BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Application of Cargill Fertilizer, Inc to engage in self-service wheeling of waste heat cogenerated power to, from and between points within Tampa Electric Company's service area.	Docket No. 020898-EQ Filed: October 3, 2003

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REBUTTAL TESTIMONY OF

ROGER F. FERNANDEZ

ON BEHALF OF CARGILL FERTILIZER, INC.

Q. Please state your name, address and occupation.

A. My name is Roger Fernandez. My address is 8813 US Highway 41 South, Riverview, Florida 33569. I am the Utilities Superintendent for Cargill Fertilizer, Inc.

Q. Have you previously filed testimony in this docket?

A. Yes. I filed direct testimony on behalf of Cargill on September 3, 2003.

Q. What is the nature of this prepared testimony?

A. I am filing this testimony to rebut the opinions offered by Mr. Ashburn, Tampa Electric's Director of Pricing and Financial Analysis.

Q. Which of Mr. Ashburn's opinions do you intend to refute?

Mr. Ashburn begins his testimony with the superficial and inaccurate conclusion that Cargill self service wheeling (SSW) has been and will "*continue to be non-cost effective in all but the most wildly unrealistic scenarios.*" I will debunk the assertion by refuting the key pillars of its foundation which are that: 1) historical precedent militates against SSW; 2) the environmental and fuel saving benefits of cogeneration must be disregarded when evaluating SSW; 3) waste heat is not renewable energy; 4) although Cargill hasn't gamed the system, it possibly can; 5) Cargill SSW is a ruse to enable Cargill to violate TECo's non compete agreement with Progress Energy; 6) Cargill participated in the development of TECo's pilot study procedures and reporting forms and should be bound by it; 7) the RIM and TRC tests prepared by TECo at Commission staff request comply with Commission standards. Finally and most importantly, I will conclude with the fact that during pilot study period, even the defective TECo pilot study, shows

that ratepayers benefited over the full term of the study. The study further shows that customers received a benefit in six out of the eight quarters of the study.

Q. What was your overall impression of Mr. Ashburn's testimony?

A. In general, even though it was 82 pages long, plus another 50+ in exhibits, it seemed to be aimed at confusing rather than clarifying and addressing issues.

NO RELEVANT HISTORICAL PRECEDENT

Q. What do you mean by confusing?

A. Mr. Ashburn has several pages about the history of SSW applications. He compares Cargill's present day application to ones filed fifteen or twenty years ago before he mentions that the law and the rule that is to be used to evaluate SSW has changed.

The changes were significant. Federal law required TECo to open its transmission system and state law changes required electric utilities to allow SSW if it wasn't likely to cause rates to go up or hurt reliability. The Commission rule change established the methodology to be used for evaluating SSW. Mr. Ashburn acknowledges that his quarterly reports on Cargill's pilot study didn't follow the methodology until the Commission Staff requested that it be done.

Current law and rules require that each application be evaluated on its own merits. Old cases considered under different facts, different laws and a different rule have little significance today.

Halfway through his testimony, Mr. Ashburn states: "Cargill's self-service wheeling case is different from those considered by the commission in the past."

It made me wonder why it was necessary to recite obsolete history. I concluded that it was to confuse the issue by diverting attention from the facts of this case.

Q. Were any of the cases Mr. Ashburn mentioned in his testimony TECo cases?

A. In his deposition, Mr. Ashburn acknowledged that TECo had only presented one case to the Commission -- the case of Cargill's predecessor, Grace. In that case, he acknowledged that after Grace's petition was denied, it duplicated TECo's transmission line by building one of its own. In my opinion, that case had three bad results. Existing transmission lines were duplicated in contravention of state policy; TECo and its ratepayers lost the benefit of revenue that would have come from unbundled transmission payments from Grace; and Grace was required to make a large unnecessary capital investment to efficiently use its cogeneration instead of being allowed to pay to use available capacity in a transmission line partially in public right of way that had already been dedicated to public service by a public utility.

ENVIRONMENTAL BENEFITS DISREGARDED

Q. Does Mr. Ashburn address the environmental benefits of Cargill's waste heat cogenerated power?

A. Only to dismiss them out of hand under a new TECo theory. According to TECo, for environmental benefits to count for SSW, they need to be "Incremental" (page 5, line 6), and provide a permanent and consistent net increase in capacity (page 10, lines 4-6).

In response to a TECo discovery request concerning Cargill cogeneration, I conservatively estimated that each year Cargill generates, on average, 744

million kwh of electricity from 4 cogeneration units. Two are in Bartow, two are in Riverview. They have a combined operating factor of about 85 MW. If Cargill didn't self generate, it would buy this much power from TECo. The power would come from TECo generators burning coal with an adverse environmental impact or it would come from generators burning more environmentally friendly fuel at a much higher price. In this instance, Cargill cogeneration satisfies a primary statutory goal set for utilities and the Commission:

> The commission shall adopt appropriate goals for increasing the efficiency of energy consumption and increasing the development of cogeneration, specifically including goals designed to increase the conservation of expensive resources, such as petroleum fuels ... (Section 366.82(1), Florida Statutes).

My company made a large capital investment to achieve these conservation benefits. We received no incentive besides a lower electric bill. The capital investment also provided a great and quantifiable environmental benefit, which Mr. Ashburn acknowledges on page 5 of his testimony. I calculated from the TECo *Smart Source* green power incentive program publication that Cargill cogeneration enabled TECo to avoid burning 5.2 million tons of coal a year. Mr. Ashburn says I miscalculated and that the avoided coal burn should be divided by a factor of 12 (Ashburn testimony, page 69), i.e., Cargill only enables TECo to avoid burning 434,000 tons of coal. Because TECo and the environment already receive this benefit, Mr. Ashburn contends SSW should not be approved because Cargill hasn't shown that it will provide an additional quantifiable environmental

benefit. In other words "what have you done for me lately?" He then concludes at page 69 that the calculations are meaningless because of the conversion of six units at Gannon to natural gas. Cargill can no longer claim that its cogeneration provides an environmental benefit for avoiding coal burn, cogeneration will be avoiding natural gas burn. He doesn't mention that the fuel that will now be avoided costs from two to three times more than coal. Fuel savings will go up if environmental savings go down. Either way, customers win with Cargill cogeneration and SSW.

Q. Is it true that SSW results in no additional waste heat generation?

A. Cargill rejects Ashburn's notion that cogeneration environmental benefits don't count for SSW unless they are incremental, nevertheless, let me discuss the specifics of our generation. This will show that it overcomes this newly developed TECo SSW roadblock that appears nowhere in the Commission cost effectiveness guidelines.

A. By definition, all of Cargill's waste generation is incremental. This is because sulfuric acid can be made without any power generation taking place (as some do) or it can be made – as in Cargill's case - with power generation. The only input for this incremental generation is capital - Cargill's capital - to capture the resource. It necessarily follows that because all SSW comes from waste heat generation, it is incremental because it optimizes the use of energy. Admittedly, SSW comes from a portion of existing generation. Even if SSW didn't provide anything new, there is no justification for overlooking the benefits of cogeneration that exists. Nevertheless, in Cargill's case, the installed cogeneration capacity has

increased from 11 MW in 1965 to 41 MW in 1987, to 70 MW in 1999, at its Riverview plant. Each addition is incremental to prior capacity, and a permanent capacity increase. Under Mr. Ashburn's theory, the only window of opportunity to ask for SSW is just before we plan to improve the process, because we can never get credit for past improvements.

Q. Was capacity added during the SSW test to date?

A. Our existing generators still have some excess capacity in them. What we have recently added, and will continue to do as opportunities arise, is add to their efficiency and utilization rate.

When we improve the efficiency of waste heat recovery from our processes, more MWHs can be produced from the existing generators and those MWHs are incremental to the amount that would have otherwise been produced.

The most recent example of such an increase took place during the May/June 2001 maintenance overhaul of our #8 Sulfuric acid plant in Tampa. At that time, the plant was changed from a "push type" sulfuric plant to a "sucker type." That modification captures most of the heat that comes from compressing air. This is heat that was previously lost. The overhaul increased steam recovery producing an increment of 1.5 MW to generation output. This is about 12,000 MWH/year of incremental generation. That incremental increase comes from Renewable Energy generation, as I will explain below

Q. Does it provide incremental energy if you can avoid shutting down a generator?

A. Yes. In his deposition Mr. Black explained the importance of improving the availability of TECo's Bayside units. These units were constructed to settle an

environmental lawsuit. Incremental benefits occur when Cargill is able to keep its system operating optimally. With increasing frequency, we get notice that TECo is facing an interruption. This often happens when we are both producing and buying electricity. If the purchased power goes away, we must shut down part of the operation. Because the entire operation is linked, the shut down of one part reduces waste heat and results in less power production. We can avoid this rolling shut down and the corresponding energy wasted in start up operations, if we can bring in SSW power form the other site. SSW makes the preservation of this increment of electricity possible. Without SSW, less power is produced. Mr. Ashburn's is probably unaware of this phenomenon because he fails to address the impact of avoiding shutdowns and disruptions from threats of interruptions on our cogeneration operations.

In his deposition, Mr. Donahey from TECo stated that interruptions do not always follow when a notice of impending interruption goes out from TECo. When Mr. Ashburn opined that a large percentage of our SSW occurred during TECo's off peak period, he probably didn't check to see if the SSW was in response to an interruption notice that wasn't followed with an interruption after Cargill had commenced SSW to avoid disruption.

At Cargill, prior to SSW, when there was a notice of impending interruption, or a high probability of interruption, significant disruptions to our operation took place to limit damages to the facility. Today we can probably avoid the disruption with SSW power.

Q. What is the impact of shutdowns and re-starts on the efficiency of a generating unit?

A. It is negative. Normally when a unit is starting up it is less efficient. Mr. Black acknowledged this fact in his deposition. Mr. Ashburn states on page 54, line 19 that "fuel efficiency of Cargill's plants" is "unaffected" by SSW. The contrary is true. Our "fuel" is waste heat. When we recover more, efficiency is improved; when we avoid shutdowns and upsets, the generation efficiency is improved.

When we avoid interruptions, we use more process heat. The overall cycle efficiency of any combined heat and power (CHP) producer - Cargill included - increases. Once again, SSW results in incremental power.

Q. Mr. Ashburn testifies that your pattern of use is mostly off peak when it provides less benefit to the TECo and its customers.

A. Cargill's basic pattern of use is that we engage in SSW when there is load to serve at the other location. Contrary to the contrary implication in Mr. Ashburn's testimony, Cargill SSW occurred more frequently on peak than a customer with 100% load factor.

Q. Please explain.

A. Cargill SSW occurred on peak 38% of the time. A 100% load factor customer consuming one MWH every hour of the week (168 hours) would be on peak 45 hours. This is 26% of the time. In other words, Cargill SSW occurred on peak 40% more than a 100% load factor customer would. I consider Mr. Ashburn's criticism of Cargill's off peak SSW to be a misinterpretation of the facts. I pointed this out, but every quarterly report continued the misrepresentation.

Q. Did you take other actions during the study period that made incremental power available for TECo that do not show up in the TECo study?

A. Yes. We use our Hooker's Prairie Mine to make incremental power available. It is served from Bartow cogeneration. In October 2002, Riverview generation was down for maintenance. We shut down our Hookers Prairie Mine during peak periods. It did not run 41 of 45 peak hours. The power from Bartow cogeneration that normally served the mine was diverted. 2506 MWH became available to the system during peak periods from this action. Part of the power went by SSW to keep Riverview running, the rest went as incremental power to TECo. If we couldn't have wheeled part of the power to Riverview, it wouldn't have been wise to shut the mine. The incremental power wouldn't have been available to TECo at a time when it was suffering power shortages because parts of its system were down for planned maintenance.

Q. Are there other examples of generation cycle improvements during past three years?

A. Yes, we were able to increase process heat when our new Animal Feed Ingredients plant went in operation. This process uses steam extracted from our turbo generators. Steam was diverted from electric generation, but the steam cycle for generation became more efficient.

WASTE HEAT IS RENEWABLE ENERGY

Q. Is power generated by Cargill, and other phosphate companies, "renewable energy" in the State of Florida?

A. Yes, it is. The fuel used is "waste process heat." Mr. Ashburn says it is not renewable energy, but the DEP/FPSC joint report on renewables said it is in January 2003. See Exhibit No. ___ (RFF-2) to my direct testimony.

Q. Does TECo also dispute the cost of Renewable Energy in its territory?

A. No, it disputes my calculation of the number of tons of coal that Cargill cogeneration saves for the environment. I testified that Cargill cogeneration allows TECo to avoid burning 5.2 million tons of coal each year. TECo sets a value for renewable energy that enables it to avoid burning coal. It charges customers who are interested in Green Energy $100/MWH to make electricity from biomass. ($5 per 50 kWh block). TECo says Cargill cogeneration did not save 5.2 million tons of coal during the study period it only saved 433,333 tons or 866,666,000 million pounds per year. It refuses to give any credit for this lesser amount in spite of the fact that Cargill's capital investment provided the benefit at no cost to TECo or its customers. It would charge environmentally concerned customers $60 to avoid burning 700 pounds of coal. If my calculation is right this time, Cargill cogeneration provided *for free* an environmental benefit for which TECo would charge its green customers $74 million. (866,666,000 / 700 * $60 = $74,285,657).

POSSIBILITY THAT CARGILL WILL GAME THE SYSTEM

Q. Does TECo accuse Cargill of "gaming" the system?

A. No. On page 35, lines 13-14, Mr. Ashburn states, "Tampa Electric is not alleging that Cargill engaged in this practice during the pilot program." He then raises the specter of future gaming if SSW is permanently approved. The "gaming"

innuendo points out the fact that TECo does not understand the nature of Cargill's SSW. Cargill has surplus self-generated power at both sites. SSW wheeling provides back up when we need protection --- something has to be down at one of the sites to create a need for power. This means a maintenance outage, planned or unplanned, or some other unusual event, to at least part of the cogeneration facility. To imply that Cargill (or any other sensible operator of a waste heat cogeneration facility) would purposely shutdown its generation providing no cost power and pay 110% of TECo's wholesale commodity price plus a transmission charge to engage in gaming is absurd. A cogenerator won't substitute power priced at 110% of TECo's wholesale price to get power it can supply to itself for no more than the cost of transmission. The statement on page 61, lines 11-16 displays the same lack of understanding.

CARGILL SHOULD BE BOUND BY THE STUDY IT HELPED DEVELOP

Q. Did Cargill help design the TECo quarterly reports?

A. Mr. Ashburn at page 62 of his testimony says so. Cargill met with TECo many times. We only had one meeting with Commission Staff during mediation efforts after we filed for permanent approval. We pressed for changes in the methodology, but for the most part TECo wouldn't budge. TECo prepared the original report, with no input from Cargill. It continually refused to incorporate changes that Cargill felt were appropriate; indeed Cargill was forced to write to the Commission at the mid term to provide its input, because TECo did not want to acknowledge it. TECo still refuses to use Cargill's input or comments in its quarterly reports. In the last report, TECo used a new format with no Cargill

input; it also changed the basic way to calculate the fuel credit over Cargill's objections. The net result is that the quarterly reports are, in my opinion, misleading, inaccurate and incomplete. They fail to recognize the value of Cargill's renewable energy; they mask the fact that the general body of ratepayers benefited from the pilot; and they do not include benefits from the market value of the TECo generating capacity that was freed up for wholesale sale by Cargill's SSW.

THE POTENTIAL SCHEME TO VIOLATE TECO'S NON-COMPETE AGREEMENT WITH PROGRESS ENERGY

Q. What about the "potential" of territory infringement?

A. This is a ridiculous "new" concern raised to challenge SSW. TECo expressed no such concern when Cargill constructed a transmission line from its Bartow cogeneration to our South Fort Meade location in the Florida Progress service area. Engineers from both TECo and FPC approved the Cargill single line drawing initially and neither utility has heretofore complained during 3 years of SSW.

Cargill's cogenerated power flows on Cargill's electric lines. The lines were specifically designed for that purpose, and reviewed by both Progress Energy and TECo; and have operated nearly flawlessly during the better part of 4 years. SSW has nothing to do with where Cargill uses its own cogenerated power on its own electric lines. If a real technical issue were to be present, it can and should be properly addressed by the electrical engineers of the affected companies

(as was done during the original installation). The installations and protective relays have been the same whether SSW is available or not.

Q. In contrast, has TECo itself had any problems in their operation of its grid?

A Yes, its inadvertent action was once very costly to Cargill. I do not know how often this happens with other cogenerators, or in the rest of the TECo system. Our area near Riverview was once isolated by TECo circuit breakers. Our generators began to serve a portion of TECo's retail load around our immediate vicinity in the Riverview plant. The result was that since the retail load was "inadvertently" isolated to us, it dragged our generators down (fortunately, our protective relays activated and tripped our generators). Both Cargill and the retail firm customers were shutdown due to TECo operational failure.

COST EFFECTIVENESS MANUAL TESTS

Q. Do you dispute the RIM and TRC tests attached to Mr. Ashburn's testimony?

A. Yes, for reasons Mr. Kordecki explained in detail in his study. In both of Mr. Ashburn's tests, the benefits are within a few points of exceeding the costs. SSW would pass with a few small changes:

1. If the $27,000 cost incurred three years ago to set up the program is removed SWW passes. This nonrecurring cost should not be included. Cargill would agree to pay it if that is all that stands in the way of SSW.
2. For all other conservation program analyses, Mr. Bryant does not consider lost environmental, capacity, or conservation revenues

when evaluating the program. If these lost revenues are removed from the SSW, it passes.

3. Mr. Bryant would include Cargill's savings as a program benefit if it were a standard conservation program. Mr. Ashburn does not in his special study.

4. There are a number of other more technical corrections that should be made. Mr. Kordecki will explain these.

Mr. Bryant has been producing TECo's conservation analyses using the Manual for 12 years. He wasn't asked to prepare the Cargill test. Mr. Ashburn, the Director of Pricing, was asked to perform the Cargill test. It is the only test he has ever done. He says Cargill SSW calls for a special methodology, hmm.

Q. What was the most striking aspect of Mr. Ashburn's cost effectiveness tests?

A. The inclusion of lost revenues from base rates. According to Mr. Barringer's deposition, TECo hasn't had a base rate case for 10 years. According to Mr. Barringer, none is planned. Until there is a base rate case, the general body of wholesale and retail ratepayers are not affected. There was no loss to customers during the test period primarily because TECo keeps the money. There will be no loss until there is a rate case. If SSW creates meaningful lost revenue to TECo, the SSW retail tariff can be adjusted at that time.

Q. Why do you believe that SSW will be more valuable in the future?

A. Natural gas prices are rising and TECo has changed its generation mix to burn more natural gas. Mr. Kordecki has addressed this in detail. Mr. Ashburn says that interruptible rates are not cost effective, but this is based on past evaluations

that didn't use $5-$6/MMBTU burner tipped priced gas. As an interruptible standby customer, even while engaging in SSW, we provide a benefit to the system by giving "under frequency protection" to the area of the grid where our facilities are located.

Q. What do you mean by "under frequency protection"?

A. It means that at the place of interconnection with TECo, TECo has a relay that can be set to automatically trip before any other connection to the grid trips. This puts Cargill in the first line of protection for the TECo electrical system. This substantially improves system reliability, which is one of the factors the Commission must consider in SSW cases.

Q. Mr. Ashburn said his study showed that the impact on the general body of ratepayers was "material" do you agree?

A. "Material" is an undefined term. We therefore looked to several sources for an answer. Mr. Ashburn said $6,000 is material because the Commission disallowed the expense in a rate case. His definition is that any time the Commission determines that an expense is not prudent, or is not an ordinary and necessary expense to provide electric service, the sum involved becomes material. Carry that thinking to its logical conclusion and you would have to agree that the disallowance of country club dues for TECo officers in a rate case would be a material expense to ratepayers. Although Mr. Ashburn is in charge of financial analysis, this reasoning is a stretch.

We asked Mr. Barringer in deposition if $1,000,000 in attorney fees would be a material expense that would be required to be reported on TECo's

financial statement. He said no. He gave other examples of sums ranging up to $55 million on the TECo Energy Financial Statement that wouldn't be considered material. I came to the conclusion that for TECo financial reporting, the revenue shortfall shown in the pilot study report would not be material.

The real issue is whether the sum would have a material impact on the general body of ratepayers. To find this answer we deposed TECo's Ms. Jordan. She was asked to examine the fuel filing she just made and make some calculations. Here is what she found: she was asked to add the hypothetical sum of $25,000 to TECo's total forecasted fuel costs for 2004 to see how much this would increase the kwh charge. It would increase it by $ .00001234. As a large ratepayer, I wouldn't consider that material. It would cost the average residential customer less than a penny a month after the next general rate case.

Q. TECo revised its quarterly reports on August 8th after it was determined that this contest would go forward. Did anything in particular strike you?

A. Yes. After the first year when the alleged revenue shortfall was greater, TECo said the amount was "insignificant." I presumed this to mean less than "material" In the final report, when the impact was even less, the word insignificant was removed.

Q. Does this conclude your testimony?

A. Yes.

CERTIFICATE OF SERVICE

I HERBY CERTIFY that a true and correct copy of the foregoing Rebuttal Testimony of Roger F. Fernandez on Behalf of Cargill Fertilizer, Inc. has been furnished by (*) hand delivery or U.S. Mail on this 3rd day of October, 2003 to the following:

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