinize. The federal government owns an estimated 72% of all western coal reserves and, because of scattered ownership, controls another 14% of such reserves. See NATIONAL MINING ASS'N, FACTS ABOUT COAL 14 (1995).

<sup>83</sup> Reserves can be measured either in terms of the amount of coal in the ground (in-place reserves), or the amount of coal that likely could be extracted and shipped to buyers if mined using conventional techniques (recoverable reserves). Demonstrated reserves include only coal classified as measured or indicated reserves. The latter terms refer to reliability criteria based on the distance the coal is situated from an observation point, *i.e.*, coal seam, outcrop or drill hole.

literature on auctions.<sup>84</sup> In an auction or "bidding market," the buyer solicits bids for the sale of a product specifying the necessary qualities and terms required (for example, ash content, sulfur content, time of delivery, etc.), and the sellers respond with confidential offers. The buyer then selects the lowest priced offer that satisfies the specifications.

While there are various methods of structuring auctions, the sale of coal in the western United States typically occurs through simple sealed bid auctions involving a single round of offers. Economists have theorized that, in such bidding markets, concentration may not reflect the true competitive reality. For example, according to one popular bidding market model, it is assumed that, in markets characterized by competitive bidding, the winning bidder will be the company with the lowest cost of serving the customer, and the winning bid will reflect the costs of the next lowest cost bidder (reflecting the bid that must be beat).<sup>85</sup> Accordingly, under this analysis, the critical issue is not the extent of concentration in the market, but rather whether the proposed merger would combine the two lowest cost providers (with respect to a particular customer), causing the price to rise to the costs of the third lowest cost supplier. If it can be demonstrated that the two coal companies that are merging are unlikely to be the lowest cost bidders, or that the costs of the next highest cost bidder is insignificantly greater, then it can be argued that no market power can be exercised irrespective of the level of concentration.<sup>86</sup> Thus, it may be possible under certain circumstances to show that a coal merger will not be anticompetitive even if it is judged by the Agencies to significantly raise concentration in the relevant product and geographic market.

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<sup>84</sup> See e.g., R. Preston McAfee & John McMillan, *Auctions and Bidding*, 25 J. ECON. LITERATURE 699 (1987); John G. Riley & William F. Samuelson, *Optimal Auctions*, 71 AM. ECON. REV. 381 (1981); Paul R. Milgrom & Robert J. Weber, *A Theory of Auctions and Competitive Bidding*, 50 ECONOMETRICA 1089 (1982); LUKE FROEB, U.S. DEP'T OF JUSTICE, ECONOMIC ANALYSIS GROUP DISCUSSION PAPER, AUCTIONS AND ANTITRUST, Aug. 22, 1988.

<sup>85</sup> *Id.*

<sup>86</sup> A further bidding model variant investigates whether the number of potential bidders, "m" is greater than the number of actual bidders "n." Letter from Frederick R. Warren-Boulton, Deputy Assistant Attorney General, U.S. Department of Justice, to John H. Preston, Economists Incorporated (Jan. 14, 1986) (on file with author). In this case, there may be no competitive concern, even when the transaction combines two of a small number of bidders, as long as actual bidders can be replaced at comparable costs, by potential bidders.

#### IV. CONCLUSION

Dramatic changes in the coal industry itself, the transportation industries that service it, and the electrical generation industry which it supplies, draw into serious question certain fundamental premises on which the antitrust enforcement agencies have based their review of proposed coal mergers. Recognition of these changes, and the new reality that has resulted, suggests that future mergers in the coal industry are unlikely to raise significant anti-competitive concerns, and that a more relaxed scrutiny of such mergers is warranted.