

State of Florida



# Public Service Commission

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**DATE:** September 6, 2012

**TO:** Office of Commission Clerk (Cole)

**FROM:** Division of Economics (Wu) *JW*  
Office of Industry Development and Market Analysis (Dowds)  
Division of Accounting and Finance (Bulecza-Banks) *CB*  
Office of the General Counsel (Murphy) *CM*

*[Handwritten initials]*

**RE:** Docket No. 110262-EI – Petition for approval of new environmental program for cost recovery through the Environmental Cost Recovery Clause, by Tampa Electric Company.

**AGENDA:** 09/18/12 – Regular Agenda – Proposed Agency Action - Interested Persons May Participate

**COMMISSIONERS ASSIGNED:** All Commissioners

**PREHEARING OFFICER:** Brisé

**CRITICAL DATES:** None

**SPECIAL INSTRUCTIONS:** None

**FILE NAME AND LOCATION:** S:\PSC\ECO\WP\110262.RCM.DOC

### Case Background

On August 29, 2011, Tampa Electric Company (TECO or Company) petitioned the Florida Public Service Commission (Commission) for approval of a new Big Bend (BB) Station Gypsum Storage Facility Program and the recovery of the costs of this program through the Environmental Cost Recovery Clause (ECRC) (Petition). The TECO Petition was filed pursuant

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to Section 366.8255, Florida Statutes (F.S.), and Commission Order Nos. PSC-94-0044-FOF-EI and PSC-94-1207-FOF-EI.<sup>1</sup>

In its petition, the Company asserts that in order to continue operating its BB Units 1 through 4 in compliance with applicable environmental requirements, it needs to construct and place into service a new facility at BB Station within which to store gypsum, which is a byproduct of the operation of the flue gas desulfurization (FGD) systems, commonly referred to as scrubbers, currently serving these coal-fired units.

TECO's petition was addressed by the Commission at the March 13, 2012, agenda conference. The item was deferred to the April 10, May 8, and September 18 agendas in order to obtain additional information to assist the Commission's decision-making. Since May 8, TECO has provided responses to several sets of data requests. The Company also filed an Interim Report concerning its gypsum disposal efforts on June 25, 2012 (Interim Report), and a Follow-Up Report and Amendment to Petition (Amended Petition), which significantly reduced the scope and the cost of the proposed new storage facility, on August 1, 2012. Staff has analyzed the information obtained and is filing this revised recommendation.

Pursuant to Section 366.8255(2), electric utilities may petition the Commission to recover projected environmental compliance costs required by environmental laws or regulations. According to Section 366.8255(1)(c), F.S., environmental laws or regulations include "all federal, state or local statutes, administrative regulations, orders, ordinances, resolutions, or other requirements that apply to electric utilities and are designed to protect the environment." If the Commission approves the utility's petition for cost recovery through this clause, only prudently incurred costs may be recovered.<sup>2</sup> The Commission has jurisdiction over this matter pursuant to Section 366.8255(2), F.S.

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<sup>1</sup> Order No. PSC-94-0044-FOF-EI, issued January 12, 1994, in Docket No. 930613-EI, In re: Petition to establish an environmental cost recovery clause pursuant to Section 366.0825, F.S., by Gulf Power Company; Order No. PSC-94-1207-FOF-EI, issued October 3, 1994, in Docket No. 940042-EI, In re: Environmental Cost Recovery Clause.

<sup>2</sup> See Order No. PSC-11-0080-PAA-EI, issued January 31, 2011, in Docket No. 100404-EI, recounting history of ECRC eligibility criteria pursuant to Section 366.8255, F.S.

### **Discussion of Issues**

**Issue 1:** Should the Commission approve TECO's Amended Petition for approval of the BB Gypsum Storage Facility Program and the recovery of the associated costs through the ECRC pursuant to Section 366.8255, F.S.?

**Recommendation:** Yes. TECO's proposed revised BB Gypsum Storage Facility Program satisfies the statutory requirements specified in Section 366.8255, F.S., and meets the criteria for ECRC cost recovery. (Wu, Dowds, and Murphy)

### **Staff Analysis:**

TECO's original Petition was addressed by the Commission at the March 13, 2012, agenda conference and was deferred to the April 10, 2012, and then to the May 8, 2012, agenda conference. After extensive discussion at this latter agenda, this item was subsequently deferred in order for the Company to obtain and provide to the Commission additional information. On August 1, 2012, TECO filed its Amended Petition and provided the additional information requested by the Commission. Consequently, staff's analysis is organized in two parts: section I is devoted to analyzing the information obtained prior to the May 8 agenda conference, while section II pertains to the Amended Petition and information obtained after the May 8 agenda conference.

### **Section I: Analysis of Information Obtained prior to the May 8, 2012, Agenda Conference**

#### **Need for a New Storage Facility**

Gypsum is an unavoidable by-product of the operation of the FGD systems which are used to control sulfur dioxide (SO<sub>2</sub>) emissions. In order to comply with the Clean Air Act Amendments of 1990 (CAAA) and a Consent Decree entered into in 2000, in *United States v. Tampa Electric Company*, Civ. No. 99-2524-CIV-T-23F (Consent Decree), TECO has constructed and operated FGD systems to scrub the flue gases emanating from BB Units 1 through 4. Under the requirements set forth in paragraph 40 of the Consent Decree, TECO cannot operate its base load units at BB without scrubbing the flue gas from those units. The Commission has previously found TECO's FGD projects to be the most cost-effective alternative for compliance with the SO<sub>2</sub> emissions reduction requirements of CAAA, and approved recovery of the associated costs through the ECRC.<sup>3</sup> The Commission has acknowledged that the Consent Decree requires that the BB Units not operate un-scrubbed after 2010 (for Unit 3) and 2013 (for Units 1 and 2).<sup>4</sup>

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<sup>3</sup> Order No. PSC-96-1048-FOF-EI, issued August 14, 1996, in Docket No. 960688-EI, In re: Petition for approval of certain environmental compliance activities for purposes of cost recovery by Tampa Electric Company at pp. 2-3; and Order No. PSC-99-0075-FOF-EI, issued January 11, 1999, in Docket No. 980693-EI, In re: Petition by Tampa Electric Company for approval of cost recovery for a new environmental program, the Big Bend Units 1 & 2 Flue Gas Desulfurization System at pp. 22-23.

<sup>4</sup> Order No. PSC-07-0499-FOF-EI, issued June 11, 2007, in Docket No. 050958-EI, In re: Petition for approval of new environmental program for cost recovery through Environmental Cost Recovery Clause by Tampa Electric Company at p. 1.

TECO has been able to sell a portion of the gypsum by-product to manufacturers who use it in the production of wallboard and cement, or for agriculture applications, etc. TECO indicated that the allocation of the revenues from the sale of gypsum is normally split at the 50 percent level, namely, 50 percent is allocated to base rates and 50 percent allocated to the ECRC.<sup>5</sup> Attachment A provides more details regarding the revenue allocation.

TECO indicated<sup>6</sup> that the Company is an industry leader in the beneficial reuse of coal combustion products (CCPs) and recycled approximately 86 percent of the total CCPs produced in 2010. When including the CCPs temporarily stored in inventory, more than 99 percent of the Company's 2010 CCPs will ultimately be reclaimed for beneficial use compared to an industry average of 43 percent. The Company's efforts on CCP sales were recognized as "commendable" in the "Review of Coal Combustion Residual Storage and Disposal Processes of the Florida Electric Industry" produced by the Commission's Office of Auditing and Performance Analysis in December 2011. Attachment B provides historical data regarding the amounts of gypsum produced versus marketed and remaining at the BB Station.<sup>7</sup> As shown in Table 1 below, the Company historically has managed to market 50 percent to 130 percent of the gypsum produced at the BB Station. Through reviewing TECO's response to Staff's Second Data Request, staff observed that the Company is actively seeking to contract with new buyers, and has an aggressive marketing plan in place for 2012 and beyond.

**Table 1: Comparisons of the marketed gypsum, excess gypsum, and the total amount of gypsum produced**

Year	Gypsum Produced	Gypsum Marketed		Gypsum Excess	
	(Tons)	(Tons)	%	(Tons)	%
2002	683,535	612,476	89.6%	71,059	10.4%
2003	691,547	507,404	73.4%	184,143	26.6%
2004	599,505	706,699	117.9%	-107,194	-17.9%
2005	555,066	715,462	128.9%	-160,396	-28.9%
2006	557,650	588,582	105.5%	-30,932	-5.5%
2007	655,887	683,090	104.1%	-27,203	-4.1%
2008	683,537	585,787	85.7%	97,750	14.3%
2009	560,300	444,401	79.3%	115,899	20.7%
2010	662,530	533,921	80.6%	128,609	19.4%
2011	719,982	361,234	50.2%	358,748	49.8%
10-year Total	6,369,539	5,739,056		630,483	
10-year Average	636,954	573,906	90%	63,048	10%
Last 5-year Total	3,282,236	2,608,433		673,803	
Last 5-year Average	656,447	521,687	79%	134,761	21%

Data source: Attachment B - TECO's response to Staff's Second Data Request, No. 9.

Despite its marketing efforts and its ability to sell much of its gypsum, the Company, over time, has been left with a surplus of gypsum by-product. As reflected in Attachment B, the lowest level of excess gypsum was negative 160,396 tons (TECO sold more than it produced) in 2005; the highest level of excess gypsum was 358,748 tons, which occurred in 2011. As can be seen in Table 1, over the last decade, the yearly excess gypsum at the BB Station has been 63,000 tons, or approximately 10 percent of the gypsum produced. Over the last 5 years, excess gypsum averaged 135,000 tons, or approximately 21 percent of the total produced.

<sup>5</sup> TECO's response to Staff's Second Data Request, No. 14.

<sup>6</sup> TECO's response to Staff's Second Data Request, No. 7.

<sup>7</sup> TECO's response to Staff's Second Data Request, No. 9.

The Company has stored the excess gypsum in a 35 acre storage facility on site at the BB Station. That storage facility and its associated conveyor system were built according to the environmental requirements in place during the early 1980s. By its Petition, TECO reported that the capacity of the storage facility is nearly exhausted, and that there are issues with periodic dust emissions and uncertainty over ground water contamination. In its response to Staff's Second Data Request, the Company further reported that the existing on-site storage area could reach its limit at some point in time between August 2012 and early mid-2015, depending upon gypsum market demand. TECO indicated that storing gypsum in an unpermitted area is not a legal option.<sup>8</sup> Thus, absent appropriate storage, the Company could be faced with curtailment or shutdown of the units at BB Station. Ceasing operation of these units would result in the loss of nearly 1,600 MWs of generation. The Company asserted that it must increase its gypsum storage capacity by constructing a new gypsum storage facility on site at BB Station. The Company indicated that the existing storage facility will continue to be utilized and serve as a secondary storage area once the new storage facility is built.

The proposed new gypsum storage facility will cover approximately 27 acres. It is designed to benefit customers through the operating life of the BB Station.<sup>9</sup> The new gypsum storage area addition is not being designed as a permanent storage area. It is intended to provide an appropriate amount of "working storage" to manage temporary imbalances in supply and demand. The new facility will hold 870,000 tons of gypsum at full capacity, complementing the existing storage area which has 1,000,000 tons of total capacity.

TECO also indicated that the proposed facility would satisfy all applicable federal and state environmental regulations, and all relevant pending environmental regulations. Specifically, the design of the new facility would meet the criteria contained in the EPA's proposed regulations for the management of Coal Combustion Residuals.<sup>10</sup> The Company submitted to the Commission a 55-page detailed site plan of the proposed new facility.<sup>11</sup> The design of the new storage facility includes a lined gypsum pile management area, along with equipment for conveying, stacking, dry storing, and truck loading of gypsum. The new facility will also incorporate advanced dust control and liner systems. TECO indicated that the handling system at the new facility will allow the gypsum to be sorted and stored in a manner which will enable it to be sold for manufacturing uses as the market permits.<sup>12</sup> Construction efforts would commence in 2012 and are expected to be completed in 2015. The Company has also submitted a 7-page critical path time line with milestones of the proposed program.<sup>13</sup>

#### Cost-effectiveness of the Proposed New Storage Facility

TECO considered various alternatives to the proposed storage facility. It examined the potential for switching to a low sulfur coal in an effort to lessen the amount of gypsum produced

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<sup>8</sup> TECO's responses to Staff's Second Data Request, Nos. 3 and 4.

<sup>9</sup> TECO's response to Staff's Second Data Request, No. 15 (c).

<sup>10</sup> TECO's responses to Staff's Second Data Request, Nos. 11 (c) and (d).

<sup>11</sup> TECO's response to Staff's Second Data Request, No. 10.

<sup>12</sup> Exhibit A of the Petition, pages 12 - 13.

<sup>13</sup> TECO's response to Staff's Second Data Request, No. 11 (k).

in the scrubbing process. Assuming the BB Station burned the same quantity of MMBTUs of coal as projected in TECO's 2011 fuel filing, and using the current selling price of \$4.30/MMBTU delivered, this option would translate to approximately \$94.5 million in additional fuel costs per year. In contrast, the proposed new storage facility will require approximately \$55 million in total capital investment plus \$0.4 million in annual operations and maintenance (O&M) expense.

TECO also evaluated the option of permanently disposing its gypsum in a Company-owned landfill. An independent firm, Sargent & Lundy, was retained to perform the evaluation. It estimated that this alternative would cost approximately \$160 million to construct a landfill over 430 acres in size, plus approximately \$3 million in O&M costs annually.<sup>14</sup> Apart from its costs, the size of the landfill also makes this option not practical due to the location of the BB Station, even though it is common industry practice (nationally and in Florida).

TECO considered the option of disposing the BB gypsum at a third-party landfill. The Company currently produces approximately 700,000 tons of gypsum annually. TECO stated that attempting to dispose of this amount in commercial landfills would cost an estimated \$25 million per year at current disposal rates. It would also involve prohibitively high transportation expense. TECO had previously used a landfill in Okeechobee, and incurred roughly \$40 for each ton that was disposed. Moreover, this option is contingent on the availability of adequate space in a third-party landfill; absent such availability, the Company would be at risk of requiring the BB units to be shut down.

TECO also assessed the possible options of retrofitting the existing storage facility, and leasing a portion of the proposed new storage facility to another entity once it is placed in-service. The Company indicated that retrofitting the existing gypsum storage area will not create the additional temporary storage area TECO requires to manage the ebb and flow of gypsum inventory.<sup>15</sup> Similarly, leasing part of the proposed new storage facility to another company will not create the working area necessary to manage BB Station's gypsum production. Therefore, these options are not feasible. Moreover, TECO concluded that choosing such options could necessitate the curtailment or shutdown of the units at the BB Station.<sup>16</sup>

TECO evaluated the possibility of disposal of gypsum at a zero cost to the recipient. TECO believes that disposal at a zero cost is not feasible because the primary determinant for consumption of gypsum is the demand for the finished product, not the price of the commodity. TECO indicated that a reduction in the total price of gypsum (commodity cost plus transportation expense) to a purchaser may increase the purchaser's profit margin of its end-use product. However, this will not, by itself, create additional demand for a finished product (e.g., wallboard).<sup>17</sup> TECO has identified possible end-users of additional gypsum and analyzed the potential of providing additional gypsum to each one. In each case, the Company has identified issues with transportation logistics, transportation costs, or contractual arrangements with other suppliers of gypsum that constrain the Company's ability to give gypsum away or to pay end-

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<sup>14</sup> TECO's response to Staff's Second Data Request, No. 11 (o).

<sup>15</sup> TECO's response to Staff's Second Data Request, No. 12 (a).

<sup>16</sup> TECO's response to Staff's Second Data Request, No. 12 (b).

<sup>17</sup> TECO's responses to Staff's Third Data Request, Nos. 1 (b) and 2 (b).

users to receive additional gypsum.<sup>18</sup> TECO also evaluated the possibility of issuing a request for proposal (RFP) to increase the potential number of recipients who would be willing to accept gypsum. The Company asserted that it is highly unlikely that a formal RFP process will identify new options for disposal due to the dynamics of geography, transportation logistics and costs, and other supply opportunities closer to the points of demand, together with reduced demand and the economic downturn.<sup>19</sup> TECO also stated that it is not stockpiling gypsum in inventory waiting for a more favorable sales price. TECO affirmed that the Company's goal is to manage gypsum through beneficial reuse at the lowest and most reliable long run cost to its customers, not to achieve a certain sales price or to maintain a growing inventory until demand increases.

Finally, TECO evaluated three different designs for the new storage area, including transporting gypsum from the FGDs to the new storage site by enclosed conveyor system, by rail, or by truck.

TECO concluded that its proposed storage facility at BB Station is the most reliable and cost-effective option. Attachment C provides economic comparisons between the proposed new storage facility and its alternatives, as well as the assumptions behind the analyses. It includes: (1) the estimated initial capital amount and subsequent estimated capital investments for 2011 through 2015 in nominal and 2011 dollars; (2) estimated annual amount of O&M expense for each year in nominal and 2011 dollar values, and (3) the assumptions used by TECO to derive the dollar amounts shown. Table 2 below summarizes the results of the comparison.

<b>Table 2: Summary of the Economic Comparisons among the Alternative Gypsum Storage Options</b>					
	<b>New Storage Area Conveyor (TECO proposed)</b>	<b>New Storage Area Rail (TECO proposed)</b>	<b>New Storage Area Truck (TECO proposed)</b>	<b>Fuel Switch Low Sulfur Coal</b>	<b>Offsite Landfill</b>
<b>Capital Investment Total (in 2011 \$) for period 2011 - 2015</b>	\$54,976,700	\$52,914,600	\$42,776,700	—	\$160,600,000
<b>Capital Investment Total (Net Present Value) for period 2011 - 2015</b>	\$45,441,210	\$43,386,201	\$34,896,753	—	—
<b>O&amp;M Expenses Total (Net Present Value) for period 2011 - 2049</b>	\$3,969,428	\$9,374,437	\$27,657,765	\$1,501,498,730	\$47,883,190

### Estimates of the Associated Costs

The proposed new gypsum storage facility is estimated to require an investment of approximately \$54,976,700 in capital costs and annual operation and maintenance expenses of \$365,000. The major cost components involved in pursuing the proposed program, its associated capital costs, and estimated O&M expenses are reflected in Attachment D. Among the activities listed, the estimates for construction, major equipment and contingency are approximately \$11 million, \$17 million and \$8 million, respectively.

Table 3 below illustrates the revised estimated residential monthly bill impacts for a 1,000 kWh bill associated with the proposed storage facility. TECO indicated, at the March 13,

<sup>18</sup> TECO's response to Staff's Third Data Request, Nos. 1, 3, 7.

<sup>19</sup> TECO's response to Staff's Third Data Request, No. 4 (b).

2012, agenda conference and in its response to Staff's Second Data Request, No.1, that because other capital projects currently recovered thought the ECRC will be fully recovered, the net incremental increase to the 2015 residential ECRC factor will be \$0.11 for 1,000 kWh.

TECO expected to begin incurring costs associated with the new gypsum storage facility in 2011. The Company indicated in its Petition that because the proposed program is appropriate for Allowance for Funds Used during Construction (AFUDC) accounting treatment, the facility's costs will be separately accounted for while the new storage facility is under construction. These costs will not be proposed for inclusion for ECRC cost recovery until after the new storage facility is placed in-service, which is expected to occur in early 2015. TECO confirmed that all aspects of the proposed program would be subject to audit by the Commission. TECO plans to start the preliminary engineering in March 2012, and targets an in-service date of April 2015.

Table 3: Estimated Residential Bill Impacts<sup>20</sup>

Year	Residential Rate (\$/1,000 kWh)
2015	0.41
2016	0.39
2017	0.38
2018	0.37
2019	0.35

#### Allocation of the Costs to Rate Classes

TECO affirmed that the proposed storage facility program is a compliance activity associated with the requirements of the CAAA and the Consent Decree. The Company asserted, therefore, that expenditures associated with the proposed program should be allocated to rate classes on an energy basis. This is consistent with the Commission's precedential orders. In Orders Nos. PSC-94-0044-FOF-EI<sup>21</sup> and PSC-05-0998-PAA-EI,<sup>22</sup> the Commission found that costs associated with compliance with CAAA should be allocated to rate classes in the ECRC on an energy basis, due to the strong nexus between the level of emissions which the CAAA seeks to reduce and the number of kilowatt-hours generated.

#### Eligibility for the ECRC Cost Recovery

It appears that, based on prior Commission orders and the present circumstances, the Company cannot operate the BB Units un-scrubbed, consistent with the CAAA and paragraph 40 of the Consent Decree, nor can the Company operate the units scrubbed without a new facility to

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<sup>20</sup> TECO's response to Staff's Second Data Request, No. 13. The Company has corrected an inadvertent error in its calculation of the bill impact submitted in its response to Staff's First Set of Interrogatories, No. 3.

<sup>21</sup> Order No. PSC-94-0044-FOF-EI, at pp. 21-23.

<sup>22</sup> Order No. PSC-05-0998-PAA-EI, issued October 14, 2005, in Docket No. 050316-EI, In re: Petition for approval of integrated Clean Air Regulatory Compliance Program for cost recovery through Environmental Cost Recovery Clause, by Progress Energy Florida, Inc., at pp. 6-7.



store the gypsum by-product of the scrubbing process. The proposed storage facility will enable TECO to continue operating the BB Units in compliance with the CAAA and the Consent Decree, by providing a cost-effective means to dispose of the gypsum resulting from operation of the emission control equipment serving the BB units, that cannot otherwise be sold or be sent to a third-party landfill. Sending gypsum to a third-party landfill involves an unacceptable reliability risk, since a third-party landfill would have no obligation to take material from specific sources and could refuse to accept gypsum at any time;<sup>23</sup> moreover, there would be very high associated costs, reaching up to \$25 million per year, with a commensurate rate impact of approximately \$1.25 per 1,000 kWh.<sup>24</sup>

TECO has actively sought to market gypsum produced at the BB station during the past. As the Company points out, the existing 35 acre storage capacity would have been exhausted much sooner if the Company had needed to store more excess gypsum on-site. However, TECO has been successfully marketing this by-product, as evidenced by it being able to sell on average 79 percent (over the last 5 years) to 90 percent (over the last decade) of the gypsum produced. Moreover, TECO has indicated that it has an active ongoing marketing plan in place which should help the Company to promote gypsum sales aggressively in the future. Nevertheless, the Company has indicated that constructing a new storage facility is an essential component for the pursuit of TECO's most cost-effective and preferred alternative – selling gypsum for other uses. Staff notes that the proposed new facility is designed to provide an appropriate amount of “working storage” to manage temporary imbalances in gypsum supply and demand, rather than to serve as a permanent storage area.<sup>25</sup>

Staff believes that construction and operation of the new gypsum storage facility is not a discretionary or voluntary project. Instead, it is an essential environmental project that would not be constructed but for TECO's obligation to scrub the flue gases emanating from its BB coal-fired units consistent with government-imposed environmental regulations. Staff also believes that the proposed storage facility is the most reliable and cost-effective alternative for TECO to remain in compliance with the applicable environmental mandates at BB Station, given that the capacity of the existing storage facility is nearly exhausted. The need to construct the new storage facility was triggered after the Company's last rate case upon which base rates are currently based, and the costs of the proposed facility are not recovered through some other cost recovery mechanism or through base rates. Therefore, staff believes that TECO's proposed new Gypsum Storage Facility Program meets the criteria for ECRC cost recovery established by the Commission by Order No. PSC-94-0044-FOF-EI, in that:

- (a) all expenditures will be prudently incurred after April 13, 1993;
- (b) the activities are legally required to comply with a governmentally imposed environmental regulation enacted, became effective, or whose effect was triggered after the Company's last test year upon which rates are based; and
- (c) none of the expenditures are being recovered through some other cost recovery mechanism or through base rates. *See id. at page 6*

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<sup>23</sup> Exhibit A of the Petition, p. 17.

<sup>24</sup> TECO's response to Staff's Second Data Request, No. 5.

<sup>25</sup> TECO's response to Staff's First Set of Interrogatories, No. 1.

## **Section II: Analysis of Additional Information Obtained after the May 8, 2012, Agenda**

### Development of Opportunities of Marketing and Off-Site Gypsum Disposal

At the May 8 agenda conference, the Commissioners suggested that TECO inquire of potential off-site gypsum consumers as to their interest in and willingness to accept gypsum. Due to relative time constraints, it was suggested that a letter of interest be sent to potential takers asking them to indicate what quantities they would be willing to take and at what price, or, alternatively what TECO would have to pay them to take the gypsum.

TECO reported that it received three invitations to negotiate for various amounts of gypsum.<sup>26</sup> One of these offers was from a cement manufacturer with whom TECO has a tentative agreement for 50,000 tons of gypsum, which is renewable at the taker's discretion on an annual basis. The only other offers received were from two wallboard manufacturers who are competitors of National Gypsum.<sup>27</sup> TECO asserted that these offers were deemed non-viable due to the terms and conditions of the contractual agreement between TECO and National Gypsum. TECO further indicated that during its discussions with National Gypsum it made clear that any dealing with competitors would adversely impact the long standing relationship between these two companies that has served to significantly benefit TECO's customers.

TECO affirmed that it was continuing to pursue potential opportunities to market or dispose gypsum economically. Since May 8 agenda, TECO has reached or is negotiating agreements with agricultural gypsum consumers to sell gypsum in Georgia, Latin America, and Africa.<sup>28</sup> TECO has also reached one-time agreements with two separate Florida landfills, which allow TECO to landfill lower quality gypsum at a discounted rate;<sup>29</sup> these amounts will be used to fill in gaps in these landfills between bulk waste materials. Removal of these quantities began on July 2 and will be completed by the end of this year.<sup>30</sup>

### The Continuing Need for a Second Gypsum Storage Facility

It appears to staff that despite TECO's successful development of additional gypsum disposal opportunities, the Company and its customers still will benefit from a second gypsum working storage area. TECO claimed that without the additional storage it will be unable to reliably and safely manage its inventory, thus necessitating the use of landfills during inventory buildups.<sup>31</sup> It also indicated that without the new storage the Company would not be able to pursue as many marketing opportunities, because many of the off-taking agreements are

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<sup>26</sup> Follow-Up Report and Amendment to Petition, p. 2.

<sup>27</sup> National Gypsum is a wallboard manufacturer purposely built adjacent to the BB Station for access to the plant's gypsum product. It is the primary gypsum off-take since 1999. Currently it contracted with TECO and has first call on TECO's annual gypsum from the BB Station. TECO's responses to Staff's Third Data Request, No. 1(b), and Fourth Data Request, No. 2 (a).

<sup>28</sup> Follow-Up Report and Amendment to Petition, pp. 2-3.

<sup>29</sup> Per TECO's response to Staff's Fourth Data Request, No. 4 (d), one agreement is for quantity between 100,000 to 350,000 tons, the other agreement is for quantity up to 100,000 tons.

<sup>30</sup> TECO's response to Staff's Fourth Data Request, No. 4 (d).

<sup>31</sup> TECO's Follow-Up Report and Amendment to Petition, pp. 3-4.

negotiated on a spot basis which require a certain amount of available inventory that could be unavailable if the gypsum is sent to landfills due to storage concerns.<sup>32</sup>

TECO reported that currently there are 853,000 tons of gypsum stored at the BB Station's existing facility, which has a capacity of 1,000,000 tons.<sup>33</sup> Staff notes that subsequent to the filing of TECO's Petition in August 2011, there have been changes regarding the disposal of gypsum. The quantities of gypsum produced at BB Station have been within the Company's expected range; however, the consumption by TECO's primary gypsum consumer, National Gypsum, has been less than expected. National Gypsum is consuming gypsum at a rate below the annual minimum quantity required by its contract with TECO, and TECO indicates it is unlikely that National Gypsum will meet its contractual minimum amount in 2012 and in each subsequent year until 2017.<sup>34</sup> As a result, TECO's gypsum inventory in storage has grown at a faster rate than anticipated. Additionally, due to the increase in inventory, TECO has received complaints regarding dusting from residents immediately south of the storage pile.

TECO has notified the Commission that in order to continue to use the existing storage area and meet the current standards for ground water and surface water protection, a liner must be installed below the area by April 1, 2015, in accordance with an approved plan and schedule.<sup>35</sup> The work is required in order to eliminate the potential for future impacts to groundwater. Without the liner, the Company could potentially be in violation of Section 403.087, F.S, Chapter 62-520, Florida Administrative Code, and Florida Department of Environmental Protection Consent Order 00-1275. The addition of a new storage facility will allow TECO to install the liner while minimizing the need to landfill gypsum off-site. It will also permit the existing storage area to continue to be used for the longer term. The liner project will require all the gypsum from the existing storage area to be removed. After the gypsum has been removed, it will take approximately six months to complete all the activities associated with the liner project.<sup>36</sup> The Company is anticipating construction of the proposed new storage facility to begin as soon as possible for a completion date of mid-2014 so as to meet the compliance deadline for the liner installation at the existing storage site.<sup>37</sup>

TECO indicated that it intends to use 200,000 tons of gypsum from the existing storage area as a protective layer over the liner of the new storage area. This quantity will be deposited prior to the in-service date of the new storage facility, and will eliminate the need to purchase sand or other material for the required protective layer as well as reduce the overall gypsum inventory at the BB Station.<sup>38</sup>

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<sup>32</sup> TECO's Follow-Up Report and Amendment to Petition, p. 4.

<sup>33</sup> The estimate is based on an aerial survey performed on August 12, 2012, reported in TECO's August 27 additional clarification of its response to Staff's Sixth Data Request.

<sup>34</sup> Interim Report, p. 2; Follow-Up Report and Amendment to Petition, p. 4.

<sup>35</sup> Follow-Up Report and Amendment to Petition, p. 4; TECO's response to Staff's Sixth Data Request, No. 1.

<sup>36</sup> According to TECO's August 24 additional clarification of its response to Staff's Sixth Data Request, the cost to reline/remediate the existing site is \$11,500,000. That cost is not contemplated to be an expenditure that TECO would recover through the ECRC.

<sup>37</sup> TECO's response to Staff's Sixth Data Request, Nos. 1 (f) and (g).

<sup>38</sup> TECO's response to Staff's Sixth Data Request, No. 2 (g).

Reduced Scope of the Proposed New Storage Facility from that Described in Original Petition

Recognizing and sharing the Commission's concerns expressed over the cost of the proposed gypsum storage facility, TECO has amended its initial Petition to significantly reduce the scope and cost of the project for which it seeks recovery through the ECRC.<sup>39</sup> The revised capital costs of the new storage facility, which has a minimum scope option, will be \$21.7 million offset somewhat by higher O&M costs, compared to \$55 million for the storage facility originally proposed.

TECO acknowledged that<sup>40</sup>

in an effort to reduce the cost of the project where possible and prudent the company has worked with Sargent & Lundy ("S&L") to review the scope of the project and provide a minimum scope option that is functional, but without some of the operational, safety and environmental features the original petition offered. While the elimination of those features will result in the increased risk that off-takers may reject gypsum with moisture above specification and the possibility of continued dusting problems, the company acknowledges those benefits represent a significant portion of the costs.

The new facility will still cover 27 acres and serve as a lined gypsum storage site. The major capital components eliminated from the original scope are the conveyor system and the storage dome. In addition to those reductions, TECO has determined that costs for flood plain mitigation, of approximately \$5.4 million, included in the original Petition are not needed.

The conveyor system included in the original scope provided several benefits. The design of the system is a pipe conveyor that encloses the gypsum during transport, greatly reducing the potential for nuisance dusting emissions. It would transport gypsum from the point of production to the new storage area on a continuous basis without the need for manual intervention such as loading, trucking, unloading. It would also transport gypsum above the public road thereby avoiding interference with traffic or the risk of vehicle accidents. There are risks associated with eliminating the conveyor. Relying on trucking to transport gypsum creates the potential for service interruptions due to trucking contractor non-performance as well as the potential for traffic accidents on public roads. It would also increase nuisance dust emissions from loading, transporting and unloading trucks. In order to mitigate the potential for dust emissions, the Company will implement administrative controls including: speed limits designed to minimize dust emissions; robust tarp securing procedures; avoidance of material transport on unpaved areas; and watering of roads to minimize dust emissions.<sup>41</sup>

The dome is used to manage gypsum material in a moisture controlled environment for greater value at time of beneficial reuse. Elimination of the dome increases the risk that off-site gypsum consumers may reject gypsum if the moisture content rises above the allowed level. In

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<sup>39</sup> Follow-Up Report and Amendment to Petition, p. 5.

<sup>40</sup> Follow-Up Report and Amendment to Petition, p. 5.

<sup>41</sup> TECO's Response to Staff's Sixth Data Request, No. 2 (c).

the open storage area, surface gypsum that initially did not exceed the moisture content can absorb water from rainfall and exceed the maximum moisture content. To mitigate this risk, TECO will use various pile management techniques to improve water drainage and to minimize moisture seeping into gypsum.<sup>42</sup>

TECO acknowledges that it will rely on its best management practices to address the potential risks and problems resulting from eliminating the conveyor and the dome. As a consequence, the estimated O&M costs of the revised project will also be higher than that of the original project.<sup>43</sup>

Table 4 below presents the levelized annual revenue requirement for the proposed new storage facility with different scopes. Table 5 illustrates the estimated residential monthly rate impacts for a 1,000 kWh bill associated with the proposed new storage with different scopes. These tables show results for four different possible options for the new storage facility: the project as originally proposed, with updated cost estimate; the project with a reduced scope that excludes the conveyor system and the dome, as proposed in the Amended Petition; the reduced scope project but adding back the conveyor system; and the reduced scope project but adding back the dome.

Table 4: Levelized Annual Revenue Requirement<sup>44</sup>

(1)	(2)	(3)	(4)
Revised Cost Original Scope <sup>45</sup>	Reduced Scope	Reduced Scope With Conveyor System	Reduced Scope with Dome
\$3,622,604	\$2,602,507	\$3,066,032	\$3,089,770

<sup>42</sup> TECO's Response to Staff's Sixth Data Request, No. 2 (b).

<sup>43</sup> TECO's Response to Staff's Sixth Data Request, Nos. 2 (b) and (c).

<sup>44</sup> TECO's Response to Staff's Sixth Data Request, No. 3.

<sup>45</sup> Per TECO's Response to Staff's Sixth Data Request, Nos. 2 (e) and (f), the estimate of O&M expenses for the original scope included only the incremental costs for conveyor maintenance. In order to accurately assess and compare the O&M costs between the Original Scope and the other options, TECO expanded its original O&M costs in its Original Scope option from an incremental to a more comprehensive basis, to include additional components such as loading expense, trucking expense, tester expense, pile management, etc..

Table 5: Customer Bill Impact Comparisons<sup>46</sup>

Year	Residential Rate (\$/1,000 kWh)			
	(1)	(2)	(3)	(4)
	Revised Cost Original Scope	Reduced Scope	Reduced Scope with Dome	Reduced Scope with Conveyor
2014	0.01	0.18	0.22	0.01
2015	0.33	0.14	0.17	0.29
2016	0.30	0.12	0.15	0.26
2017	0.29	0.11	0.14	0.25
2018	0.28	0.10	0.14	0.24

Analysis and Recommendation

TECO is continuing its efforts to develop opportunities to market and economically dispose of its excess gypsum produced at the BB Station. However, the Company nevertheless believes that a second gypsum storage facility will still be necessary. It will help the Company to be better positioned for pursuing as many sales opportunities as possible regarding gypsum acquisition by off-site gypsum consumers; to reliably and safely manage its gypsum inventory while avoiding the use of landfills; and to facilitate compliance with an environmental requirement of remediating and lining the existing storage by April 2015.

To address the Commission's concern over the cost, TECO has amended its original petition to remove certain project components, which has significantly reduced the associated capital costs of the proposed program. The levelized annual revenue requirement and the customer bill impact associated with the amended program are shown in column (2) of tables 4 and 5 respectively. TECO has evaluated the increased environmental and economic risks resulting from reducing the scope of the program, and the Company believes that the revised program is the most viable and cost-effective alternative that can be permitted in an environmentally acceptable manner.

Construction and operation of the revised new gypsum storage facility is not a discretionary or voluntary project. Instead, it is an essential environmental project that would not be constructed but for TECO's obligation to scrub the flue gases from its BB Station coal-fired units consistent with the CAAA and Consent Decree. The proposed program meets the criteria for ECRC cost recovery established by the Commission by Order No. PSC-94-0044-FOF-EI.

Based on the above, staff recommends that the Commission approve TECO's amended new gypsum storage facility program at its BB Station pursuant to Section 366.8255, F.S. Staff also recommends that the costs associated with the proposed project be allocated to rate classes on an energy basis.

<sup>46</sup> TECO's Response to Staff's Sixth Data Request, No. 4 (c). Compared to the residential rate presented in Table 3 on p.8 of this recommendation, the Revised Cost Original Scope column includes the revenues from gypsum sales and the expanded amount of O&M expenses.

Docket No. 110262-EI  
Date: September 6, 2012

**Issue 2:** Should this docket be closed?

**Recommendation:** Yes. This docket should be closed upon issuance of a Consummating Order unless a person whose substantial interests are affected by the Commission's decision files a protest within 21 days of the issuance of the proposed agency action. (Murphy)

**Staff Analysis:** If no timely protest to the proposed agency action is filed within 21 days, this docket should be closed upon the issuance of a Consummating Order, unless a person whose substantial interests are affected by the Commission's decision files a protest within 21 days of the issuance of the proposed agency action.

**Attachment A – Allocation of the revenue from the sale of gypsum**

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TAMPA ELECTRIC COMPANY  
DOCKET NO. 110262-EI  
STAFF'S SECOND DATA REQUEST  
REQUEST NO. 14  
BATES STAMPED PAGES: 165  
FILED: MARCH 23, 2012

- 14.** Referring to revenues from sales of gypsum, Mr. H. Bryant of TECO stated, at the March 13, 2012, agenda conference, that "it is basically split fifty-fifty. 50% goes to the Company, and 50% goes back to customers. . . ." Is this statement correct? Please provide a detailed explanation of how the revenues generated by selling gypsum are distributed between the ECRC, base rates, and the Company (and the methodology employed), and why this distribution is reasonable and fair. Please cite the Commission order(s), if any, approving the allocation methodology and indicate how long TECO has employed the current methodology.
- A.** The statement is referring to the disposition of gypsum revenue derived from the sale of gypsum produced from the operation of two FGD systems ("scrubbers") at Big Bend Station. The key to understanding the statement is determining the source of funding for the construction of the scrubbers. The scrubber for Big Bend Unit 4 went in-service in 1985 and was funded through base rates. Big Bend Unit 3 was integrated into that scrubber in 1996. The scrubber for Big Bend Units 1 and 2 went in-service December 1999 and by Commission decision was funded through the ECRC. Therefore, the revenue from the sale of gypsum produced by the scrubbers is nominally split at a 50 percent level, namely, 50 percent is allocated toward base rates as an offset to total overall costs included in base rates and 50 percent is allocated toward the ECRC as an offset to total overall costs included in the ECRC. In both cases, the revenue offset has the impact of lowering the two rates that would otherwise be levied against customers.

The decision to manage gypsum revenues in this manner was determined during the FPSC audit of the 2000 ECRC True-up Filing. At that time, the scrubber for Big Bend Units 1 and 2 had been online for one year of commercial operation and it was necessary to establish the procedure in which the revenue from the sale of gypsum as well as the cost of raw materials, or consumables, used to produce the gypsum would be managed. The method utilized has been audited every year since 2000 and has been accepted at the annual ECRC hearings as the appropriate, fair and reasonable treatment of gypsum revenue and consumables cost from Big Bend Station.



**Abashment B – Historical data of the amount of gypsum produced versus marketed and remained at the BB Station**

TAMPA ELECTRIC COMPANY  
 DOCKET NO. 110262-EI  
 STAFF'S SECOND DATA REQUEST  
 REQUEST NO. 9  
 BATES STAMPED PAGES: 94  
 FILED: MARCH 23, 2012

9. Referring to the table included in TECO's response to Staff's Information Data Request No.1, please provide the following information:

- (a) Additional column to show the percentage of gypsum sold vs. produced;
- (b) All the data extending to year 1999.

A.

a. The table below is similar to Tampa Electric's response to Staff's Informal Data Request, No. 1 with an additional column reflecting the percentage of gypsum sold vs. produced and with all the data from 1999 forward.

Year	Produced (Tons)	Marketed (Tons)	Sales Revenue (\$)	Difference (Tons)	Difference (%)*
1999	339,871	416,656	1,939,933	(76,785)	123%
2000	692,450	474,696	2,179,096	217,754	69%
2001	819,291	757,601	3,157,920	61,690	92%
2002	683,535	612,476	2,766,334	71,059	90%
2003	691,547	507,404	2,194,332	184,143	73%
2004	599,505	706,699	3,012,256	(107,194)	118%
2005	555,066	715,462	2,393,087	(160,396)	129%
2006	557,650	588,582	2,497,793	(30,932)	106%
2007	655,887	683,090	2,517,237	(27,203)	104%
2008	683,537	585,787	2,949,187	97,750	86%
2009	560,300	444,401	2,216,892	115,899	79%
2010	662,530	533,921	2,129,724	128,609	81%
2011	719,982	361,234	1,667,124	358,748	50%

\*Percentages higher than 100 percent include sales from inventory.

**Attachment C – Economic comparisons between TECO proposed new storage facility and its alternatives, as well as the assumptions used**

TAMPA ELECTRIC COMPANY  
 DOCKET NO. 110262-EI  
 STAFF'S SECOND DATA REQUEST  
 REQUEST NO. 11  
 BATES STAMPED PAGES: 148 - 161  
 FILED: MARCH 23, 2012

**11.** Please refer to Exhibit B Net Present Value Analyses of TECO's petition. For each of the five scenarios included, please provide the following information:

- (a) All the assumptions (general to all scenarios and specific to the individual scenario) that TECO used to derive the dollar amount presented;
- (f) The estimated initial capital investment amount, if any, and any subsequent estimated investment expressed in nominal and 2011 dollar values, in the years that these investments occur and why;
- (g) The estimated annual amount of O&M expense for each year in nominal and 2011 dollar values;

**A. a.** Please see the tables below reflecting the assumptions used by Tampa Electric to derive the dollar amounts present.

**Assumptions**

Gypsum Options	Capital Investment (\$)	AFUDC Amount (\$)	Depreciation (\$/year)	Depreciation Rate (%)	Asset Life (Years)	O&M**** (\$)	O&M Escalation Rate (\$)	Transportation Savings* (\$)
New Storage Area-Conveyor	54,976,700	5,196,669	143,270	2.4	35	77,000	2.2	56,659,346
New Storage Area-Rail	52,914,600	4,693,873	137,163	2.4	35	590,000	2.2	56,659,346
New Storage Area-Truck	42,776,700	3,577,403	110,367	2.4	35	1,740,700	2.2	56,659,346
Fuel Switch Low Sulfur Coal**	n/a	n/a	n/a	n/a	n/a	94,500,000	2.2	n/a
Offsite Landfill***	160,600,000	n/a	382,381	2.4	35	2,943,243	2.2	n/a

\*Transportation Savings is a savings of \$2.50 per ton with an escalation rate of 2.2 percent to have gypsum delivered to National Gypsum's facility. Savings increases each year to offset O&M and declines due to retirement of units.

\*\* To perform the analysis on switching fuel to low sulfur coal, Tampa Electric assumed low sulfur, Powder River Basin coal would be the most cost-effective option at \$4.39/MMBtu.

\*\*\*Offsite Landfill is company-owned landfill.

\*\*\*\*O&M is reflective of first year costs.

**Expected Gypsum Production by Year\***

Year	Total Production (Tons)	Year	Total Production (Tons)
2015	709,748	2033	736,762
2016	712,362	2034	736,215
2017	710,289	2035	685,306
2018	710,644	2036	560,944
2019	714,947	2037	560,357
2020	720,387	2038	440,751
2021	733,611	2039	371,236
2022	733,712	2040	378,188
2023	730,204	2041	284,324
2024	735,461	2042	219,017
2025	734,812	2043	218,993
2026	734,383	2044	219,500
2027	733,022	2045	219,111
2028	736,697	2046	218,915
2029	735,952	2047	218,984
2030	735,612	2048	219,562
2031	732,674	2049	218,971
2032	736,412		

\*The expected production of gypsum per year was used to calculate the transportation savings.

- f. Please see the table below reflecting the estimated initial capital amount and subsequent estimated capital investments for 2011 through 2015 in nominal and 2011 dollars.

Year	New Storage Area Conveyor	New Storage Area Rail	New Storage Area Truck
2011	\$ 1,772,000	\$ 1,762,000	\$ 1,832,000
2012	\$ 9,023,000	\$ 5,688,300	\$ 4,035,000
2013	\$ 11,378,600	\$ 11,185,000	\$ 8,414,600
2014	\$ 24,972,400	\$ 27,073,666	\$ 20,178,000
2015	\$ 7,830,700	\$ 7,205,634	\$ 8,317,100
<b>Capital Investment Total</b>	<b>\$ 54,976,700</b>	<b>\$ 52,914,600</b>	<b>\$ 42,776,700</b>
<b>NPV</b>	<b>\$ 45,441,210</b>	<b>\$ 43,386,201</b>	<b>\$ 34,896,753</b>

- g. Please see the table below for the estimated annual amount of O&M expense for each year in nominal and 2011 dollar values.

Year	New Storage Area Conveyor	New Storage Area Rail	New Storage Area Truck	Fuel Switch Low Sulfur Coal	Offsite Landfill
2015	\$ 77,000	\$ 590,000	\$ 1,740,700	\$ 94,500,000	\$ 2,943,243
2016	\$ 154,000	\$ 602,980	\$ 1,778,995	\$ 96,579,000	\$ 3,007,995
2017	\$ 256,000	\$ 616,246	\$ 1,818,133	\$ 98,703,738	\$ 3,074,170
2018	\$ 359,000	\$ 629,803	\$ 1,858,132	\$ 100,875,220	\$ 3,141,802

Year	New Storage Area	New Storage Area	New Storage Area	Fuel Switch	Offsite
	Conveyor	Rail	Truck	Low Sulfur Coal	Landfill
2019	\$ 359,000	\$ 643,659	\$ 1,899,011	\$ 103,094,475	\$ 3,210,922
2020	\$ 359,000	\$ 657,819	\$ 1,940,789	\$ 105,362,554	\$ 3,281,562
2021	\$ 359,000	\$ 672,291	\$ 1,983,487	\$ 107,680,530	\$ 3,353,757
2022	\$ 360,000	\$ 687,082	\$ 2,027,123	\$ 110,049,501	\$ 3,427,539
2023	\$ 360,000	\$ 702,197	\$ 2,071,720	\$ 112,470,590	\$ 3,502,945
2024	\$ 360,000	\$ 717,646	\$ 2,117,298	\$ 114,944,943	\$ 3,580,010
2025	\$ 360,000	\$ 733,434	\$ 2,163,879	\$ 117,473,732	\$ 3,658,770
2026	\$ 360,000	\$ 749,569	\$ 2,211,484	\$ 120,058,154	\$ 3,739,263
2027	\$ 361,000	\$ 766,060	\$ 2,260,137	\$ 122,699,434	\$ 3,821,527
2028	\$ 361,000	\$ 782,913	\$ 2,309,860	\$ 125,398,821	\$ 3,905,600
2029	\$ 361,000	\$ 800,137	\$ 2,360,676	\$ 128,157,595	\$ 3,991,524
2030	\$ 361,000	\$ 817,740	\$ 2,412,611	\$ 130,977,062	\$ 4,079,337
2031	\$ 362,000	\$ 835,731	\$ 2,465,689	\$ 133,858,558	\$ 4,169,082
2032	\$ 362,000	\$ 854,117	\$ 2,519,934	\$ 136,803,446	\$ 4,260,802
2033	\$ 362,000	\$ 872,907	\$ 2,575,372	\$ 139,813,122	\$ 4,354,540
2034	\$ 362,000	\$ 892,111	\$ 2,632,031	\$ 142,889,010	\$ 4,450,340
2035	\$ 363,000	\$ 911,738	\$ 2,689,935	\$ 146,032,569	\$ 4,548,247
2036	\$ 363,000	\$ 931,796	\$ 2,749,114	\$ 149,245,285	\$ 4,648,309
2037	\$ 363,000	\$ 952,295	\$ 2,809,594	\$ 152,528,681	\$ 4,750,572
2038	\$ 364,000	\$ 973,246	\$ 2,871,406	\$ 155,884,312	\$ 4,855,084
2039	\$ 364,000	\$ 994,657	\$ 2,934,576	\$ 159,313,767	\$ 4,961,896
2040	\$ 364,000	\$ 1,016,540	\$ 2,999,137	\$ 162,818,670	\$ 5,071,058
2041	\$ 364,000	\$ 1,038,904	\$ 3,065,118	\$ 166,400,681	\$ 5,182,621
2042	\$ 365,000	\$ 1,061,760	\$ 3,132,551	\$ 170,061,496	\$ 5,296,639
2043	\$ 365,000	\$ 1,085,118	\$ 3,201,467	\$ 173,802,849	\$ 5,413,165
2044	\$ 365,000	\$ 1,108,991	\$ 3,271,899	\$ 177,626,512	\$ 5,532,254
2045	\$ 366,000	\$ 1,133,389	\$ 3,343,881	\$ 181,534,295	\$ 5,653,964
2046	\$ 366,000	\$ 1,158,323	\$ 3,417,446	\$ 185,528,049	\$ 5,778,351
2047	\$ 366,000	\$ 1,183,806	\$ 3,492,630	\$ 189,609,666	\$ 5,905,475
2048	\$ 367,000	\$ 1,209,850	\$ 3,569,468	\$ 193,781,079	\$ 6,035,395
2049	\$ 367,000	\$ 1,236,467	\$ 3,647,996	\$ 198,044,263	\$ 6,168,174
<b>NPV</b>	<b>\$3,969,428</b>	<b>\$9,374,437</b>	<b>\$27,657,765</b>	<b>\$1,501,498,730</b>	<b>\$47,883,190</b>

**Attachment D – Breakdown of the Estimated Costs of the Proposed New Storage Facility**

Table 4: Capital Costs Breakdown

	Major Activities of the Proposed New Facility	Associated Costs
1	Construction Activities	\$11,229,900
2	Engineering	3,583,000
3	Major Equipment	17,173,900
4	Floodplain Compensation, Wetlands Mitigation	5,442,500
	Project/Construction Management	4,347,500
5	Silo & Stackout	2,300,000
6	Storage Area Liner	2,756,700
7	Contingency	8,143,200
	Total	\$54,976,700

Table 5: O&M Costs Breakdown

	Major Parts Requiring the Maintenance	Associated Costs
1	Conveyor belts, rollers, head and tail pulleys, belt scrappers/ cleaners, tracking/ alignment issues, and other mechanical components	\$175,000
2	Drive motors, gear boxes, electrical equipment and related cabling	125,000
3	Control systems, lighting, and structural steel repairs	65,000
	Total	\$365,000

Data source: Exhibit A of the Petition, page 13.