



## CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

June 28, 2018

### **S. 2800**

### **America's Water Infrastructure Act of 2018**

*As reported by the Senate Committee on Environment and Public Works on May 22, 2018*

#### **SUMMARY**

S. 2800 would authorize the U.S. Army Corps of Engineers (Corps) to construct projects to improve navigation and flood management, to mitigate storm and hurricane damages, and to restore aquatic ecosystems. The bill also would authorize the Bureau of Indian Affairs (BIA) to address deferred maintenance of Indian dams and irrigation systems. Other provisions in the bill would authorize the Federal Emergency Management Agency (FEMA) to assist state and local governments with mitigating flood risks from aging dams and levees. Finally, the bill would authorize the Environmental Protection Agency (EPA) to provide grants and loans to state and local governments, public water systems, and other entities to support a wide range of water infrastructure projects and programs to improve water quality. CBO estimates that implementing S. 2800 would cost about \$4.5 billion over the next five years and \$6.9 billion over the 2019-2028 period, assuming appropriation of authorized and necessary amounts.

In addition, CBO estimates that enacting S. 2800 would increase direct spending by \$0.4 billion over the 2019-2028 period. The staff of the Joint Committee on Taxation (JCT) estimate that enacting the bill would reduce revenues by \$2.6 billion over the 2019-2028 period. Because enacting the bill would affect direct spending and revenues, pay-as-you-go procedures apply.

CBO estimates that enacting S. 2800 would not increase net direct spending or on-budget deficits by more than \$5 billion in any of the four consecutive 10-year periods beginning in 2029.

S. 2800 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA).

## ESTIMATED COST TO THE FEDERAL GOVERNMENT

The estimated budgetary effect of S. 2800 is shown in the following table. The costs of the legislation fall within budget function 300 (natural resources and environment).

**TABLE 1. ESTIMATED BUDGETARY EFFECTS OF S. 2800, THE AMERICA'S WATER INFRASTRUCTURE ACT OF 2018**

	By Fiscal Year, in Millions of Dollars											
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2019-2023	2019-2028
<b>INCREASES IN SPENDING SUBJECT TO APPROPRIATION</b>												
Estimated Authorization Level	1,051	1,560	1,305	575	573	550	538	467	429	433	5,064	7,481
Estimated Outlays	493	985	1,247	909	816	532	525	494	453	432	4,450	6,886
<b>INCREASES IN DIRECT SPENDING</b>												
Estimated Budget Authority	4	1	1	1	1	114	120	114	39	1	7	394
Estimated Outlays	9	6	6	6	6	119	88	114	39	1	33	394
<b>DECREASES IN REVENUES</b>												
Estimated Revenues	-12	-68	-167	-262	-331	-360	-359	-356	-352	-348	-840	-2,615
<b>NET INCREASE IN DEFICITS FROM CHANGES IN DIRECT SPENDING AND REVENUES</b>												
Estimated Effect on the Deficit	21	74	173	268	337	479	447	470	391	349	873	3,009

Amounts may not sum to totals because of rounding;

The estimate does not include changes in the timing of discretionary spending from implementing section 3803. The provision would make a portion of funds authorized to be appropriated for the Blackfeet Water Rights Settlement available to tribes earlier than under current law. The provision would not affect authorization levels but it would authorize more discretionary spending earlier in the period and less in later years. Those effects on spending would net to zero over 10 years. The direct spending effects of section 3803 are described under the heading "Blackfeet Water Rights Settlement".

## BASIS OF ESTIMATE

For this estimate, CBO assumes that S. 2800 will be enacted near the end of 2018 and that the authorized and necessary amounts will be appropriated for each fiscal year. Estimates of amounts necessary to implement the bill are based on information from the Corps, EPA, and other agencies; estimated outlays are based on historical spending patterns for similar projects and programs. Major components of the estimated costs are described below.

## Spending Subject to Appropriation

CBO estimates that S. 2800 would authorize appropriations totaling about \$7.5 billion over the 2019-2028 period for water infrastructure projects and studies administered by the Corps, FEMA, and BIA. We estimate that implementing those provisions would cost \$6.9 billion over the 2018-2028 period, assuming appropriation of the necessary amounts.

**TABLE 2. ESTIMATED EFFECTS ON SPENDING SUBJECT TO APPROPRIATION OF S. 2800, THE AMERICA’S WATER INFRASTRUCTURE ACT OF 2018**

	By Fiscal Year, in Millions of Dollars										2019-	2019-
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2023	2028
<b>INCREASES IN SPENDING SUBJECT TO APPROPRIATION</b>												
EPA Assistance for Water Infrastructure and Conservation Programs												
Authorization Level	773	928	619	0	0	0	0	0	0	0	2,319	2,319
Estimated Outlays	364	602	711	377	266	0	0	0	0	0	2,319	2,319
Corps—Water Resources Infrastructure												
Estimated Authorization Level	17	161	194	268	270	260	263	191	183	187	911	1,994
Estimated Outlays	7	70	128	191	234	245	250	221	196	185	630	1,727
Continuing Authorities and Other Programs												
Authorization Level	163	288	313	198	198	163	153	153	153	153	1,158	1,930
Estimated Outlays	66	194	262	209	197	168	155	150	147	146	928	1,694
Dam and Levee Safety												
Authorization Level	30	123	123	30	30	30	30	30	0	0	336	426
Estimated Outlays	12	57	89	71	51	39	32	30	17	8	280	405
Indian Irrigation and Dam Safety												
Estimated Authorization Level	0	0	0	35	36	69	70	70	71	71	71	422
Estimated Outlays	0	0	0	18	27	51	62	69	71	71	45	367
Studies and Other Provisions												
Estimated Authorization Level	68	61	57	44	39	29	23	23	23	23	269	390
Estimated Outlays	45	62	57	44	40	29	26	24	23	23	248	374
Total Costs												
Estimated Authorization Level	1,051	1,560	1,305	575	573	550	538	467	429	433	5,064	7,481
Estimated Outlays	493	985	1,247	909	816	532	525	494	453	432	4,450	6,886

Amounts may not sum to totals because of rounding.

EPA = Environmental Protection Agency

Corps = U.S. Army Corps of Engineers

**EPA Assistance for Water Infrastructure and Conservation Programs.** The bill would authorize the appropriation of \$2.3 billion over the 2019-2021 period for EPA to provide assistance for water infrastructure and conservation programs. CBO estimates that implementing title V and certain conservation programs in title III would cost about \$2.3 billion over the 2019-2028 period. The authorizations include the following amounts:

- \$1.1 billion for EPA to support the Great Lakes Restoration Initiative;
- \$450 million for EPA to make grants to help municipalities address the cost of controlling sewer overflows and stormwater discharges;
- \$200 million for EPA and the Corps to subsidize loans to eligible entities under the Water Infrastructure Finance and Innovation Act program (WIFIA) for water infrastructure projects;
- \$200 million for EPA to subsidize loans to State Revolving Funds for states to support clean water and drinking water projects;
- \$195 million for EPA to make grants for research, conservation, and management of Long Island Sound;
- \$75 million for EPA to provide technical assistance grants to small and medium water treatment works;
- \$65 million for EPA to make grants to support conservation and ecological restoration activities in the Columbia River Basin;
- \$27 million for the U.S. Geological Survey to support research at state institutes on the nation's water resources;
- \$25 million for EPA to make grants to water systems for the purpose of increasing the resiliency and adaptability of those systems to future changes in hydrologic conditions; and
- \$2 million for the EPA to make grants to promote workforce development in the water utility sector.

**Corps—Water Resources Infrastructure.** After accounting for anticipated inflation, CBO estimates that implementing provisions of the bill that would authorize the Corps to construct and modify water infrastructure projects would cost about \$1.7 billion over the 2019-2028 period. Those provisions would authorize the Corps to construct six new projects and would modify the existing authorization of six other projects aimed at mitigating hurricane and storm damage, strengthening flood-risk management, improving the nation’s navigation system, restoring the environment, and providing assistance for water recycling and water treatment projects. Using information from the Corps, CBO estimates that the total cost to complete those projects would be \$4.6 billion. S. 2800 would authorize the appropriation of \$3 billion to cover the federal share of those costs and nonfederal entities would be responsible for the remaining estimated cost of \$1.6 billion.

The estimated cost of the largest project authorized by S. 2800 totals \$3.3 billion; the federal share would total about \$2.2 billion. That project aims to address erosion along the coast in Galveston, Texas, and restore ecosystems including wetlands and marshes to enhance protection from storm surge in the area that was damaged by Hurricane Harvey. The estimated cost for the other projects authorized by the bill total \$1.3 billion; the federal share of those projects totals about \$0.8 billion.

Assuming appropriation of the necessary amounts, CBO estimates that spending on the project to restore the Texas coast in Galveston would total about \$940 million over the 2019-2028 period. CBO estimates that spending for the other five projects and six modifications would total about \$790 million over the next 10 years.

To estimate the speed that funds appropriated for those projects would be spent, CBO used information from the Corps about when construction for each project could begin, how long it would take to complete, and what funding would be necessary to complete it over the anticipated construction period. For this estimate, CBO assumed that those projects with greater benefit to cost ratios would be prioritized for funding. Information on cost benefit ratios was provided to CBO by the Corps. CBO also analyzed the historical spending patterns of similar projects. Because of their size and complexity some large Corps projects can take several years to commence and more than 10 years to complete. CBO estimates that the federal share of the projects and project modifications authorized by this title would require the appropriation of about \$2 billion over the 2019-2028 period; the remainder of the federal share to complete the projects would be needed after 2028.

Finally, the bill would withdraw the authorization for six projects that were originally authorized more than 60 years ago and are no longer viable. Information from the Corps indicates that no additional construction is planned for those projects; therefore, CBO expects that deauthorizing them would have no budgetary effect.

**Continuing Authorities and Other Programs.** CBO estimates that implementing the following provisions would cost about \$1.7 billion over the 2019-2028 period. The legislation would authorize the appropriation of the following amounts for continuing authorities and other programs. Some of the authorizations are annual amounts while others are a one-time authorization that would spend over several years.

- \$40 million a year to establish watercraft inspection stations and to operate and maintain existing stations to prevent the spread of aquatic invasive species;
- \$27.5 million a year to carry out small flood control projects, including constructing levees and modifying channels to protect communities;
- \$20 million a year to modify existing Corps projects to improve aquatic habitats, estuaries and rivers;
- \$200 million, in total, to expand a program for nonfederal sponsors to advance funds to conduct studies and construct federal flood control and water resources projects, and to reauthorize a pilot program to for nonfederal sponsors to carry out feasibility studies and to construct federal water resources projects;
- \$15 million a year to mitigate storm and hurricane damage by constructing projects to control shoreline erosion and to restore beaches;
- \$12.5 million a year to improve the navigation of small rivers and harbors;
- \$12.5 million a year to carry out projects to use regional sediment to protect and restore aquatic habitats, wetlands, and property from storm damage;
- \$12.5 million a year to restore aquatic ecosystems to protect fish and wildlife;
- \$125 million, in total, for the Corps to purchase and install infrastructure in the Mississippi River channel to protect the riverbank from erosion, to maintain navigation, and to protect the community;
- \$80 million, in total, to reauthorize the Rio Grande program for environmental management and for the Corps to carry out a program for groundwater and well water testing in disadvantaged communities;
- \$75 million, in total, for the Corps to establish a demonstration program along the mid-Atlantic Coast to construct beach nourishment and shoreline protection projects; and

- \$5 million a year to construct and repair shoreline and streambank structures to protect public infrastructure.

**Dam and Levee Safety.** Using information provided by the Corps and FEMA, CBO estimates that implementing provisions in S. 2800 addressing dam and levee safety would cost \$405 million over the 2019-2028 period.

**Indian Irrigation and Dam Safety.** CBO estimates that implementing provisions of the bill related to programs that rehabilitate and maintain Indian irrigation projects and dams would cost \$367 million over the 2019-2028 period.

S. 2800 would authorize the Treasury to transfer \$35 million each year into the Indian Irrigation Fund until 2028. Under current law, the authority to make annual transfers into the fund expires in 2021. Those annual deposits, and interest credited to the unspent balances in the fund would be authorized to be appropriated for maintaining Indian irrigation projects operated by BIA in the western United States. According to the BIA, the agency operates 17 Indian irrigation projects that would be eligible to receive appropriated funds under the bill. According to BIA, the total cost to complete the deferred maintenance for all those projects is about \$600 million. Based on historical spending patterns for similar projects, CBO estimates that implementing those provisions would cost \$225 million over the 2019-2028 period.

The bill also would authorize the Treasury to transfer \$33 million each year into other Treasury funds for dam safety until 2028. Under current law, the authority to make annual transfers into those funds expires in 2023. Those annual deposits, and the interest credited to the unspent balances in those funds would be authorized to be appropriated for repairing, replacing and maintaining Indian Dams. Based on historical spending patterns for similar projects, CBO estimates that implementing those provisions would cost \$142 million over the 2019-2028 period.

**Studies and Other Provisions.** Using information provided by the Corps and EPA, CBO estimates that implementing the provisions described below would cost \$374 million over the 2019-2028 period. Those provisions would:

- Authorize the Corps to conduct 18 feasibility studies for projects to reduce risks stemming from floods, to restore ecosystems, and to improve navigation;
- Direct the Corps to assist Indian Communities displaced by federal dams;

- Direct the Corps to prepare an annual work plan and budget for the current year and the next four years for the headquarters and districts;
- Direct the Corps to prepare feasibility reports for implementing a federal cost of 50 percent or higher for projects in areas affected by storm damage that remain at risk from future storms;
- Direct the Corps to assist Indian Communities displaced by federal dams;
- Expand a program to prevent flooding caused by ice jams; and
- Require EPA to promote green infrastructure, to provide technical assistance to municipalities seeking to comply with the Clean Water Act, and require EPA to update financial guidance that municipalities use when measuring the capability of households to pay for future water infrastructure investments.

### **Direct Spending**

Using information provided by the Corps and BIA, CBO estimates that enacting S. 2800 would increase direct spending by \$394 million over the 2019-2028 period (see Table 3).

**Nonfederal Reimbursements for Constructed Projects.** S. 2800 would direct the Corps to either reimburse nonfederal sponsors or credit them for unreimbursed expenses for completed construction projects. Such credits could be used in lieu of cash to make operation and maintenance payments otherwise owed to the federal government or for a nonfederal sponsor's cost-share requirement for another project. Under current law, nonfederal sponsors have undertaken six projects using agreements that allow but do not require the federal government to reimburse the nonfederal sponsor for any portion of the project's costs. Under the bill, the government would be required to reimburse or credit such amounts to the nonfederal sponsor upon request. Nonfederal sponsors that have provided funding to the Corps to construct a federal water project would benefit under the bill. CBO used information from the Corps to identify six nonfederal sponsors that would be eligible to seek reimbursement (in cash or credit) from the government for a total of \$755 million.

**TABLE 3. ESTIMATED EFFECT ON DIRECT SPENDING AND REVENUES OF S. 2800, THE AMERICA'S WATER INFRASTRUCTURE ACT OF 2018**

	By Fiscal Year, in Millions of Dollars										2019-	2019-
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2023	2028
<b>INCREASES IN DIRECT SPENDING</b>												
Nonfederal Reimbursements for Constructed Projects												
Estimated Budget Authority	0	0	0	0	0	113	113	113	38	0	0	378
Estimated Outlays	0	0	0	0	0	113	113	113	38	0	0	378
Blackfeet Water Rights Settlement												
Estimated Budget Authority	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Outlays	5	5	5	5	5	5	-32	0	0	0	27	0
Credit for the Kissimmee River Restoration												
Estimated Budget Authority	0	0	0	0	0	0	6	0	0	0	0	6
Estimated Outlays	0	0	0	0	0	0	6	0	0	0	0	6
Other Provisions												
Estimated Budget Authority	4	1	1	1	1	1	1	1	1	1	7	11
Estimated Outlays	4	1	1	1	1	1	1	1	1	1	7	11
Total Costs												
Estimated Budget Authority	4	1	1	1	1	114	120	114	39	1	7	394
Estimated Outlays	9	6	6	6	6	119	88	114	39	1	33	394
<b>DECREASES IN REVENUES</b>												
Estimated Revenues	-12	-68	-167	-262	-331	-360	-359	-356	-352	-348	-840	-2,615
<b>NET INCREASE IN DEFICITS FROM CHANGES IN DIRECT SPENDING AND REVENUES</b>												
Estimated Effect on the Deficit	21	74	173	268	337	479	447	470	391	349	873	3,009

Amounts may not sum to totals because of rounding.

Under current law, the amount authorized to be appropriated for reimbursements to nonfederal sponsors is limited to \$100 million annually. Competition for those funds makes it unlikely that all six nonfederal sponsors would be fully reimbursed within the next several years. CBO expects that nonfederal sponsors who are not fully reimbursed promptly could sue the government for those amounts after the bill is enacted. CBO expects it could take about three to five years to litigate those claims, and the outcome of such litigation is uncertain. Any award for successful claims would probably be paid from the Judgement Fund (a permanent, indefinite appropriation for claims and judgements against the United States).

CBO has insufficient information to determine which nonfederal sponsors would seek cash reimbursements and when they would receive payments or use credits for payments owed to the federal government. Because of that uncertainty CBO assumes that about half of the costs would be incurred after 2028. CBO estimates that the other half would be paid out under the bill sometime before 2028 and would thus increase direct spending by \$378 million over the 2019-2028 period.<sup>1</sup>

**Blackfeet Water Rights Settlement.** S. 2800 would allow the Blackfeet Tribe to access funds appropriated for the Blackfeet Water Settlement earlier than under current law. So far, \$37 million has been appropriated for the settlement and the tribe can only spend \$5.3 million of that amount. Under the bill, the tribe would be able to spend the remaining \$32 million immediately. Under current law those amounts would be unavailable until 2025. CBO estimates implementing the provision would increase direct spending over the 2019-2023 period and reduce direct spending over the 2024-2028 period. There would be no net budgetary effect over the 2019-2028 period.

**Credit for the Kissimmee River Restoration.** The construction phase of the Kissimmee River Restoration Project in Florida is nearly complete and the Corps anticipates that the final accounting for the federal and nonfederal shares of the project's cost will occur in about five years. The Corps has previously determined that certain in-kind contributions provided by the local sponsor of the project would not be used as a qualifying credit toward the portion of the local cost share. S. 2800 would reverse that decision and reduce any cash settlement that would be required by the local sponsor to reconcile the nonfederal account. The Corps would be required to credit the nonfederal sponsor for the Kissimmee River Restoration Project for those in-kind contributions, (which total \$6 million. CBO expects that those lost receipts which would be accounted for as a reduction in direct spending) would be recognized in 2025.

**Other Provisions.** Additional increases in direct spending would arise from provisions that would reduce offsetting receipts by \$11 million over the 2019-2028 period. Those provisions would:

- Authorize the Corps to enter into agreements with private entities to manage recreation facilities and to collect and expend funds, that would be deposited into the Treasury under current law, to operate and maintain those sites;

---

1. Section 1005 would entitle nonfederal sponsors that have built Corps projects to reimbursement of those costs with cash or credits. CBO cannot predict if appropriations will be provided in future years to make those reimbursements. Nor can CBO predict if nonfederal sponsors might pursue claims against the government and prevail. The availability and use of credits from the Corps to nonfederal sponsors is also unknown. CBO endeavors to develop estimates that are in the middle of the distribution of potential budgetary outcomes. In cases where there is no clear information on precedents, CBO has adopted a convention of assuming a 50 percent chance of a particular outcome. In this case, CBO assumes that half of the reimbursement total of \$755 million would be incurred in the first 10 years after enactment. CBO takes this approach in uncertain situations for the purpose of informing the Congress about the potential costs of legislation.

- Reduce the amounts owed to the federal government for a project in Saint Paul, Alaska, from 35 percent of the project’s costs to 10 percent; and
- Eliminate the amounts owed to the federal government for certain feasibility studies for aquatic ecosystem restoration.

## **Revenues**

JCT expects that some of the funds authorized to be appropriated in S. 2800 for loans to State Revolving Funds and eligible entities under the WIFIA program would be used by state and local governments to leverage additional funds by issuing tax-exempt bonds. JCT estimates that the issuance of additional tax-exempt bonds would reduce federal revenues by about \$2.6 billion over the 2019-2028 period.

## **UNCERTAINTY**

The amount of federal spending on the projects authorized in S. 2800 over the next 10 years is uncertain and depends on when these large and complex projects would be started and how long it would take to complete them. Specifically, factors affecting uncertainty include when funds would be appropriated for each authorized projects and the possibility of unforeseen events such as natural disasters and changing circumstances of the nonfederal sponsors. CBO used historical data as well as information from the agencies to make judgments about when projects would be undertaken, how long they would take to complete, and what the resulting impacts on the federal budget would be. Actual spending could be higher or lower than those estimates.

CBO’s estimates of federal spending for S. 2800 are also uncertain because the effect of a provision that would require certain nonfederal project sponsors to be reimbursed is unclear and would depend on future decisions made by those nonfederal sponsors. CBO used a probabilistic approach to estimate the federal costs that would result from enacting those provisions to reflect the uncertain outcome of potential litigation and the possible budget impacts of such outcomes on the federal budget. See page 10 for more information on this provision.

## **PAY-AS-YOU-GO CONSIDERATIONS**

The Statutory Pay-As-You-Go Act of 2010 establishes budget-reporting and enforcement procedures for legislation affecting direct spending or revenues. The net changes in outlays and revenues that are subject to those pay-as-you-go procedures are shown in the following table.

---

**CBO Estimate of Pay-As-You-Go Effects for S. 2800 as ordered reported by the Senate Committee on Environment and Public Works on May 22, 2018**

---

	By Fiscal Year, in Millions of Dollars											2018-	2018-
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2023	2028
<b>NET INCREASE IN THE DEFICIT</b>													
Statutory Pay-As-You-Go Impact	0	21	74	173	268	337	479	447	470	391	349	873	3,009
<b>Memorandum:</b>													
Change in Outlays	0	9	6	6	6	6	119	88	114	39	1	33	394
Change in Revenues	0	-12	-68	-167	-262	-331	-360	-359	-356	-352	-348	-840	-2,615

Sources: Congressional Budget Office and the staff of the Joint Committee on Taxation.

---

## **INCREASE IN LONG-TERM DIRECT SPENDING AND DEFICITS**

CBO estimates that enacting S. 2800 would not increase direct spending or deficits by more than \$5 billion in any of the four consecutive 10-year periods beginning in 2029.

## **MANDATES**

S. 2800 contains no intergovernmental or private-sector mandates as defined in UMRA.

## **PREVIOUS CBO ESTIMATE**

On June 4, 2018, CBO transmitted a cost estimate for H.R. 8 as reported by the House Committee on Transportation and Infrastructure on June 1, 2018. H.R. 8 authorized the Corps to construct many of the same water resources infrastructure projects that also would be authorized in S. 2800. For projects common to both pieces of legislation, CBO's estimated costs are the same.

S. 2800 also would reauthorize loan and grant programs administered by the EPA to support clean drinking water projects and other EPA provisions that were not included in H.R. 8.

**ESTIMATE PREPARED BY**

Federal Costs: Aurora Swanson and Jon Sperl  
Mandates: Jon Sperl

**ESTIMATE REVIEWED BY**

Kim P. Cawley  
Chief, Natural and Physical Resources Cost Estimates Unit

H. Samuel Papenfuss  
Deputy Assistant Director for Budget Analysis

Theresa Gullo  
Assistant Director for Budget Analysis