

**BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN**

**Application of Wisconsin Electric Power
Company for Authority to Build and Operate a 50 MW,
Biomass Fired, Cogeneration Facility in the Village of
Rothschild, Marathon County, Wisconsin**

Docket No. 6630-CE-305

**[PUBLIC]
INITIAL POST-HEARING BRIEF OF
PACKAGING CORPORATION OF AMERICA
(December 23, 2010)**

The Commission's task in this docket is to determine whether to approve WEPCO's application for authority to build a biomass-fueled co-generation plant in Rothschild, Wisconsin. Regulators might jump at the chance to approve a project that seemingly would reduce reliance on fossil fuels and nudge closer to reaching or exceeding renewable energy goals. But, as the axiom advises, the Commission should be careful what it asks for here; it might get it – along with unintended and unforeseeable consequences.

I. THE COMMISSION MUST CONSIDER A HOST OF FACTORS IN ITS DELIBERATIONS, INCLUDING ENVIRONMENTAL AND ECONOMIC IMPACTS.

WEPCO's proposal may not proceed unless the Commission certifies that "public convenience and necessity" require the project. Wis. Stat. Sec. 196.49(3)(b); Wis. Adm. Code sec. PSC 112.07(2). In that light, the Commission must consider a number of state policies: "It is the goal of the state to ensure a future supply of wood fuel and reduce atmospheric carbon dioxide by increasing the forested areas of the state." Wis. Stat. sec. 1.12(3)(c). In considering WEPCO's application, the Commission is guided by sec. 1.12(5):

- (a) In designing all new and replacement energy projects, a state agency...shall rely to the greatest extent feasible on energy efficiency improvements and renewable energy resources, if the energy efficiency improvements and renewable energy resources are cost-effective and technically feasible and do not have unacceptable environmental impacts.
- (b) To the greatest extent cost-effective and technically feasible, a state agency ... shall design all new and replacement energy projects following the priorities:
- Energy conservation and efficiency
 - Noncombustible renewable energy resources
 - Combustible renewable energy resources
 - Nonrenewable combustible energy resources....

Biomass, because it is combustible, is not at the top of the list of options for new energy projects. The record in this docket fails to persuade why a biomass-fueled facility at this time and this place should be approved. Given the many concerns and uncertainties raised by staff, public commenters, and intervenors about the proposed project, the rational and prudent response is for the Commission to deny the application.

II. THE MOST CREDIBLE VOICE ON THE ISSUE OF BIOMASS AVAILABILITY AND COST IS PACKAGING CORPORATION OF AMERICA.

Packaging Corporation of America (“PCA”) is not in WEPCO’s service territory; it takes electricity from WPS. It has no interest in whether or not WEPCO generates more electricity or how, and it has no interest in whether or not Domtar fuels its boilers with biomass or co-generates power with WEPCO. The simplest approach for PCA to take vis-à-vis this docket would be to accept WE Energy’s rosy picture about biomass availability and wait to see what happens -- and that’s likely what WEPCO hoped it would do. But accepting the rosy picture uncritically would be irresponsible.

PCA was receptive and cooperative about the project, working with WEPCO and Domtar for months to understand the project's effect on biomass availability and cost. In the end, though, the data, the reports, and the meetings failed to satisfy PCA's concerns. PCA/Ridley, D17.10 – D17.12.¹ PCA's testimony explains why -- compelling the conclusion that harvesting 370,000 more tons of biomass per year is not immediately feasible without raising biomass prices significantly and, therefore, that the project will have a negative economic impact on other current biomass users, on PCA's Tomahawk mill specifically, and, potentially, on the Tomahawk community generally.

A. PCA Is A Vital Member Of Wisconsin's Paper Industry.

PCA is the fifth largest producer of containerboard and corrugated products in the United States in terms of production capacity. During 2009, it produced 2,258,000 tons of containerboard at four containerboard mills of which about 80% was consumed in PCA's corrugated products plants, 11% was sold to domestic customers, and 9% was sold in the export market. Its corrugated products manufacturing plants sold about 28.9 billion square feet of corrugated products, more commonly known as cardboard boxes. PCA/Ridley, D17.2, ll. 10-17. PCA operates a total of 40 corrugated plants and 28 sheet plants in 26 states in the U.S. Four of those plants are containerboard mills and one of those is in Tomahawk, Wisconsin, with annual production capacities of approximately 516,000 tons. D17.3, ll. 10-14.

The Tomahawk corrugating medium mill is a fully integrated pulp and paper operation. PCA procures wood fiber used in the manufacture of corrugating medium from the north half of

¹Prefiled direct, rebuttal, and surrebuttal testimony are found in Transcript Volume 1. Confidential prefiled direct, rebuttal, and surrebuttal testimony are found in Confidential Transcript Volume 2. All references to prefiled testimony are to Volume 1 unless otherwise indicated.

Wisconsin, parts of Minnesota, the Upper Peninsula of Michigan, and occasionally Canada. PCA obtains the mill's fiber requirements from wood and from recycled fiber sources in the Midwest and regional recyclers.

After debarking, the wood is pulped utilizing a semi-chemical process and then is combined with reprocessed corrugated scrap and old corrugated containers to form fiber slurry pumped to one of two paper machines currently operating at the mill. The fiber slurry is formed into a mat, then dried, cut, and rolled to customer specifications. This process is very energy intensive, using about [REDACTED] of electricity and [REDACTED] MMBTUs of fuel to produce one ton of corrugating medium, a total of [REDACTED] kWh and [REDACTED] MMBTUs annually. D17.3-4; Confidential Vol. 2, D17.3-4. The mill purchases energy from Wisconsin Public Service Corporation. It also generates energy internally with two steam-powered turbine generators and a hydro-electric generating facility. The mill generates steam used in manufacturing and to produce electricity from one of six industrial boilers fueled by spent cooking liquor, natural gas, coal, biomass, fuel oil, and biogas generated in the plant's anaerobic water treatment plant. One boiler of the six is capable of burning cooking liquor, natural gas and fuel oil. One utilizes coal only. Two can burn both coal and biomass. One can burn natural gas. And one is capable of burning natural gas, biogas and fuel oil.

In its operations, the Tomahawk mill's purchases of pulpwood in 2009 were \$ [REDACTED] for [REDACTED] green tons. PCA spends significant amounts on pulpwood for manufacturing as well as biomass for fuel, paying an average of \$ [REDACTED]/green ton for biomass fuel. D17.5, ll. 5-17; Confidential Vol. 2, D17.5, ll. 5-17.

B. PCA Has Used Significant Amounts Of Biomass To Fuel Its Operations For Nearly 40 Years.

PCA has used bark in its fuel boilers at Tomahawk since the 1970s, with woody biomass accounting for 10-20% of the total heat input to Boiler #7 and woody biomass accounting for approximately 90% of the total heat input to Boiler #10. It consumes ██████ green tons of bark and woody biomass annually, a little less than half purchased externally and a little more than half generated internally through debarking, chipping, and screen of wood chips used in manufacturing. D17.6, ll. 9-14.

By purchasing and burning biomass instead of coal, PCA displaces approximately 2,300 tons of SO₂ emissions per year. D17.6, ll. 20-21. The Tomahawk mill has the capacity to consume an additional 10-20,000 green tons per year of woody biomass. D17.7, ll. 2-4. But “Economics dictate that the biomass consumption be limited...The highest cost biomass burned at the Tomahawk mill is equivalent to the cost per MMBTU of coal. Therefore, coal is presently burned in place of potential biomass burning.” PCA/Ridley, D17.7, ll. 4-9.

III. PCA’S OWN DIRECT EXPERIENCE DEMONSTRATES BIOMASS SHORTAGES IN THE PAST AND PREDICTS PRICE INCREASES IN THE FUTURE.

PCA’s concerns were expressed by mill manager Bruce Ridley who has 31 years of experience in the paper making industry, including 3 years as operations manager and 8 years as mill manager at PCA’s Tomahawk mill. PCA/Ridley, D17.1.

A. The Project Will Adversely Affect The Availability And Cost Of Woody Biomass.

Mr. Ridley testified how the WE-Domtar project will adversely impact the Tomahawk facility and its biomass procurement. PCA’s biomass procurement radius significantly overlaps with the proposed 75-mile WE/Domtar procurement radius. PCA/Ridley, D17.7, ll. 10-14; see D17.29, Figure 1. Moreover, with forest density south of Highway 29 minimal, most of the

biomass harvest would have to come from the North. “I continue to believe that, if this project is implemented as currently proposed, it will adversely impact our current biomass fuel procurement and our pulpwood procurement.” PCA/Ridley, DS.17.7, ll. 15-18.

Wood supply is not infinite. The current supply of biomass is already a limited resource. “Even today, biomass fuel supply frequently becomes unavailable in May and June because of the nursery / landscaping season. It also becomes unavailable over the Christmas holiday because of the start of the heating season as homeowners start burning wood in their fireplaces or wood stoves.” During those times, PCA must burn more coal to compensate for the inadequate supply of biomass fuel. PCA/Ridley, D17.8 – 17.9. An increased demand of 370,000 tons per year is bound to adversely affect future biomass supply to PCA’s detriment.

Q. Is the proposed project likely to improve this situation?

A. No, definitely not. Since the current availability of biomass and pulpwood is already limited and the market for those resources is very competitive, the proposed project, with the projected increase in demand of 370,000 tons annually, will only create more pressure on the market.

PCA/Ridley, D17.9, ll. 8-12.

Decreasing supply is one thing. But increasing pressure on the market for a finite resource also will affect price.

We expect that, if the project proceeds, pulpwood and sawmill chips will be more extensively used for biomass fuel. While this may not be intended, it is what we observed as a result of the Ashland Biomass Plant. If the proposed Domtar project were to commit capital resources and crews to harvest its additional biomass requirements, then the current supply demand balance should not be bothered; it would still have a price increase effect on stumpage. But since capital is not being supplied for additional harvesting equipment, then wood producers will only invest in that capital if they can obtain an adequate return on that

investment. This won't occur unless they can charge higher prices for biomass fuel, pulpwood and sawmill chips.

PCA/Ridley, D17.9, ll. 15-21; D17.10, ll. 1-2.

A decreased supply and higher prices are bad enough. Another unintended consequence of the WE/Domtar proposal is to foster unfair competition:

We are concerned that, because the project is co-sponsored by WEPCO, a utility with a guaranteed market, long term contracts could be offered to suppliers -- 10 years long or longer. Such long-term contracts not only could lock up the suppliers, but also could offer significant higher prices over the current market, thereby limiting the resources available to other markets and driving up prices. By comparison, because of competitiveness and cyclicalitiy in the paper market, we cannot offer long-term contracts on nearly as favorable terms as a utility-backed project can, or even at all. Thus the utility's involvement in this project creates an unlevel playing field for paper industry participants competing for the same raw materials.

PCA/Ridley, D17.10, ll. 5-13.

What is particularly unfair about the proposal is the ratepayer component of the equation. WEPCO would be able to pass on to ratepayers any additional costs of the biomass fuel through its electric rate cases and fuel adjustment cases. By comparison, market forces in the extremely competitive paper industry prevent PCA and other paper companies from passing increasing costs to customers. PCA/Ridley, D17.10, ll. 14-18.

C. The Project Will Adversely Affect Environmental And Renewable Energy Goals.

In his testimony, Mr. Ridley explained the other hidden unintended environmental consequences of approving the WE/Domtar project. First, the increasing cost of woody biomass will cause the Tomahawk Mill to burn less biomass and more coal, thus increasing SO₂ emissions. D-17.8, ll. 1-4. Second, burning less biomass at the mill will reduce Wisconsin Public

Service Corporation's green energy portfolio. WPS and PCA have a green energy agreement whereby WPS purchases energy produced at the Tomahawk mill from renewable energy sources such as purchased biomass, internally generated biomass, black liquor, and biogas burning. WPS includes in its renewable energy portfolio the renewable energy it purchases from PCA under this agreement. In 2009, for example, WPS purchased [REDACTED] MKWH of energy pursuant to its agreement with PCA and approximately 30% of that amount was produced from purchased woody biomass. D17.8, ll. 15-18; Confidential Vol. 2, D17.8, ll. 15-18. Thus, if the Tomahawk mill uses less biomass because of higher biomass prices, WPS will purchase less renewable energy under the PCA/WPS contract, reducing WPS' renewable energy portfolio. PCA/Ridley, D17.8, ll. 5-18.

D. The Project Will Adversely Affect The Economy Of The Greater Tomahawk Area.

Mr. Ridley also testified about the project's economic impact on future Tomahawk operations and the concomitant impact on the Tomahawk community.

PCA, which employs 426 full-time, is the largest employer in the Tomahawk vicinity and the second largest employer in Lincoln County. The mill also indirectly affects the employment of many construction and mechanical contractors, security services, loggers and pulpwood truckers, rail and trucking companies, suppliers of industrial parts, heavy equipment, chemicals, and other locally employed individuals. D17.13, ll. 1-4. PCA is an active and productive corporate citizen with direct involvement in many civic affairs, a \$346,000 property tax contribution annually, and \$ [REDACTED] in payroll and benefits annually. D17.13, ll. 14-15; Confidential Vol. 2, D17.13, ll. 14-15. A threat to the competitiveness of this long-time company would have dire economic consequences in the region.

Q. In your opinion, would the proposed project have an adverse impact on the economic well-being of the greater Tomahawk, Lincoln County area?

A. Yes. The proposed project could ultimately significantly increase our costs, which will have a direct impact on profitability and viability of the plant, as explained above and in the testimony of Mr. Radcliffe. This is bound to indirectly affect employment and community involvement because our facility already is such a predominant employer and influential corporate citizen.

PCA/Ridley, D17.13, ll. 19; D17.14, ll. 1-5.

Not surprisingly, the record in this case is replete with comments from local Rothschild residents favoring the project because of the belief that it will create jobs. No one disputes the importance of local job creation but the Commission is charged with considering this issue, holistically and proportionally, beyond its local impact.

We realize that Domtar employs a lot of people but, in relative terms, it does not register as great an economic impact in the greater Wausau area as PCA does in the smaller community of Tomahawk. Thus, any positive economic impact to be realized by Domtar's adding a biofueled boiler to its operation is not likely to be as great as the negative impact of PCA incurring greater biomass procurement costs.

D17.14, ll. 5-10. Approving one project that may create some temporary construction jobs gains nothing if the project threatens many more permanent jobs a stone's throw away.

IV. PCA's EXPERT TESTIMONY SUBSTANTIATES PCA'S CONCERNS.

PCA's expert witness, Samuel Radcliffe, made clear that WEPCO has failed to sustain its burden of proof on the issue of biomass supply and cost.

A. Mr. Radcliffe's Expertise Is Pertinent And Well Documented.

Mr. Radcliffe's experience and expertise enhance the credibility of his testimony in this case. He earned a bachelor's degree from Virginia Polytechnic Institute in 1975 and a master's

in forest economics from UC-Berkeley in 1977. He was employed by George Banzhaf & Company since 1980 as the chief timber industry analyst and served as president for 17 years. When George Banzhaf & Company purchased Prentiss & Carlisle in 2005, he joined as vice president. PCA/Radcliffe, D17.15-16. He oversees Prentiss & Carlisle's Lake States operations and leads the company's valuation team. He provides high-level analytical services to clients on timber inventory, timber supply/demand modeling, investment counseling, and public policy analysis.

Prentiss & Carlisle, operating for more than 85 years, manages roughly 1.5 million acres of private timberland in Maine, Michigan, and Quebec, as well as Wisconsin, providing on-ground forestry, planning, administration, and accounting. D17.15, ll. 9-14.² The company markets more than 1 million tons of roundwood and biomass. It provides full-service forest harvesting operation activities and cost/price expertise:

Our forest operations business offers harvesting, road and bridge building and transportation services. The company owns and operates four cut-to-length (CTL) harvesting systems and three feller-buncher harvesting systems, along with tractors, trucks, chippers and woodyards. The forestry consulting business involves timber inventory implementation and analysis, supply modeling, growth and yield modeling, and GIS mapping. We provide appraisals, valuation modeling, investment counseling, timber price indexing, and market data research. We publish Timber Mart North, a subscription service covering stumpage and delivered wood prices in Michigan, Minnesota, and Wisconsin.

PCA/Radcliffe, D17.16, ll. 2-10.

Mr. Radcliffe is fully engaged in the forestry profession, now a Fellow of the Society of American Foresters, the national scientific and educational organization representing the

² A recent post-hearing acquisition has expanded responsibility to 1.8 million acres, including New Hampshire, New York, and Vermont.

forestry profession in the United States. Within that organization, he has served as forestry policy specialist on the Editorial Board of the *Journal of Forestry*, chair of the Wisconsin Society of American Foresters, and member of the first Task Force on Strategic Planning. D17.17, ll. 2-6. He also served as a member of the Technical Advisory Committee for the Lake States Forest Assessment, the Scientific Roundtable on Socio-Economic Issues for the Wisconsin National Forests, and the National Blue Ribbon Panel on Forest Inventory and Analysis. He is a federally certified general appraiser in Wisconsin as well as other states. D17.17, ll. 9-13. He has authored 21 articles, including in the *Journal of Forestry*, the peer-reviewed journal of the Society of American Foresters, and presented 40 papers at various conferences. His curriculum vitae reflects profound expertise on the topic at hand. *See generally* Exhibit 17.1, pp. 19-25 (Consultant Qualifications).

B. Mr. Radcliffe's Analysis Of The Five Biomass Reports Revealed Their Shortcomings And Projected Likely Adverse Impacts.

Mr. Radcliffe was not retained to prepare a complete biomass supply study. As explained above, WEPCO and Domtar tried to persuade PCA to take a “don’t worry” attitude about biomass availability. PCA was receptive and cooperative but, finally, unpersuaded. Only then did it retain Mr. Radcliffe, with insufficient time to prepare an independent supply study. Mr. Radcliffe’s assignment thus was limited “to review[ing] material already filed in this docket to develop opinions about the economic availability of the volume of woody biomass required for the proposed plant; and the implications for PCA’s biomass procurement program and impacts on other current users of biomass in Wisconsin should the plant be constructed as proposed.” D17.18, ll. 9-13; D17.19, ll. 14-18.

Mr. Radcliffe reviewed the five biomass studies WEPCO submitted with its application:

DOCUMENT TITLE	PSC REF #
WE Energies Wisconsin Biomass Concentration and Availability Scoping, December 2008. Energy Center of Wisconsin.	128368
WE Energies Biomass Energy Strategy: Strategy for Siting and Fueling 50 MW of Biomass Generation in Wisconsin, November 20, 2008. ScottMadden Management Consultants.	128368
Forest Biomass Resource Analysis, January 2009. Steigerwaldt Land Services, Inc.	128368
Biomass Survey Report, June 2009. RMT, Inc.	128367
Comprehensive Resource Analysis, February 26, 2010. Donald R. Peterson and Heather L. Ross, Renewable Resource Solutions LLC.	136213

In addition, Mr. Radcliffe reviewed WE’s CA application and statistical data on Wisconsin’s wood harvest³ and relied on previous consulting work in biomass and on PCMC colleagues. PCA/Radcliffe, D17.20, ll. 10-14.

For whatever reason, the five biomass studies apparently provided “no analysis of whether this existing infrastructure will be sufficient to handle both the current demand plus the proposed new demands for logging, chipping, and trucking services. There is no analysis of the costs of harvesting, gathering, chipping, and trucking forest residues. Absent these analyses, I would not consider logistics and economics to be adequately considered.” PCA/Radcliffe, S17.5, ll. 7-11; S17.6, ll. 7-9.

Mr. Radcliffe’s review and analysis led him to the conclusion that

all of the reports lead to a misleading conclusion about the sufficiency of the forest harvest residue resources to meet the new demand created by the proposed WE Energies project. None of the reports adequately considered the economics of harvesting biomass from small tracts, or the logistics and economics of collecting harvest residues given the machinery mix that is most common in the Wisconsin logging industry today.

³ Reading, William H., IV; Whipple, James W. 2007. Wisconsin Timber Industry: An Assessment of Timber Product and Use in 2003. Resource Bull. NRS-19. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Stations. 93 pp. Also cited in Endnotes to Exhibit 17.1

D17.21, ll. 16-21; D17.22, ll. 1-2.

In terms of new biomass demand, the project will effectively double the current combined biomass consumption of PCA and Domtar. D17.22, ll. 5-8. This sudden new demand will seriously affect two interrelated concepts – 1. the timber industry’s ability to handle the new demand for biomass, and 2. pulpwood prices. Remediating the first concept will take time and money, which in turn will affect price.

V. THE EXISTING TIMBER HARVESTING INFRASTRUCTURE IS INADEQUATE TO THE TASK.

Mr. Radcliffe testified that Wisconsin’s timber harvesting infrastructure cannot handle the demand in the short-term and can handle the demand in the long-term only if the industry makes significant changes. “The timber harvesting infrastructure in Wisconsin is not at all prepared to shift from virtually no demand for forest harvest residues to a new annual demand for 370,000 tons for the WE project, plus the demand of other proposed projects in the region.”

D17.22, ll. 9-14.

The industry faces three obstacles:

- The current mix of logging machinery – mechanized cut-to-length (CTL) technology -- is not well-suited to biomass recovery.
- Harvesting from small tracts is uneconomical.
- The supply of new chipping and trucking capacity is not sufficient.

A. CTL Is Ill-Suited To Biomass Recovery.

PCA harvests 75% of its roundwood using CTL, Domtar 85%. PCA/Radcliffe, D17.23, ll. 1-2; Domtar/Plunkett, R4.7, ll. 7-9. CTL offers greater operational flexibility and lower environmental impacts but it is not well-suited to biomass recovery for several reasons. Because CTL performs topping, de-limbing, and merchandising operations at the stump, it

requires a “second pass” to gather logging residues scattered on the forest floor and transport send them to the yard for chipping. This adds cost. Also the residue typically contains dirt and rocks because the CTL system uses residue as an in-woods machine mat; the dirt and rocks wear on the chipper knives. D17.24, ll. 7-10. Increasingly, new machines are being developed to facilitate residue collection but they are expensive single purpose machines and for that reason have not been well accepted without very profitable markets for fuel chips. D17.24, ll. 1-6.

Indeed, Domtar’s own expert, Don Peterson, has opined about the inadequacy of CTL for biomass removal, describing the conventional view:

Cut-to-Length – Mechanized

With this [CTL] becoming the main timber harvesting system in the Lake States, extracting logging residue from these operations in an economical fashion will become critical. Forwarding the residue with a conventional forwarder is very inefficient because the amount of space that the residue takes up compared to its weight adds considerable cost to the process.

Potential solutions would be:

- A forwarder with a larger capacity bunk specifically for residue extraction. This, however, creates other issues such as size of equipment for operating in selective cut areas and the expense of having another piece of equipment.
- In-woods forwarder mounted chipping systems (a forwarder with both a chipper mounted on it as well as a separate chip bin) would position the weight of the logging residue into more concentrated areas and would eliminate the high mass low weight issue. However, this could create a situation where the chipper would not be functioning for most of the time and would just be additional weight on the forwarder.
- Bundler systems currently need very specific situations where it would prove to be economical. This could change drastically, however, with the increase in the price of alternative fuels, where the price of chipping would no longer be a prohibitive cost."

Exhibit 17.2 (Donald R. Peterson, "The Real Cost of Extracting Logging Residue Study," Report to the Lumberjack RC&D, September 2005, p. 16). Mr. Peterson trade journal article and Mr. Radcliffe's surrebuttal testimony effectively nullified a contrary position taken by WEPCO witness, Robert Govett, that CTL was not an obstacle to biomass harvesting. See R.1-56 – R.1-58.

To cure the inadequacy of CTL, Wisconsin is not likely to revert back to the old Whole-Tree-Logging (WTL) system because there's no sufficient economic incentive to do so. D17.24, ll. 13-15. That means the CTL system needs to adjust "to incorporate a harvest residue supply chain, which is virtually non-existent" and would require significant capital investment and fundamental changes throughout the supply chain, from landowner to biomass purchaser. D17.24, ll. 17-20.

Mr. Radcliffe disputed Mr. Govett's opinion that, if 25% of the harvest in northern Wisconsin is accomplished by whole-tree logging (WTL), then 25% of forest residues would easily be available for a biomass facility. "Mr. Govett's logic is that all of the forest residues generated would be harvestable. But all of the studies agree that 35% or more of residues would be left on site to meet biomass harvesting guidelines. If you take 65% of 15% (Domtar's estimate), that indicates that less than 10% of residues generated might be available. That is a completely different conclusion than any of the five studies reached, and is before making allowances for other factors such as haul distances, tract size, owner intentions, chipper availability, etc." PCA/Radcliffe, S17.5, ll. 12-21; S17.6, ll. 1-3.

B. Small Tract Recovery Is Not Economical.

Harvesting logging residue from small tracts, as would be necessary, is uneconomical often because the move-in costs of a chipper are fixed costs to be spread over the biomass removal volume, making the small scale biomass harvesting more expensive. Mr. Radcliffe noted that the five biomass studies failed to adjust their available biomass volume estimates to consider the inefficiencies of harvesting on small tracts. Prentiss & Carlisle's extensive experience as forest managers demonstrates the appropriate economies of scale, recommending a minimum harvest of 300 tons per site from minimum 50-acre harvest blocks.

PCMC's experience in Maine is that, unless a minimum of 10 loads or 300 tons can be produced from a given job site, biomass removal is not economical. It would take roughly 1,000 tons of roundwood to generate 300 tons of biomass. If average removals are 20 tons per acre, the minimum harvest block would have to be 50 acres in order to produce 1,000 tons of roundwood. This rule and example are based on a one-pass system; the minimum would increase for a more costly two-pass system.

PCA/Radcliffe, D17.25, ll. 6-11 (emphasis added).

Mr. Radcliffe effectively surrebutted Mr. Govett's rebuttal testimony (R1.58-60) listing so-called advantages to harvesting biomass from smaller parcels. Mr. Radcliffe noted that parcel size impacts the cost of harvesting biomass because it limits the volume of residue generated and a minimal volume is required to offset the move-in cost of the chipper. He observed that none of the factors Mr. Govett cited, except for one, had anything to do with volume. For example, it is not necessarily true, as Mr. Govett suggested, that smaller parcels have easier access. "Large parcels can have very good access, and small parcels can have very poor access. There is nothing in the size of a parcel *per se* that creates good or poor access conditions."

PCA/Radcliffe, S17.8, ll. 4-9. Also, while some landowners prefer a park-like residual forest and therefore favor biomass harvesting, as Mr. Govett suggested, it is equally true that many

landowners prefer to leave tree tops for wildlife food and cover and for site and regeneration protection. PCA/Radcliffe, S17.8, ll. 10-13.

The one factor Mr. Govett cited relating to volume was the concept of “bundling” numerous small parcels to take advantage of economies of scale. Although Mr. Radcliffe acknowledged that bundling has some potential, “it is hardly the concept on which to base a secure fuel supply.” S17.8, ll. 14-21; S17.9, ll. 1-2.

In a final attempt to rebut Mr. Radcliffe’s conclusion that harvesting fewer than 300 tons per site is uneconomical, WEPCO presented Mr. Radcliffe -- on the witness stand -- with Xcel Energy’s quarterly fuel report. Exhibit 17.4 reported that Xcel experienced a number of deliveries of fewer than 300 tons. Offering Exhibit 17.4 is another example of WEPCO’s effort to draw premature conclusions from inadequate data and analysis. A closer review of Exhibit 17.4 reveals that:

- 1) nearly all of the deliveries were within 70% of 300 tons, easily explained by unusually favorable cost situations or extenuating circumstances;
- 2) at least one of the 6 small deliveries clearly came from a tree service working on residential properties, not at all applicable or transferable to the situation before the Commission;
- 3) the dry data reveals nothing about the details of these deliveries in terms of the operating situation, whether it was logging residue or whole-tree chips, how much Xcel paid, or even if Xcel received the total output from the logging job (as the chips from a single job can go to different purchasers);
- 4) Xcel reported an average delivery of 670 tons, well in excess of the 300 minimum Mr. Radcliffe recommended;
- 5) Xcel reported that 90% of the total volume came from jobs that produced more than 300 tons.

Exhibit 17.4 actually supports rather than rebuts Mr. Radcliffe’s testimony about typical conditions and the economic drag of harvesting on small tracts.

C. The Project Will Require New Chipping Equipment.

Apart from the inadequacy of CTL and the inefficiencies of harvesting on small tracts, the demand for 370,000 more tons of biomass also will require more industry capacity, including the need for new chippers and chip vans since in-woods chipping is not currently widespread. D17.25, ll. 19-21. Mr. Radcliffe estimates the need for an additional 5-7 chippers and 15-25 chip vans. D-17.25 – 17.26. That investment is not likely to occur without assurances of a profitable price. *Id.*

Although Mr. Govett challenged this new equipment estimate as “largely pulled from thin air,” Mr. Radcliffe actually based his estimate on several conventional production assumptions. While acknowledging the difficulty of determining whether or not there is current excess capacity, Mr. Radcliffe noted that the availability of excess capacity to entirely meet this new demand is highly unlikely, so some new investment will be required. Moreover, as Mr. Radcliffe pointed out, Domtar’s expert witness, Don Peterson, essentially agreed:

"For many logging operations involved in biomass production, a chipper is a piece of machinery that is used on a sporadic basis, with an investment that can range anywhere from \$20,000 - \$250,000+. If this equipment is left sitting, it is a liability." Exhibit 17.2 (“The Real Cost of Extracting Logging Residue Study,” page 16). Logging industry members in today’s economic climate are not likely to be “keen on owning liabilities.” PCA/Radcliffe, S17.9, ll. 17-19.

In addition to the need for investment in new equipment, the shift from a non-existent industry to a smooth-running industry will take time – approximately 5-8 years in Mr. Radcliffe’s opinion. D17.27, ll. 3-12. In the meantime, the transition could foster several undesirable forestry practices:

To make a complete shift from a near non-existent to a smooth-running industry will likely take a minimum of 5-8 years,

and perhaps longer, to reach stability. In the absence of such change, or during the transition, it would seem that the simplest and perhaps only alternative for WE is to procure pulpwood to be chipped as fuel. This obviously will raise the cost not only of pulpwood but also of biomass across the region. The scale of operations may also result in unforeseen forest management impacts, e.g., clearcutting of northern hardwood stands for whole tree chips.

D17.27, ll. 6-12.

Mr. Govett and Mr. Peterson were unable to substantiate their objection to Mr. Radcliffe's 5-8 year timetable, except to state that Mr. Radcliffe is "very unfamiliar with the ingenuity and adaptability of the logging industry in Wisconsin." R4.14-R4.15. Yet, neither Mr. Govett nor Mr. Peterson offered any substantive evidence to refute the timetable or to support their own shorter estimate.

In truth, no future prediction -- whether short term or 5-8 years -- is "provable" today. Yet, Mr. Radcliffe's estimate of a 5-8 year time period rests on a sound three-pronged basis derived from his nearly 35 years as a leader in the industry.

(1) It is true that there have been significant adaptations in the history of the Wisconsin logging industry, but these transitions have not occurred overnight. The shift from handcutters to mechanized operations took a period of years and so did the transition from whole-tree systems to cut-to-length systems. These were transitions that were motivated by opportunities for significant improvements in productivity and profitability.

(2) By contrast, under current market conditions, the transition to forest residue harvesting does not offer a promise of significant new profitability and may, in fact, reduce productivity in the harvest of traditional roundwood products.

(3) This "opportunity" comes at a time of very poor and uncertain economic conditions, which most economists expect to be prevalent for years.

PCA/Radcliffe, S.17.10 – S17.11.

VI. THE PROJECT WILL CAUSE PRICES TO INCREASE.

Apart from the lag time required to permit the industry to handle twice the current demand, Mr. Radcliffe predicts a significant price increase as well. Current pulpwood consumers pay a range of \$20 - \$30 per ton according to the ScottMadden report and Prentiss & Carlisle surveys. Mr. Radcliffe estimated that the range will increase to \$31-\$35 per ton, at least a 30% price increase in the region.

Even if the required system-wide changes could be accomplished overnight, we estimate that the high cost of gathering CTL residues would result in a weighted average (WTL @ 25%, and CTL @ 75%) delivered cost to WE of \$31-35 per ton. This range reflects the variability that could be experienced across the region, but the midpoint of \$33 represents an increase of roughly 30% over typical delivered wood residue costs in the region today (based on the range of \$20-\$30 cited in the ScottMadden report and surveys conducted by PCMC). If the procurement of pulpwood for chips is required, then the average delivered cost would rise to \$42-44 because of the increased cost of stumpage.

D17.27, ll. 5-21; D17.28, ll. 1-2.

This cost increase would affect not just WE Energies (the causal agent), but all woody biomass consumers. In particular, the project will affect PCA whose procurement area significantly overlaps with the Domtar's procurement area. D17.29, Figure 1.

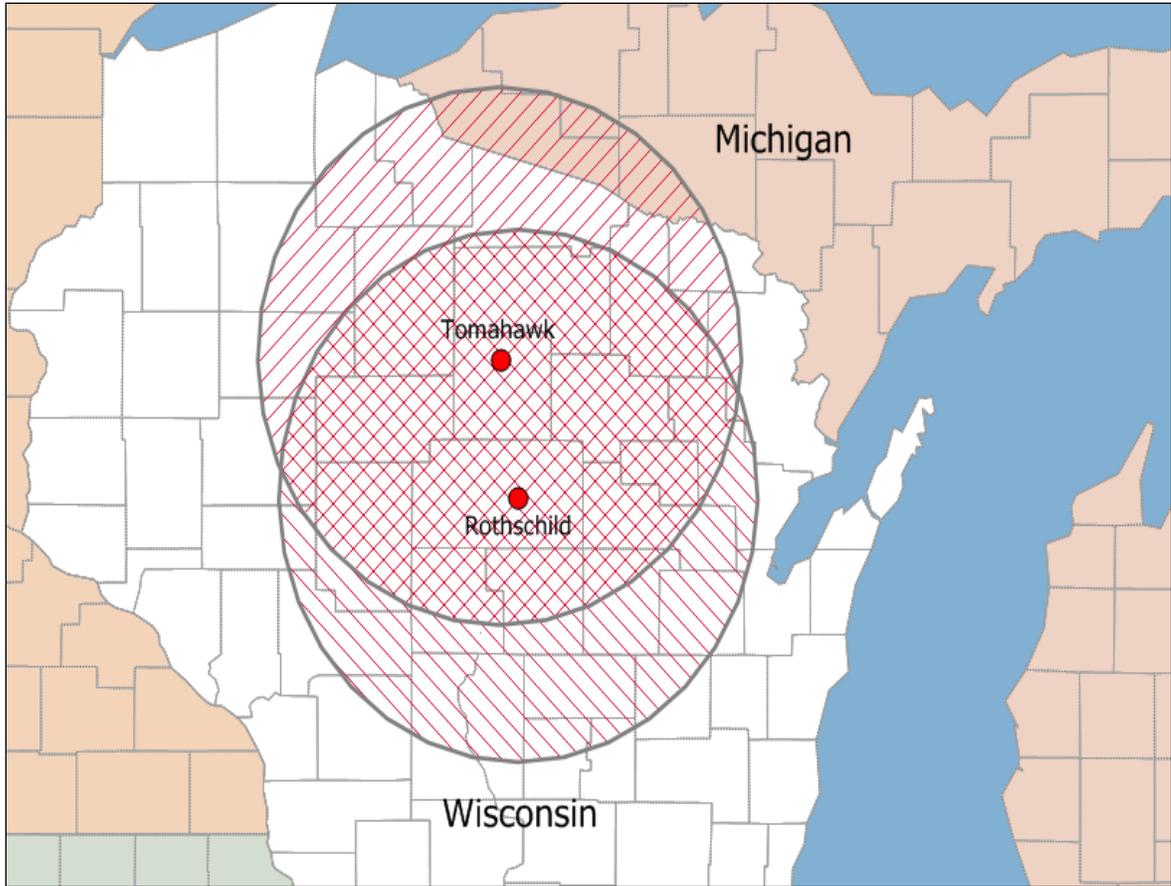


Figure 1. Location of the WE Project at Rothschild and the PCA Paper Mill at Tomahawk, with Respective 75-mile Radiuses.

The overlap is even more profound than arbitrary radii would suggest because most of the biomass sources are located north of Rothschild. “Therefore, we would expect PCA’s biomass procurement operations to be acutely impacted, and we would also expect PCA’s biomass and/or pulpwood costs to rise significantly.” D17.29, ll. 6-9. Moreover, all pulpwood and biomass users across the region will be affected because of the scale of the project. D17.30, ll. 1-3.

How this will occur is obvious. Domtar will employ a cost minimization strategy, in which Domtar will procure biomass in the form of lower cost nearby mill residues and postpone the use of more distant forest residues until the marginal price of those residues drops below

the marginal price of mill residues. PCA/Radcliffe, S17.11, ll. 6-14. PCA is currently procuring residues from mills in zones near Rothschild. Domtar will be able to outbid PCA for those residues due to location, and PCA therefore will have to resort to higher cost sources of biomass. S17.11, ll. 14-17.

In contrast, Mr. Govett's claim that the additional demand generated by the Rothschild project would drive down biomass prices is nonsensical. Perhaps the Rothschild project can motivate greater biomass production, but it can do so only by paying very attractive prices. PCA/Radcliffe, S17.12 – S17.13.

VII. WEPCO's BIOMASS EXPERT LACKS CREDIBILITY.

It is telling that Mr. Govett has no background in forest management. His curriculum vitae includes among other things studies conducted in Korea and Chile, but curiously lacks experience in actual forest management, harvesting, and the logistics of moving wood from the Wisconsin forest to the biomass plant. See Exhibit 1.10 (Curriculum Vitae). Lacking substantial experience in harvesting techniques and management practices renders his critique of Mr. Radcliffe's analysis unpersuasive.

The credibility of Mr. Govett's testimony in this proceeding also is undermined by its inconsistency with his testimony in the Xcel BayFront biomass project, Docket 4220-CE-169. There he testified as follows:

The application plans by the Bay Front operation to consume a significantly increased volume of this finite resource needs to be carefully considered. Its potential impacts on the overall demand for the limited supply of this material, and the resulting cost implications, risk a huge impact on the state's key forest products industry.

4220-CE-169, Tr. p. 317.

He further asserted in that docket that the increase in demand Xcel proposed (about 2/3 the increase attributable to the WE Dometar project) would have a significant impact on biomass prices:

There is an enormous problem with this assertion of historic cost increases being “*anomalous*” since “...*the Company’s demand for biomass for boilers #1 and #2 has leveled off and is not expected to increase.*” This ignores the fact that this logic is being used to justify fuel cost projections for an additional biomass fueled boiler that should roughly double the current biomass demand if the project is approved.

If it was the Company’s intention to decommission boilers #1 and #2, as the #5 boiler-gasifier is brought on-line, with no significant net increases in biomass consumption, then this logic might make some sense. But it makes little difference if the demand for biomass by the #1 and #2 boilers has “leveled off” when the demand for the plant, in total, is projected to more than double as a result of the proposed project.

The company indicates the current biomass consumption for boilers #1 and #2 combined is about 210,000 tons annually, and projects that the #5 boiler, with biomass gasifier conversion, will require an additional 200,000 tons to 250,000 tons, for a combined total of 410,000 tons to 460,000 tons of annual biomass demand.

This increase in biomass demand is clearly on a par with the historic Bay Front increase in demand for biomass that impacted the run-up in biomass prices from 2005 to 2008.

Consequently, it seems ridiculous to assume that this historic level of price increases should be deemed to be “*anomalous.*” Rather, that history of price increase could more reasonably serve as perhaps the best indicator of what should be expected when the utility is essentially repeating history with a large increase in annual consumption. The effect of fuel costs could be even more pronounced where Bay Front already consumes such a large volume of biomass and other companies, such as pellet mills and other boiler users, have also been increasing consumption of that finite resource in recent years and other expansions being planned.

4220-CE-169, Transcript Vol. 1, p. 320, ll. 9-26; p. 321, ll. 1-7.

Mr. Govett followed his discussion of increased demand for biomass by several more pages of testimony suggesting significant price increases due to the new demand. *Id.*, at pp. 321-324.

Mr. Govett's prior testimony in opposition in the Xcel docket conflicts with his testimony in support in this docket. He attempted to distinguish his support in this case on the ground that the WE/Domtar facility is an integrated co-generation facility rather than a stand-alone facility, R.65, ll. 17-23, but his effort is unconvincing. Whether the increased demand for biomass is due to a new stand-alone facility or to an integrated facility has no bearing on the ultimate effect on woody biomass prices. At either type of facility, increased demand will increase the price of woody biomass. Mr. Govett got it right the first time.

VIII. DNR, TOO, HAS CONCERNS ABOUT THE PROJECT'S IMPACT ON FOREST ECOLOGY.

DNR witness Joe Kovach, like Mr. Radcliffe, has hands-on forestry management experience. With a bachelor's and master's in forestry from Penn State and Michigan Tech, he is DNR's principal administrative and technical staff expert for Wisconsin's forest ecology and silviculture programs. He develops policies, programs, and procedures, including implementation of ecological tools and silviculture techniques. He has at least 15 years of tree management experience.

Mr. Kovach commented on the PSC's environmental assessment, expressing concern about biomass availability:

While the biomass harvesting measures proposed by Domtar and WEPCO for this cogeneration plant may be adequate to avoid forest impacts, the cumulative large-scale landscape effects of long-term biomass harvesting for an increasing number of generation and manufacturing uses has the potential to seriously affect the quality and sustainability of Wisconsin forests. An adaptive resource management approach that incorporates regulatory agency and industry cooperation and research to

provide information and feedback for improving harvest methods, solving supply and forest regeneration issues and reducing the potential for long-term adverse impacts should be considered and funded as more biomass-related projects are approved.

Exhibit 13.1.

Mr. Kovach helped draft Wisconsin's Forestland Woody Biomass Harvesting Guidelines and helped develop the implementation plan. D13.141. The guidelines guide forest resource managers, loggers, equipment operators, contractors, and landowners on the sustainable harvest of woody biomass from forested areas within generally accept forestry practices. "The guidelines are designed to ensure that woody biomass is a sustainable forest product and that increased extraction does not compromise the long-time productivity of Wisconsin's forestland." D13.141, ll. 21-23.

Kovach cautions about over-reliance on the Guidelines because they were based on "limited scientific information available at the time they were developed." Transcript Vol. 5, page 353, ll. 9-13. "I think we're fairly comfortable at the stand level that they are decent guidelines. I think where the questions really come into play are if intensive harvests like that were implemented in relatively short period over relatively large landscapes, there could be impacts on ecosystem processes, particularly biodiversity; but there really isn't a lot of research to support, you know, what would be the outcomes there. But there are certainly concerns at the landscape level and we acknowledge that, that we were not able to address some of those landscape questions in the initial guidelines." Transcript Vol. 5, pp. 358-59, ll. 15-25, 1-2.

Q. And I take it that you share those concerns that large-scale, long-term harvesting of forest residues even in compliance with the current Wisconsin Biomass Harvesting Guidelines could adversely affect the sustainability or biodiversity of Wisconsin's forests and woodlands?

A. If implemented in large scales across large landscapes, yes, there is a concern.

Transcript Vol. 5, p. 359, ll. 3-10

Q. Would it be accurate to say that failing to impose conditions on large-scale biomass harvesting that are sufficient to assure the long-term sustainability and biodiversity of Wisconsin's forested lands could have unpredictable large-scale impacts with large ecological, social or financial impacts?

A. The statement is fair particularly because of, you know, "could have."

For this reason, relying on guidelines developed in 2005 is not prudent. The DNR agrees the guidelines are not adequate and need to be updated for a variety of reasons. Like so many other things involved in this application, the concerns have not been adequately studied or resolved.

A. There are concerns on both sides.

Q. And as we sit here today, those concerns have not yet been resolved, correct?

A. ...They have not been resolved.

p. 360, p. 10-16.

CONCLUSION

If the only ground for approving a co-generation plant is that it uses biomass for fuel, then there may be no limit on the number of certificates of authority the Commission may be asked to approve. At some point the Commission must quantify and evaluate the project's impact on the availability and cost of woody resources, the cost of alternatives, and the impact on other biomass users committed to biomass long before utilities.

This application suffers from impacts not sufficiently known, studied, evaluated, or analyzed -- among them, the effect of constructing a cogeneration plant across the street from a school, the effect of harvesting 370,000 more tons of woody biomass per year, and the effect on ratepayers. One approach might be "let's approve the application and see what happens." But here, such an imprudent decision is likely to trigger a chain of events negatively affecting a number of interrelated resources, entities, and populations. WEPCO doesn't even need the additional generation and has other viable options. It has failed to sustain its burden of proving that the Domtar biomass project is reasonable or necessary.

Respectfully submitted,

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