

Fiscal Note

BILL # HB 2153

TITLE: renewable energy storage equipment;
valuation

SPONSOR: Dunn

STATUS: House Engrossed

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Description

The House Engrossed version of HB 2153 would exempt retail purchases of electric storage equipment from transaction privilege tax (TPT) and use tax and require the Arizona Department of Revenue (DOR) to assess the property value of renewable energy electric storage equipment at 20% of the depreciated cost.

Estimated Impact

The General Fund may experience a negative impact of millions of dollars in revenue collections in future years as a result of the bill's TPT exemption, as discussed in the Analysis section below. While any precise estimate is speculative, the impact across 5 years could potentially be \$40 million. In addition, the bill's more favorable property tax treatment would result in higher K-12 formula costs for the General Fund in future years than under current law.

For energy storage equipment currently on the assessment roll, the bill is estimated to increase General Fund costs for the K-12 funding formula by \$7,000 in FY 2023, when accounting for Truth-in-Taxation (TNT) adjustments.

In previous years, DOR provided property data to our office for this fiscal memo. DOR has not yet provided us with a fiscal estimate for this year.

Analysis

Energy storage equipment allows generated electricity to be converted into a stored form that can later be converted back into electricity. There currently exists many technologies that can store energy, such as electro-chemical (battery), electro-mechanical, thermal and pumped hydro storage technologies.

According to the U.S. Energy Information Administration's (EIA) most recently published report on "Preliminary Monthly Electric Generator Inventory," there were 13 electric storage projects operating in Arizona in November 2020, with a combined power capacity of 516 megawatts (MW), of which 42 MW was attributable to battery storages. In addition, the EIA report shows that additional electric storage projects representing 998 MW are planned by 2025.

There have also been public announcements by the state's 2 largest public utilities - Salt River Project (SRP) and Arizona Public Service (APS) - that they will significantly expand the use of large-scale battery systems over the next few years. APS has announced initiatives to add 650 MW of battery storage by 2025.

In November 2019, SRP announced that it will make investments in 2 new battery storage systems with a combined power capacity of 338 MW. One of the projects referred to as the Sonoran Energy Center will be an approximately 250 MW storage system located near Buckeye, while the other project, referred to as Storey Energy Center, will be an approximately 88 MW energy storage system built near Coolidge. According to SRP, both plants are scheduled to be online by June 2023 and will be owned and operated by subsidiaries of NextEra Energy Resources, LLC.

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As noted above, based on information from EIA, there are currently energy storage projects with a combined power capacity of 516 MW in Arizona. Approximately 1,986 MW in additional energy storage capacity is also planned to go into operation through 2025.

If the bill were enacted, it would have an impact on both sales tax collections and property valuations, as discussed below.

Sales Tax Impact

Current law exempts equipment used directly in producing or transmitting electric power from retail TPT and use tax. The bill would expand this exemption to include machinery and equipment used directly for utility-scale energy storage. The cost of utility-scale energy storage equipment is typically proprietary and therefore not publicly reported. Moreover, DOR is not able to provide estimates of how much electric storage equipment is currently purchased annually in the state.

To estimate the amount of General Fund revenue that the state could potentially forego under the bill, the JLBC Staff used other data sources. In a report issued by the National Renewable Energy Laboratory (NREL), which is a government-owned, contractor-operated facility funded by the U.S. Department of Energy (DOE), the cost of a standalone lithium-ion energy storage system with an installed capacity of 60 MW with a 4-hour duration system, was estimated to be \$380 per kWh in 2018, of which \$209 per kWh was attributable to the cost of lithium-ion battery itself. This means that for such a system, the cost of the lithium-ion battery would have been an estimated \$50.2 million [= 60,000 KW x 4 hours x \$209] in 2018.

Advances in technology have brought down battery storage costs in recent years and these costs are expected to continue to decline in future years. In the report "Cost Projections for Utility-Scale Battery Storage" issued in June 2019, NREL projected the absolute storage cost for a 4-hour battery system by year through 2050 under 3 alternative cost scenarios (low, mid, and high). For example, relative to the 2018 cost, the storage system cost was projected to be 52% lower in 2025 under the "low" cost scenario; 35% lower under the "mid" cost scenario; and 13% lower under the "high" cost scenario.

As noted above, additional storage capacity of approximately 1,986 MW is planned over the next few years. To estimate the amount of forgone General Fund revenue from these planned projects, we have assumed a battery storage cost of \$248 per kWh. This figure is based on NREL's projected "mid" cost reduction of 35% in 2025 [= \$380 per kWh x 0.65]. In 2018, the cost of the lithium-ion battery was \$209 per kWh, which represented 55% of the total battery system storage cost that year. For this analysis, we have assumed the same proportional cost in 2025, which results in a cost estimate of \$136 per kWh for a 4-hour utility-scale lithium-ion battery [= \$248 x 55%]. Therefore, under the assumptions outlined above, adding 1,986 MW of energy storage capacity by 2025 would result in an estimated \$1.1 billion [= 1,986,000 KW x 4 hours x \$136] in lithium-ion battery costs. This would mean that the negative General Fund impact would be an estimated \$39.9 million [= \$1.1 billion x 5% tax rate x 73.8% GF portion] in sales tax revenue through 2025. Given the speculative nature of this calculation, we have rounded our estimate to \$40 million.

The estimated General Fund impact through FY 2025 is uncertain for several reasons. First, we cannot determine from available information whether any of the planned battery storage initiatives discussed on the previous page have been already completed. If these storage systems have already been built, the sales tax collections generated from these projects may already be reflected in the current revenue base. This would have the effect of overstating our estimated impact of the sales tax exemption. Second, since the sales tax exemption is for "machinery and equipment used directly for energy storage for later electrical use," it may include other costs related to the lithium battery, such as power conversion system, HVAC system, fire suppression, monitors and controls. Insofar as such costs are not included in the \$136 per kWh estimate used in our analysis, the impact

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would be understated. (The NREL report does not break out the projected cost estimate by component.) Third, the future cost of battery storage systems may differ from our projection. For example, in September 2020, an analysis by IHS Markit projected that the cost of lithium-ion battery cells would fall below \$100 per kWh in 2023 to approximately \$73 per kWh in 2030. To the extent that battery cell costs decline, our estimate may be overstated.

Property Value Impact

The bill would provide more favorable property tax treatment for energy storage equipment. Currently, DOR assesses electric storage equipment that is on-site at a renewable energy facility (such as a solar farm) and stores only renewable energy under A.R.S. § 42-14155 as renewable energy equipment. Under this statute, the equipment is assessed at 20% of its depreciated cost. Depreciated cost essentially refers to the difference between acquisition cost and accumulated depreciation.

Electric storage equipment that is not on-site at a renewable energy facility or does not store 100% renewable energy is instead currently assessed under A.R.S. § 42-14154 as transmission and distribution equipment. Transmission and distribution equipment is assessed using straight line depreciation and without the application of a 20% discount factor as provided under A.R.S. § 42-14155. HB 2153 would have DOR assess all electric storage equipment, regardless of whether any of the stored electricity is generated from renewable sources, at 20% of depreciated cost under A.R.S. § 42-14155.

In tax year (TY) 2019, DOR assessed electric storage equipment as transmission and distribution equipment under A.R.S. § 42-14154 with approximately \$8.4 million in full cash value (FCV). Because this equipment is Class 1 property, it is assessed at a ratio of 18%, which results in a net assessed value (NAV) of \$1.5 million. Under the bill, the assessment would be based on 20% of the depreciated cost of the energy storage equipment. We estimate that this would result in NAV reduction of \$(1.2) million.

Under the Basic State Aid formula, the state pays for the cost of K-12 education not generated through local property taxes. The state also pays a percentage of residential property taxes through the Department of Education's Homeowner's Rebate program. The reduction in NAV under the bill would have a direct impact on the General Fund by increasing the cost of the K-12 funding formula by an estimated \$43,000 in FY 2023. After accounting for the impact of the \$(1.2) million NAV reduction on the Truth-in-Taxation (TNT) adjustments of the K-12 statutory tax rates (Qualifying Tax Rate and State Equalization Tax Rate), the General Fund cost would be reduced to \$7,000 in FY 2023.

Local Government Impact

Lower property values as a result of the bill could reduce property tax collections for local tax jurisdictions or result in a tax shift to other property owners. The additional TPT exemptions in the bill would result in forgone revenue losses for counties and cities.

3/2/21