

Item # 85

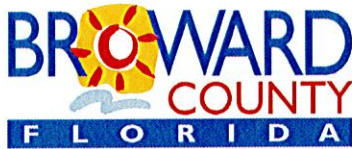
ADDITIONAL MATERIAL

Regular Meeting

NOVEMBER 13, 2018

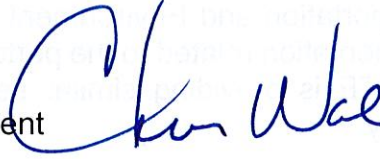
SUBMITTED AT THE REQUEST OF

**DEPARTMENT OF
TRANSPORTATION**



TRANSPORTATION DEPARTMENT/ Administration

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Date: November 6, 2018
To: Broward Board of County Commissioners
From: Chris Walton, Director, Transportation Department 
Subject: Additional Information for Agenda Item 85 concerning BYD Electric Buses

This memorandum provides additional information for Board consideration related to the reconsideration of the decision related to acquiring BYD electric buses via “piggyback” method onto another governmental contract.

As one of the County’s Climate Change goals, Broward County Transit (BCT) proposed to gradually convert its fossil fuel fleet to alternative energy, with the acquisition of electric buses being one of the strategies to accomplish this initiative. In addition to eliminating emissions and having less noise pollution, these buses are expected to be cheaper to operate and maintain over their life cycle.

In preparing to introduce electric buses to the fleet, as part of due diligence, a Request for Letters of Interest (RLI) was issued to the bus manufacturing industry which included the ability to test electric buses, in County, before acquiring them. Of the three responses received (BYD, Complete Coach Works and Proterra), only two manufacturers offered buses for in-County testing (BYD and Complete Coach Works). In 2016, the County placed the buses in service on local service routes in July/August, typically our hottest period, which was expected to thoroughly test the buses both operationally and mechanically. Both buses performed well operationally and mechanically.

In addition to the operational tests, BCT staff conducted research on electric batteries. The BYD Iron-Phosphate battery was the only 100% fire safe battery in production, and the first in the industry to offer a 12-year warranty. The battery is also completely recyclable. Finally, the BYD Iron-Phosphate battery has been used in more than 2,500 transit buses and in over 35,000 electric vehicles world-wide making it the most widely used and tested battery available.

On January 9, 2018, BCT received a \$1 million federal (Low - No) emissions grant. This amount, coupled with our formula based federal capital funds, allowed for the purchase of a total of five electric buses. Based on the previous trials, the County opted to select the BYD buses, as they had the better battery technology, longer warranty, and good operational

performance as demonstrated during the in-County test runs. While the Complete Coach Works bus also performed well, its business model was to convert refurbished buses to electric, while, at the time, new buses were being sought. The grant request was submitted to and approved by the Federal Transit Administration with two partners to assess performance. BYD was the identified partner to be the electric bus manufacturer and the Center for Transportation and Environment (CTE) was identified as the partner to evaluate and gather documentation related to the performance and cost effectiveness of the bus. It should be noted that CTE is providing similar services for 60 alternatively fueled bus projects across the country.

On October 9, 2018, BCT received a second federal Low - No Emissions grant totaling \$2.25 million. This grant provided funds to primarily build a charging infrastructure capable of capturing solar energy to power the electric buses, with the balance of funds, if any, towards electric bus purchases. This grant also included the previous two partners, BYD as the manufacturer and CTE for evaluation. To have a reasonable sample size for testing the different type of traffic encounters, BCT recommended that the County add federal formula grant funds to the Low – No Emissions grant for a total of \$13.1 million to procure 15 additional buses. This would bring the electric bus fleet size to 20, or 5% of the total bus fleet.

BCT again recommended that the County procure the BYD bus for the second bus purchases due to driver and mechanic familiarity, common charging systems and its performance during testing. Further, it was believed that 20 buses would provide for a better sample size for evaluation under diverse operating conditions and service types.

BCT placed the item on the Supplemental Agenda as, at the time, there was a sense of urgency to proceed with the second purchase of 15 electric buses and a “piggyback” contract from a State of Georgia’s solicitation, with the approval of the FTA, was the most expeditious means. This sense of urgency resulted from the following reasons:

- During this potential acquisition, legislation was moving through both Houses of Congress which would have limited the use of federal funding for rolling stock purchased from Chinese firms, and even though the buses are manufactured in the United States, it was not clear they would have been exempt. (Imposition proposed by the Senate in early October; House immediately);
- Consequently, we tried to place the order prior to any new legislation. Currently, our Washington Lobbyists believe that buses would be exempt; and
- A County solicitation would add approximately six months to the 12-month production and delivery time – or at least 18 months before we received the first bus.

BCT became aware of communication presented to the Board, subsequent approval of the item suggesting that BYD buses were unreliable. We were aware that Los Angeles, the second largest bus system in the country, had tested the buses and identified issues. Our research provides the following:

Los Angeles Metro (second largest bus fleet in the U.S.)

Currently, there are no BYD buses in operation, but a total of 65 buses were placed on order following the test period.

- **Comments from James T Gallagher, COO**

The first buses ordered in 2014 were very problematic. The technology of the initial buses used is now five years old and all indications are that the newer buses are much better. He also stated that BYD is far more organized than five years ago.

- **Comments from Jesus Montes, Senior Executive Officer of Vehicle Acquisition**

We received the very first buses built by BYD in the United States. There were issues transferring technology. Both LA Metro and BYD gained significant experience from the 2014 buses, build quality has improved greatly. He has no concerns moving forward with the 65 bus orders.

Denver Regional Transportation District

Currently 36 BYD buses in operation.

- **Comments from William Weidnaar, Technical Services Manager**

Very satisfied. Buses (manufactured in 2016 and 2018) are performing well. Had a persistent issue with doors, which was resolved with BYD and the door supplier. Service issues are responded to as per industry norm with other bus manufacturers.

GO COMO Columbia, Missouri

Currently, there are eight leased BYD buses in service with a total of three additional buses on order.

- **Comments from Dale Lynn, Transportation Superintendent**

Problems experienced are consistent with any new bus. Very inexpensive to maintain due to substantially fewer moving parts.

Link Transit – Wenatchee, Washington

Currently five buses in service, with 10 buses on order (returning 5 and getting 10 new).

- **Comments from Richard DeRock, General Manager**

At first, they had production issues with the 2016 buses; however, now the BYD buses are the most reliable in the fleet. The initial problem was the inability to charge batteries at temperatures above 90 degrees, which was resolved by switching from air cooled to liquid cooled batteries, now standard on the bus. The range was also greatly impacted by bus heating requirements in cold weather, but negligible range impact has been observed when using air conditioning. He also stated that he would not buy in the future without in-plant inspection (This is standard practice for BCT).

Albuquerque Regional Transit – Albuquerque, New Mexico

While various attempts to reach staff at Albuquerque Regional Transit were unsuccessful, prior to distribution of this memorandum, research reveals that there were aggressive production schedules insisted upon by City leaders. An Inspector General's report details: a lack of proper parts, no in-plant inspection, and rushed production in order to make agency imposed deadlines. (County staff will continue attempts to reach Albuquerque Regional Transit staff).

Recommendation:

The general consensus is that the initial electric bus builds in the United States had production concerns; however, many of the problems have largely been addressed. The current BYD electric buses are performing satisfactorily as evidenced by additional orders placed by Transit systems operating them as well as the new orders placed nation-wide and globally. It is also important to note that BYD has 270 buses currently in service and 300 additional buses on order in the United States.

Staff recommends that we move forward with the charging component of the grant; review the operational performance of the five buses on order; maintain the existing piggyback order but push back the production schedule until the conclusion of the test period for the five buses (approximately three months) has been completed. If acceptable performance is achieved, staff recommends to then proceed with the additional 15 electric buses. This will assure testing occurs on the same buses with the same charging technology.

- C: Bertha Henry, County Administrator
- Monica Cepero, Deputy County Administrator
- Gretchen Cassini, Assistant County Administrator
- Andrew Meyers, County Attorney
- Bob Melton, County Auditor
- George Tablack, Director, Finance and Administrative Services
- Brenda Billingsley, Director, Purchasing Division