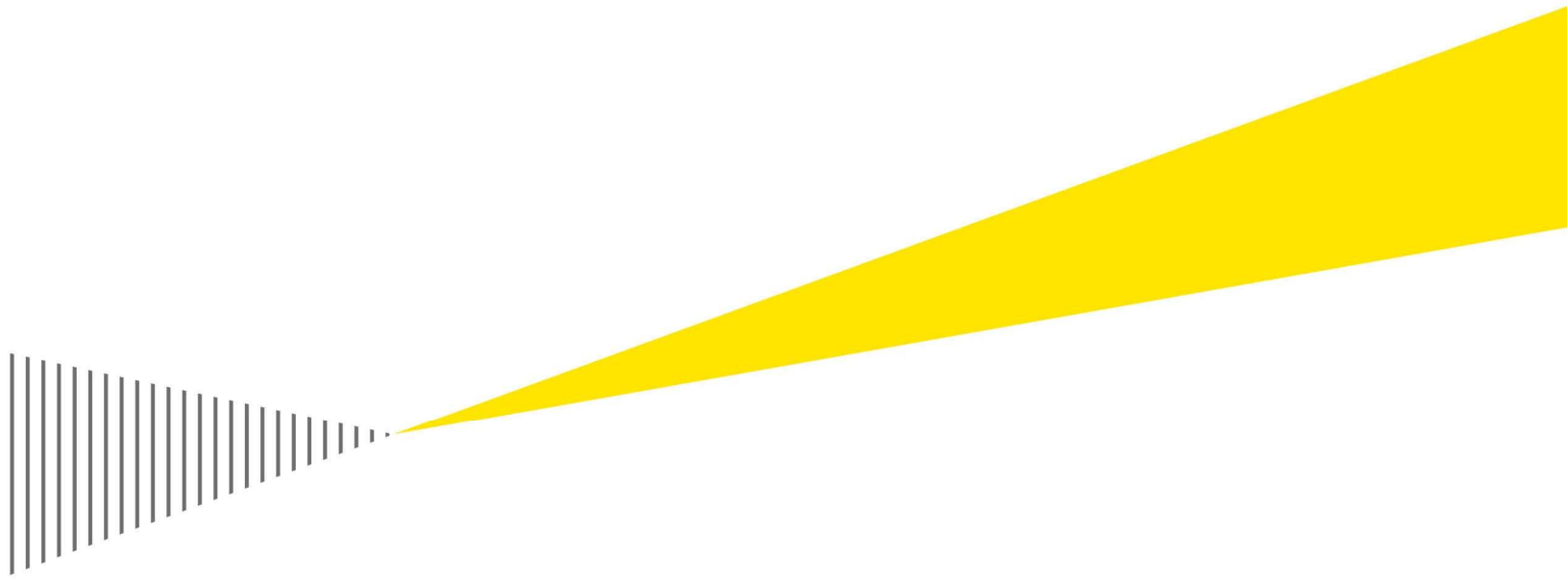
Bank of America Corporation

Estimated economic benefits of the Environmental Business Initiative 2018

June 2019



Building a better working world

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Executive summary

Bank of America's second environmental business initiative set a goal to direct $125 billion in financing by 2025 to projects that help enable the transition to a low-carbon and sustainable economy. As part of this commitment, Bank of America has financed renewable energy projects, energy efficiency upgrades for buildings, new construction of energy efficient buildings, loans for hybrid and electric vehicles, wastewater and drinking water infrastructure upgrades, and urban light rail infrastructure upgrades.[1] The bank has also provided financing to corporations that support energy conservation or the production of renewable energy.

EY was commissioned by Bank of America to estimate the economic contributions of a set of projects and companies that received financing through its environmental business initiative. This report presents estimates of the jobs, labor income, value added, and gross economic output in the United States supported by environmental business initiative projects and corporate financing where a direct environmental benefit occurred in 2018. EY did not analyze whether the projects would have occurred without access to Bank of America financing.

EY estimated three types of economic contributions associated with these environmental and sustainable projects:

(1) **Direct economic contributions** consist of employment, labor income (wages plus benefits), value added, and gross economic output by businesses directly benefiting from Bank of America financing. An example of a direct contribution is the employment at automobile manufacturers that were supported by the purchase of hybrid vehicles with Bank of America loans.

(2) **Indirect economic contributions** of employment, labor income, value added, and gross economic output resulting from purchases from US suppliers by projects receiving Bank of America financing. An example of an indirect contribution is the employment at firms selling parts to automobile manufacturers.

(3) **Induced economic contributions** of employment, labor income, value added, and gross economic output resulting from spending by employees at the companies directly benefiting from Bank of America financing and their suppliers. Jobs supported at a restaurant or a grocery store by this spending is an example of an induced contribution.

Table ES-1 shows a summary of the Bank of America financing amount by type and year included in EY's analysis. Between 2013 and 2018, the bank financed $35.4 billion US projects that yielded a direct environmental benefit by supporting energy conservation or producing alternative energy. Almost a third of project financing went towards renewable energy production, primarily wind energy. The remaining project financing supported vehicle loans, construction of energy efficient buildings, implementation of energy conservation measures, water infrastructure upgrades, and urban transit infrastructure upgrades. In this time period, the bank also provided companies with $6.2 billion in financing to support business activity that yielded a direct environmental benefit or

[1] Bank of America financing incorporates all of the company's divisions, including Bank of America Merrill Lynch.

supported energy conservation. A majority of the financing amount (76%) went to companies involved in the production of renewable energy, primarily photovoltaic solar and wind energy, while the remaining 24% of financing went towards construction of energy efficient buildings, energy conservation measures, and manufacturing of hybrid and electric vehicles.

Table ES-1. Summary of transaction amounts included in the economic contribution analysis, 2013-2018

Millions of dollars

	2013	2014	2015	2016	2017	2018	TOTAL
Project Financing							
Vehicle loans	$272	$427	$592	$371	$343	$587	$2,592
Energy efficient buildings	$744	$739	$934	$792	$724	$717	$4,651
Apartments	*$591*	*$501*	*$434*	*$358*	*$497*	*$449*	*$2,830*
Non-residential	*$152*	*$238*	*$500*	*$434*	*$227*	*$269*	*$1,820*
Energy conservation measures	$494	$464	$523	$526	$921	$410	$3,338
Solar renewable energy	$254	$412	$839	$765	$441	$431	$3,142
Wind renewable energy	$299	$818	$836	$1,742	$1,696	$2,885	$8,276
Other renewable energy*	$366	-	-	-	-	-	$366
Water	-	-	$331	$768	$3,238	$3,048	$7,385
Transportation	-	-	$188	$647	$2,333	$2,477	$5,645
Subtotal	**$2,429**	**$2,861**	**$4,243**	**$5,612**	**$9,696**	**$10,554**	**$35,394**
Corporate Financing							
Hybrid vehicle manufacturers	-	-	$94	$134	$459	-	$687
Energy efficient buildings	-	-	-	-	-	$635	$635
Apartments	-	-	-	-	-	*$100*	*$100*
Non-residential	-	-	-	-	-	*$535*	*$535*
Energy conservation companies	$011	-	$014	$005	$004	$110	$144
Solar renewable energy companies	$167	$477	$1,185	$273	$325	$559	$2,986
Solar energy generation	*$142*	*$307*	*$836*	*$177*	*$254*	*$559*	*$2,275*
Solar cell manufacturers	*$25*	*$169*	*$349*	*$96*	*$71*	-	*$711*
Wind renewable energy companies**	$172	$345	$536	$34	$128	$299	$1,514
Other renewable energy companies*	-	$98	$76	$19	-	$13	$205
Subtotal	**$350**	**$919**	**$1,905**	**$467**	**$916**	**$1,614**	**$6,171**
GRAND TOTAL	**$2,779**	**$3,780**	**$6,148**	**$6,078**	**$10,612**	**$12,169**	**$41,566**

*Includes nuclear and BioGas transactions for project financing, and nuclear, biomass, and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: Figures may not sum due to rounding.
Source: EY analysis using data provided by Bank of America.

Table ES-2 shows the estimated direct economic benefits supported by projects and companies that received Bank of America financing. Many of the projects involved a one-time investment in equipment, upgraded lighting, and HVAC systems, or new construction of buildings. Estimated direct economic benefits supported by Bank of America project financing include 49,578 jobs, $3.5 billion in labor income, $4.6 billion in value added, and $9.4 billion in gross economic output. It is assumed that corporate financing provided by the bank is used to finance capital expenditures such as asset purchase and development. Estimated direct economic benefits supported by Bank

of America corporate financing include 8,221 jobs, $0.6 billion in labor income, $0.8 billion in value added, and nearly $1.6 billion in gross economic output.

Table ES-2. Direct economic contributions of Bank of America's Environmental Business Initiative for 2018 in the United States

Millions of dollars

Sector	Employment	Labor income	Value added	Output
Project Financing				
Vehicle loans	1,158	$86	$182	$452
Energy efficient buildings	4,505	$286	$364	$717
Apartments	*2,565*	*$165*	*$212*	*$449*
Non-residential	*1,940*	*$121*	*$152*	*$269*
Energy conservation measures	2,470	$160	$208	$410
Solar renewable energy	1,632	$128	$199	$333
Wind renewable energy	6,507	$675	$815	$2,008
Other renewable energy	-	-	-	-
Water	18,374	$1,188	$1,544	$3,048
Transportation	14,932	$965	$1,255	$2,477
Subtotal	**49,578**	**$3,489**	**$4,566**	**$9,444**
Corporate Financing				
Hybrid vehicle manufacturers	-	-	-	-
Energy efficient buildings	4,433	$278	$350	$635
Apartments	*572*	*$37*	*$47*	*$100*
Non-residential	*3,861*	*$241*	*$303*	*$535*
Energy conservation companies	463	$32	$47	$110
Solar renewable energy companies	2,478	$204	$312	$556
Solar energy generation	*2,478*	*$204*	*$312*	*$556*
Solar cell manufacturers	-	-	-	-
Wind renewable energy companies**	793	$83	$103	$263
Other renewable energy companies*	55	$4	$6	$11
Subtotal	**8,221**	**$601**	**$817**	**$1,573**
GRAND TOTAL	**57,799**	**$4,090**	**$5,384**	**$11,017**

*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: Figures may not sum due to rounding. Other renewable energy did not have any project financing in 2018, and hybrid vehicle manufacturers and solar cell manufacturers did not have any corporate financing in 2018.
Source: EY analysis using data provided by Bank of America and 2017 US IMPLAN model.

The direct contributions summarized in Table ES-2 lead to additional contributions due to purchases from US suppliers (indirect impacts) and spending by employees on goods and services (induced impacts). Table ES-3 shows the estimated total (direct, indirect, and induced) economic contributions of the environmental business initiative projects and corporate financing in the United States during 2018. Bank of America's **project financing** supported nearly 138,217 jobs and $8.8 billion in labor income (wages and benefits). These projects also supported $13.6

billion of value added (contribution to GDP) and gross economic output of $26.2 billion. Meanwhile, **corporate financing** provided by Bank of America supported over 21,781 jobs and $1.4 billion in labor income (wages and benefits). Corporate financing also supported $2.2 billion of value added (contribution to GDP) and gross economic output of $4.2 billion.

Table ES-3. US total (direct, indirect, and induced) economic contributions of Bank of America's Environmental Business Initiative for 2018

Millions of dollars

Sector	Employment	Labor income	Value added	Output
Project Financing				
Vehicle loans	4,505	$297	$538	$1,176
Energy efficient buildings	11,433	$682	$1,032	$1,965
Apartments	*7,194*	*$424*	*$647*	*$1,257*
Non-residential	*4,240*	*$258*	*$385*	*$709*
Energy conservation measures	6,258	$378	$581	$1,106
Solar renewable energy	4,142	$279	$457	$806
Wind renewable energy	28,026	$1,979	$2,975	$6,065
Other renewable energy	-	-	-	-
Water	46,259	$2,863	$4,397	$8,337
Transportation	37,593	$2,327	$3,573	$6,776
Subtotal	**138,217**	**$8,804**	**$13,554**	**$26,232**
Corporate Financing				
Hybrid vehicle manufacturers	-	-	-	-
Energy efficient buildings	10,043	$608	$911	$1,691
Apartments	*1,603*	*$94*	*$144*	*$280*
Non-residential	*8,440*	*$514*	*$767*	*$1,411*
Energy conservation companies	1,351	$88	$141	$291
Solar renewable energy companies	6,756	$465	$754	$1,368
Solar energy generation	*6,756*	*$465*	*$754*	*$1,368*
Solar cell manufacturers	-	-	-	-
Wind renewable energy companies**	3,468	$247	$375	$777
Other renewable energy companies*	163	$11	$16	$31
Subtotal	**21,781**	**$1,418**	**$2,198**	**$4,157**
GRAND TOTAL	**159,998**	**$10,223**	**$15,751**	**$30,388**

*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: Figures may not sum due to rounding. Other renewable energy did not have any project financing in 2018, and hybrid vehicle manufacturers and solar cell manufacturers did not have any corporate financing in 2018.
Source: EY analysis using data provided by Bank of America and 2017 US IMPLAN model.

The renewable energy projects lead to continued (i.e. ongoing) benefits in subsequent years after the initial investment. Table ES-4 shows the estimated economic contributions in 2018 related to the ongoing operation and maintenance of solar and wind projects financed by Bank of America. Based on the generating capacity of these projects, EY estimated the cost of operations for wind and solar power generation in 2018. These projects are estimated to have supported 2,666 US

jobs providing $198 million in labor income to those employed. Further, the projects contributed $544 million in value added and $880 million in gross economic output, which captures all spending by these projects.

Table ES-4. Economic contributions of renewable US solar and wind projects in 2018
Millions of dollars

Renewable energy generation	Operational nameplate capacity in 2017 (kW)	Total employment	Total labor income	Total value added	Total output
Solar	1,721,140	248	$21	$42	$64
Wind	9,621,195	2,419	$177	$502	$816
Total	**11,342,335**	**2,666**	**$198**	**$544**	**$880**

Note: Analysis assumes that all wind and solar projects that received financing between 2013 and 2017 are operational in 2018. Figures may not sum due to rounding.
Source: EY analysis using data provided by Bank of America, NREL models and O&M costs in 2018 for PV solar and wind projects, and 2017 US IMPLAN model.

The assets that Bank of America corporate financing funds lead to continued benefits in subsequent years after the initial purchase or development of the asset. Table ES-5 shows the estimated economic contributions related to the ongoing operation and maintenance of assets acquired with Bank of America corporate financing in 2018. Bank of America corporate financing in 2018 is estimated to have supported 2,220 US jobs in 2018 providing $154 million in labor income to those employed. Further, corporations supported by Bank of America financing contributed $304 million in value added and $512 million in gross economic output.

Table ES-5. Ongoing economic contributions of US corporate financing by sector for companies that received financing in 2018
Millions of dollars

Sector	Total employment	Labor income	Value added	Output
Hybrid vehicle manufacturers	-	-	-	-
Energy efficient buildings	1,104	$67	$100	$186
Apartments	*135*	*$8*	*$12*	*$24*
Non-residential	*969*	*$59*	*$88*	*$162*
Energy conservation companies	72	$4	$8	$16
Solar renewable energy companies	497	$43	$84	$129
Solar energy generation	*497*	*$43*	*$84*	*$129*
Solar cell manufacturers	-	-	-	-
Wind renewable energy companies**	515	$38	$107	$174
Other renewable energy companies*	32	$2	$4	$8
TOTAL	**2,220**	**$154**	**$304**	**$512**

*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: Figures may not sum due to rounding. Hybrid vehicle manufacturers and solar cell manufacturers did not have any corporate financing in 2018.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

Table ES-6 shows the benefits in 2018 of projects that received corporate financing from Bank of America during the past six years (2013-2018). This assumes that the assets purchased with the corporate financing are still operational at their original capacity and creating an economic impact in 2018. Bank of America corporate financing supported more than 10,300 jobs, $743 million of labor income, $1.4 billion of value added and nearly $2.6 billion in economic output in 2018.

Table ES-6. Ongoing economic contributions of US corporate financing by Sector in 2018 for projects that received financing from 2013-2018

Millions of dollars

Sector	Total employment	Labor income	Value added	Output
Hybrid vehicle manufacturers	2,212	$146	$264	$578
Energy efficient buildings	1,104	$67	$100	$186
Apartments	*135*	*$8*	*$12*	*$24*
Non-residential	*969*	*$59*	*$88*	*$162*
Energy conservation companies	221	$13	$21	$39
Solar renewable energy companies	3,244	$265	$500	$791
Solar energy generation	*2,294*	*$199*	*$389*	*$594*
Solar cell manufacturers	*950*	*$66*	*$111*	*$197*
Wind renewable energy companies**	1,281	$94	$266	$432
Other renewable energy companies*	2,240	$158	$293	$537
TOTAL	**10,302**	**$743**	**$1,444**	**$2,563**

*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: Figures may not sum due to rounding.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

1. Bank of America Environmental Business Initiative

This section describes the types of activities that Bank of America's Environmental Business Initiative has financed.

1.1 Environmental Business Initiative description

Bank of America currently has a $125 billion commitment for financing projects that lead to a low-carbon and sustainable economy. This is the bank's second environmental business initiative, which was initiated in 2013. Its first environmental business initiative in 2007 of $20 billion was met four years ahead of schedule. As part of this second commitment, Bank of America has financed renewable energy generation projects, including photovoltaic solar and wind; energy efficiency upgrades that include LED lighting retrofits and upgraded HVAC systems; new construction of energy efficient buildings; and loans for hybrid vehicles.

1.2 Bank of America financing 2018

1.2.1 Project financing

As shown in Table 1, from 2013 to 2018, Bank of America provided loans for more than 78,000 US projects. Vehicle loans supported the production of more than 77,000 hybrid or electric vehicles from 2013 to 2018, with the number of vehicles financed annually reaching a high of 17,977 in 2018. During the six-year period, the construction of energy efficient buildings accounted for 184 projects, while projects involving energy conservation measures such as LED lighting, upgraded HVAC systems and water conservation, accounted for 439 projects. The bank also financed 262 renewable energy generation projects involving solar, wind, nuclear and biogas. Additionally, 71 projects involving water infrastructure upgrades and 23 projects involving urban light rail infrastructure upgrades were financed by the bank through green bonds.

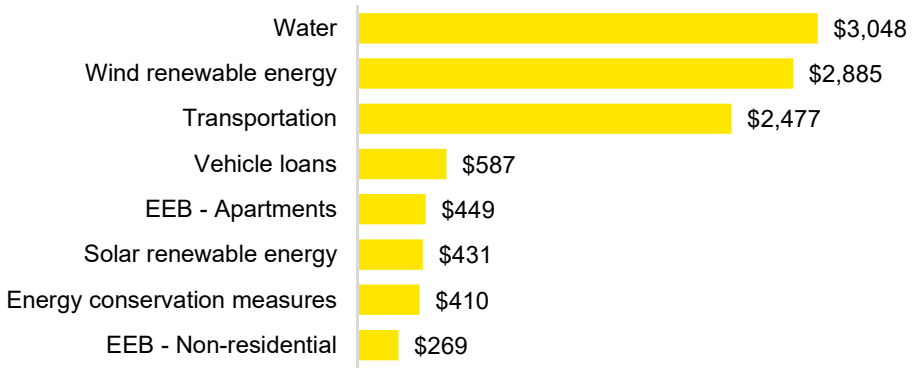
Table 1. Number of US transactions by project type, 2013-2018
Number of loans or individual projects

Project financing type	2013	2014	2015	2016	2017	2018	TOTAL
Vehicle loans	10,882	7,820	10,721	15,375	14,377	17,977	77,152
Energy efficient buildings	44	32	35	18	32	23	184
Energy conservation measures	69	58	80	83	85	64	439
Renewable energy projects	21	34	56	74	48	29	262
Water	-	-	11	14	13	33	71
Transportation	-	-	2	4	2	13	23
TOTAL	**11,016**	**7,944**	**10,905**	**15,568**	**14,557**	**18,139**	**78,131**

Note: Figures may not sum due to rounding.
Source: EY analysis using data provided by Bank of America

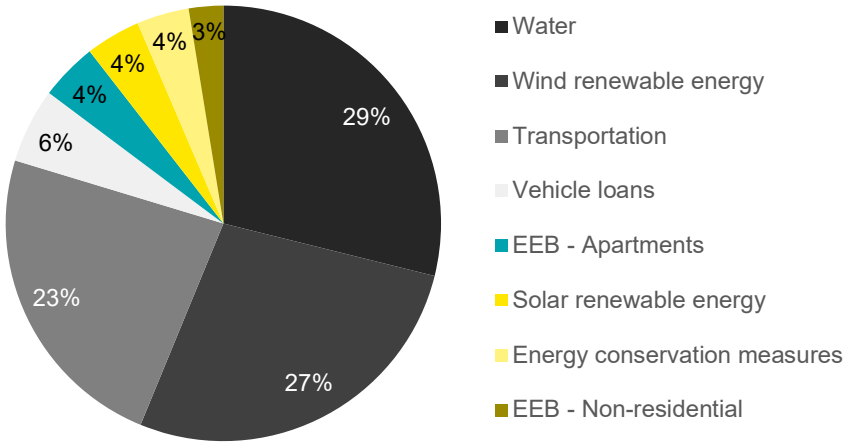
Figure 1 shows the amount of Bank of America financing provided to each project type in 2018. Projects involving water infrastructure upgrades accounted for the largest share of the total project financing (29%), while projects related to wind renewable energy accounted for the second-largest share (27%). Urban light rail transportation projects involving the upgrade of transit infrastructure received $2.5 billion in project financing (23% of total funding). Construction of energy efficient buildings received a total of $717 million in financing, with $449 million for apartment buildings and $269 million for non-residential buildings. Vehicle loans received $587 million (6% of total funding), and photovoltaic solar projects received $431 million (4% of total funding. Energy conservation measure (ECM) projects received Bank of America financing of $410 million (4% of total) during 2018.

Figure 1. Bank of America project financing of $10.6 billion by Sector, 2018
Millions of dollars



Source: EY analysis using data provided by Bank of America

Figure 2. Distribution of transaction amounts by project type
Totals for 2018



Source: EY analysis using data from Bank of America

1.2.2 Corporate financing

In 2018, Bank of America provided financing to corporations engaged in or investing in activities that support energy conservation or produce alternative energy. Corporate financing supported companies involved in energy efficient buildings, solar renewable energy generation, wind renewable energy generation, energy conservation measures, and other forms of renewable energy. Corporate financing may support activity in one or more green sectors. For companies assigned by Bank of America to one operating sector, 100% of financing was allocated to the corresponding industry. For companies listed as operating in mixed renewables, Bank of America financing was allocated to sectors based on generation capacity by each type of renewable energy. As shown in Table 2, the largest amount of corporate financing was provided to companies building energy efficient structures, non-residential buildings.

Table 2. Amount of Bank of America corporate financing, 2018

Company sector	Amount of financing ($M)
Energy efficient buildings	$635
Apartments	*$100*
Non-residential	*$535*
Solar renewable energy	$559
Wind renewable energy**	$299
Energy conservation companies	$110
Other renewable energy*	$13
TOTAL	**$1,614**

*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: The amount of financing used for modelling economic benefits is the BAC share of each corporate financing deal provided in data by Bank of America. There is no differentiation between the treatment of this dollar amount based on type of financing (credit facility, equity, debt, etc.). Figures may not sum due to rounding.
Source: EY analysis using data provided by Bank of America.

The analysis of the economic contributions of corporate financing provided by Bank of America assumes that the bank's full share of financing goes towards asset investment by companies. For example, hybrid vehicle manufacturers would invest in manufacturing equipment and buildings to expand their operations and production. Further, ongoing annual benefits are estimated as resulting from the operation of these assets (e.g. sale of vehicles by hybrid vehicle manufacturers). For each company, these ongoing annual benefits are estimated based on the share of the company's annual revenue that is equivalent to the share of the company's assets reported by Bank of America's financing.

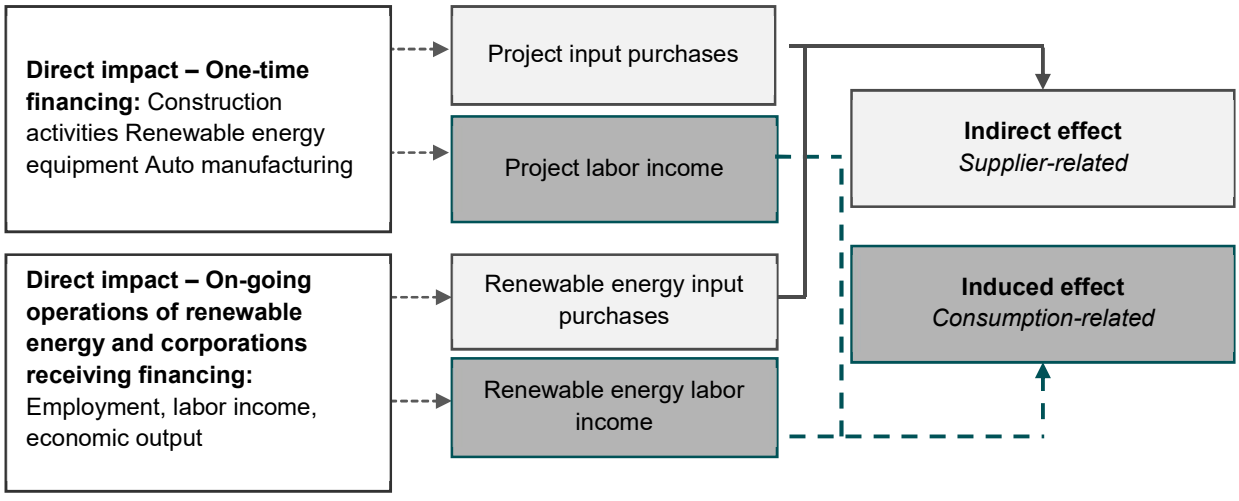
2. Methodology and data

2.1 Economic contribution methodology

EY estimated three types of US economic contributions of projects receiving Bank of America financing. These contributions are described below and shown in Figure 3.

- **Direct contribution.** Direct contribution includes the total full-time and part-time employees and labor income (wages/salary and benefits) at businesses that directly benefited from Bank of America financing. Economic output is generally measured as revenue.
- **Indirect contribution.** The indirect economic contribution is attributable to purchases from suppliers. The indirect contribution also captures the additional input purchases from those businesses supplying companies that directly benefited from BAC financing. These additional purchases create subsequent rounds of indirect effects.
- **Induced contribution.** The induced contribution includes the spending by employees of businesses receiving financing, and the employees of suppliers, at US businesses including grocery stores, restaurants, and service providers.

Figure 3. Overview of the components of economic contributions



Data describing projects included in the economic benefit analysis was provided by Bank of America. This data included the project type, amount financed by Bank of America, total project

cost, date of financing, electricity generation capacity (for renewable power generation projects), and type of structure (for energy efficient building construction). EY analyzed these projects and used the 2017 US IMPLAN model to estimate the direct economic contributions for these projects:

- *Vehicle loans*. The loan amount financed by Bank of America was modeled as a change in industry demand for automobile manufacturers. The model takes into account the share of automobiles manufactured within the United States.
- *Energy conservation measures.* This activity was modeled as renovation to an existing building within the construction sector.
- *Energy efficient buildings.* These projects were modeled as new construction based on the type of structure. For example, office structures were modeled separately from apartment buildings.
- *Renewable energy projects.* Data from the National Renewable Energy Laboratory (NREL) was used to model the purchases of wind and solar projects. The Bank of America financing amounts were then allocated to industries used in the production of these technologies and the labor used for the installation.
- *Water infrastructure.* This activity was modeled as expenditures on civil construction activities.
- *Transportation*. This activity was modeled as expenditures on civil construction.

Data describing corporate financing activities was provided by Bank of America. This data included the corporate financing deal type, amount financed by Bank of America, total deal cost, year of financing, and green energy type. EY analyzed the companies receiving financing and used the 2017 US IMPLAN model to estimate the direct economic contributions:

- *Hybrid vehicle manufacturers.* Financing to these companies was modeled as capital expenditures in machinery. The model takes into account the share of machinery manufactured within the United States. Hybrid vehicle manufacturers did not have any corporate financing in 2018.
- *Energy efficient buildings.* These projects were evaluated based on the type of structure. For example, office structures were modeled separately from apartment buildings.
- *Energy conservation companies.* Financing to these companies was modeled as capital expenditures on HVAC equipment, lighting fixture manufacturing and construction services. The model takes into account the share of equipment manufactured within the US.
- *Renewable energy generation companies.* Data from the National Renewable Energy Laboratory (NREL) was used to model the capital expenditures of solar, wind and hydroelectric energy generation companies. The Bank of America financing amounts were then allocated to industries used in the production of these technologies and the labor used for the installation.

- *Solar cell manufacturers*. Financing to solar cell manufacturers was modeled as capital investments in semiconductor machinery and buildings. The model takes into account the share of machinery manufactured within the United States. Solar cell manufacturers did not have any corporate financing in 2018.

Indirect and induced economic contributions were then estimated using the 2017 IMPLAN economic model for the United States. The magnitude of the economic contribution of the financed projects and corporations is determined by several factors, including supplier relationships with businesses in the United States. This impact can be expressed using an "economic multiplier" which is equal to the total economic impact per unit of direct impact. For each good and service purchased by businesses for the Bank of America projects and by businesses receiving corporate financing, the model predicts the portion that will be supplied by US businesses using trade flow data from the US Department of Commerce and the US Department of Transportation. For example, certain components of photovoltaic solar equipment are primarily manufactured outside the United States. The supplier (i.e. indirect) jobs associated with this production that is outside the United States is not included in our analysis. The IMPLAN model also estimates the spending impacts of direct and indirect employees, reflecting typical consumption expenditure profiles and the estimated proportion of consumption goods that are imported from outside the United States. This gives an estimate of the induced economic contributions. A description of the IMPLAN model and methodology is included in Appendix A.

3. Economic contributions of Bank of America funded projects

3.1 Employment contributions

Table 3 shows the employment contributions of US projects receiving the $12.2 billion Bank of America project and corporate financing in 2018. EY estimates that Bank of America financing supported 57,799 direct jobs and 102,199 indirect and induced jobs, for a total US employment contribution of 159,998.

Project financing benefits include:

- Projects involving wastewater and drinking water infrastructure upgrades supported the largest number of direct jobs among the project types. These projects supported 18,374 direct jobs, and approximately 46,259 total jobs, including indirect and induced effects.
- Urban transportation projects involving infrastructure upgrades to light rail systems supported an estimated 14,932 direct jobs, and 22,661 indirect and induced jobs.
- Approximately 8,139 direct jobs were supported by renewable energy projects involving the installation of wind turbines and production of photovoltaic cells and solar equipment. The additional indirect and induced employment effects of these projects supported an additional 24,029 jobs.
- Energy efficient building construction projects supported a total of 11,433 jobs in 2018. Construction of energy efficient apartment buildings supported 7,194 total jobs (2,565 direct jobs), and construction of non-residential energy efficient buildings supported 4,240 total jobs (1,940 direct jobs).
- Projects involving energy conservation measures supported 2,470 direct jobs and 3,788 indirect and induced jobs.
- Financing of hybrid and electric car production created supported 1,158 direct jobs, and 3,347 indirect and induced jobs.

Corporate financing benefits include:

- Companies involved in the construction of energy efficient buildings collectively supported the highest total number of jobs among the company types. These companies supported 4,433 direct jobs through their capital investments. The additional indirect and induced employment effects of these companies supported an additional 5,610 jobs. The majority of these jobs were supported through the construction of non-residential buildings.
- Companies that generate solar energy supported 2,478 direct jobs and over 4,278 indirect and induced jobs.
- Capital investments in wind turbines and structures by wind energy generation companies supported 793 direct jobs and nearly 2,676 indirect and induced jobs.
- Energy conservation companies that install HVAC and lighting in buildings supported 463 direct jobs and 888 indirect and induced jobs through their capital investments.

- Renewable energy companies engaged in hydroelectric and biomass energy generation supported 55 direct jobs and nearly 108 indirect and induced jobs.

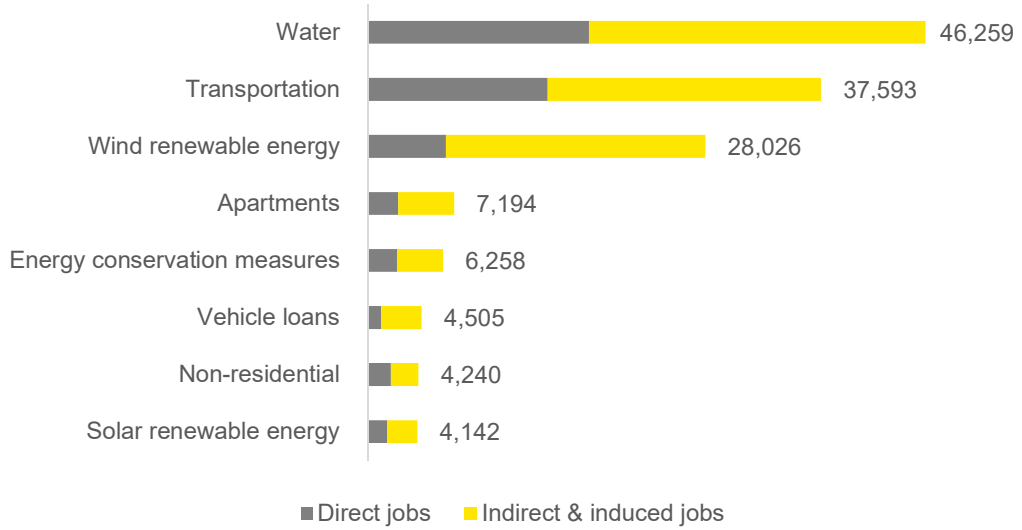
Table 3. Employment impacts by sector for the period 2018
US employment contributions

Sector	Direct jobs	Indirect & induced jobs	Total jobs
Project Financing			
Vehicle loans	1,158	3,347	4,505
Energy efficient buildings	4,505	6,929	11,433
Apartments	*2,565*	*4,629*	*7,194*
Non-residential	*1,940*	*2,300*	*4,240*
Energy conservation measures	2,470	3,788	6,258
Solar renewable energy	1,632	2,511	4,142
Wind renewable energy	6,507	21,519	28,026
Other renewable energy	-	-	-
Water	18,374	27,885	46,259
Transportation	14,932	22,661	37,593
Subtotal	**49,578**	**88,639**	**138,217**
Corporate Financing			
Hybrid vehicle manufacturers	-	-	-
Energy efficient buildings	4,433	5,610	10,043
Apartments	*572*	*1,032*	*1,603*
Non-residential	*3,861*	*4,579*	*8,440*
Energy conservation companies	463	888	1,351
Solar renewable energy companies	2,478	4,278	6,756
Solar energy generation	2,478	4,278	6,756
Solar cell manufacturers	-	-	-
Wind renewable energy companies**	793	2,676	3,468
Other renewable energy companies*	55	108	163
Subtotal	**8,221**	**13,560**	**21,781**
GRAND TOTAL	**57,799**	**102,199**	**159,998**

*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: Figures may not sum due to rounding. Other renewable energy did not have any project financing in 2018, and hybrid vehicle manufacturers and solar cell manufacturers did not have any corporate financing in 2018.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

Figure 4 shows the estimated total (direct, indirect, and induced) employment contributions of project financing by project type. In total, the project financing supported an estimated 138,217 jobs in the United States in 2018. Approximately 81% of the total employment contribution came from projects related to water infrastructure, urban transportation, and wind renewable energy.

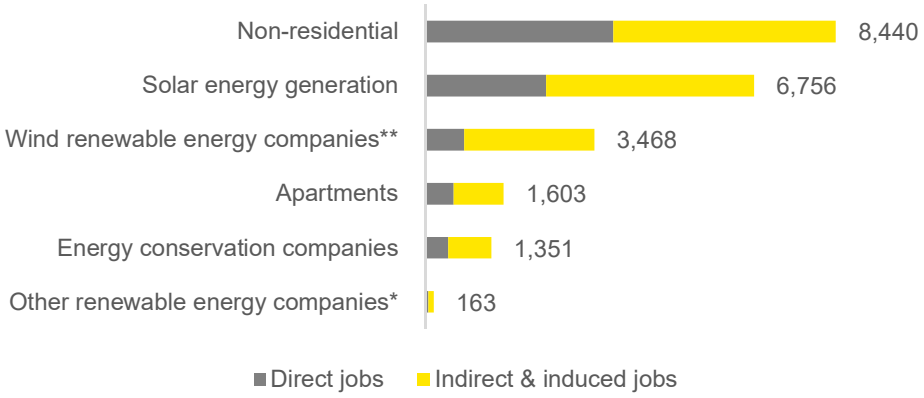
Figure 4. US total (direct, indirect, and induced) employment impacts of project financing by project type in 2018



Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

Figure 5 shows the estimated total (direct, indirect, and induced) employment contributions of corporate financing by company type. In 2018, nearly 22,000 US jobs were estimated to have been supported by companies receiving Bank of America financing. Companies involved in the construction of non-residential energy efficient buildings, which have not traditionally received Bank of America financing, had the largest employment contributions.

Figure 5. US total (direct, indirect, and induced) employment impacts of corporate financing by project type in 2018



*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

Figure 6 and Figure 7 show the total employment multipliers by project type. This is the sum of the direct, indirect, and induced employment contribution for each direct job due to projects

financed by Bank of America. Subtracting one from the total provides the indirect and induced contribution per direct job. Most projects supported one to two additional jobs in other industries. For example, a direct job in the construction of energy efficient apartments is estimated to support an additional 1.8 jobs for a total employment contribution of 2.8 jobs. Wind turbine installation has a higher multiplier due to employees receiving above-average compensation that they then spend on US goods and services (induced impacts).

Figure 6. Total (direct, indirect, and induced) employment multipliers for project financing by project type

Source: EY analysis based on data provided by Bank of America and the 2017 US IMPLAN model.

Figure 7. Total (direct, indirect, and induced) employment multipliers for corporate financing by company type

*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

3.2 Labor income

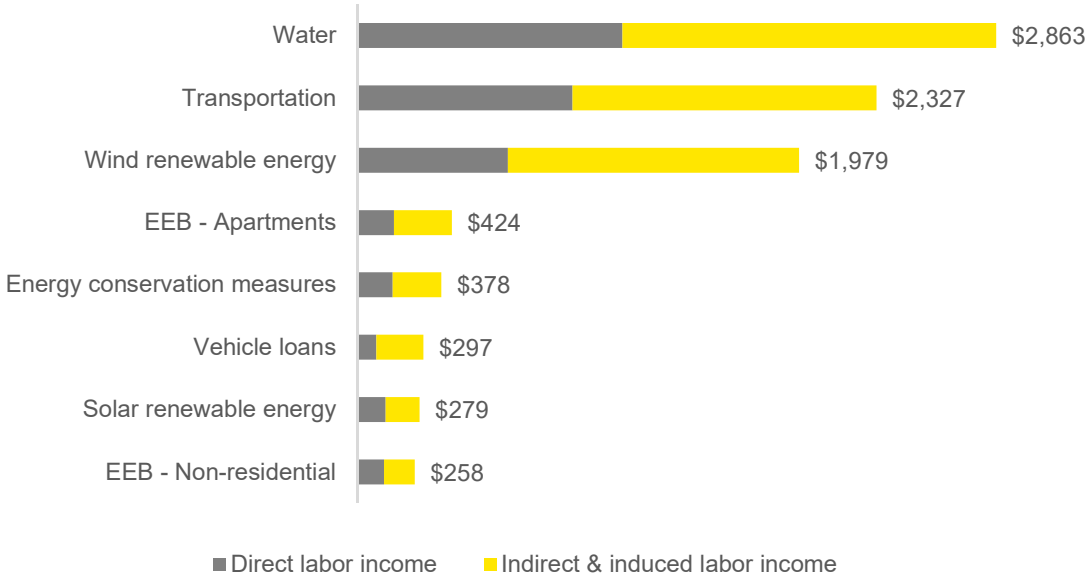
Labor income contributions due to Bank of America financed projects are shown in Table 4. The 159,998 jobs supported by Bank of America financed projects (see Table 3) resulted in a cumulative $10.2 billion in labor income (wages and benefits paid to employees plus proprietor's income) during 2018. Of the $10.2 billion, $4.1 billion is estimated as direct labor income and an estimated $6.1 billion in labor income for indirect and induced employment. Figure 8 and Figure 9 show the labor income by project and company type.

Table 4. Total US labor income contributions by sector for the period 2018
Millions of dollars

Sector	Direct labor income	Indirect & induced labor income	Total labor income
Project Financing			
Vehicle loans	$86	$211	$297
Energy efficient buildings	$286	$395	$682
Apartments	*$165*	*$258*	*$424*
Non-residential	*$121*	*$137*	*$258*
Energy conservation measures	$160	$218	$378
Solar renewable energy	$128	$151	$279
Wind renewable energy	$675	$1,304	$1,979
Other renewable energy	-	-	-
Water	$1,188	$1,675	$2,863
Transportation	$965	$1,361	$2,327
Subtotal	**$3,489**	**$5,316**	**$8,804**
Corporate Financing			
Hybrid vehicle manufacturers	-	-	-
Energy efficient buildings	$278	$330	$608
Apartments	*$37*	*$58*	*$94*
Non-residential	*$241*	*$273*	*$514*
Energy conservation companies	$32	$56	$88
Solar renewable energy companies	$204	$261	$465
Solar energy generation	*$204*	*$261*	*$465*
Solar cell manufacturers	-	-	-
Wind renewable energy companies**	$83	$164	$247
Other renewable energy companies*	$4	$6	$11
Subtotal	**$601**	**$817**	**$1,418**
GRAND TOTAL	**$4,090**	**$6,133**	**$10,223**

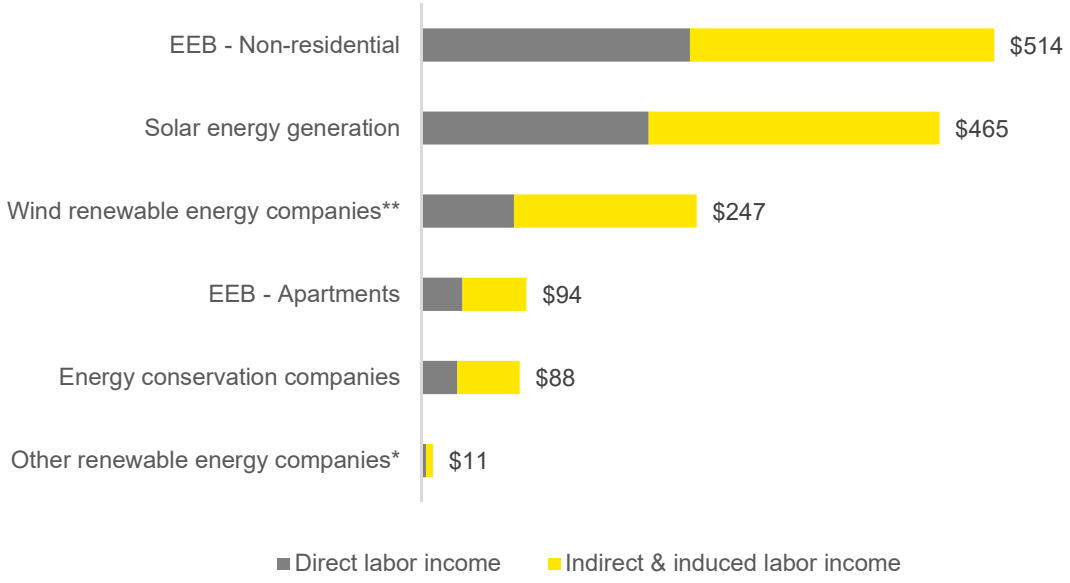
*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: Figures may not sum due to rounding. Other renewable energy did not have any project financing in 2018, and hybrid vehicle manufacturers and solar cell manufacturers did not have any corporate financing in 2018.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

Figure 8. Total US (direct, indirect, and induced) labor income contributions from project financing by project type in 2018
Millions of dollars



Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

Figure 9. Total US (direct, indirect, and induced) labor income contributions from corporate financing by company type in 2018
Millions of dollars

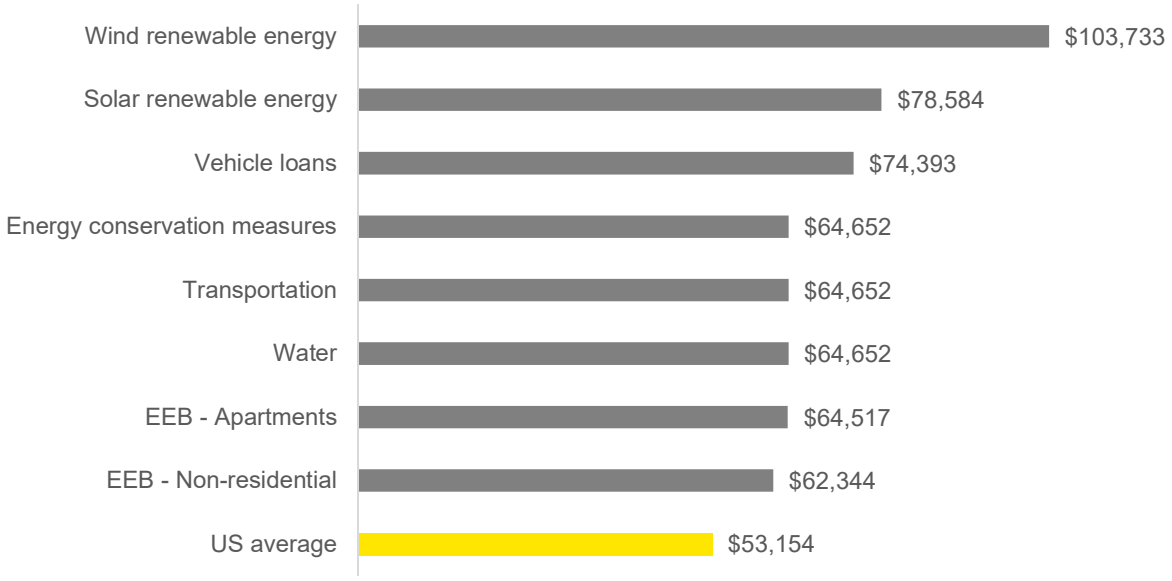


*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

The average compensation (wages plus benefits) of employees in industries where Bank of America project financing supported a direct benefit is shown in Figure 10. The US average compensation is also shown for comparison. All project types supported a higher average compensation than the US average. Renewable energy projects and vehicle loans supported high average compensation while water infrastructure upgrades and construction projects supported compensation near the US average.

Figure 10. Average compensation of U.S employees supported by Bank of America financed projects

Compensation shown in 2018 dollars



Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

3.3 Value added

Table 5 shows the contributions to value added by Bank of America projects. Value added is equal to compensation paid to US employees, proprietor's income, indirect business taxes and nontax payments, and gross operating surplus. Similarly, value added can be thought of as the sales (or revenue) associated with these projects, less the cost of intermediate inputs. For example, the value added for a hybrid car purchased with a vehicle loan is equivalent to the revenue from the sale of the car minus the purchases for parts used in producing the car.

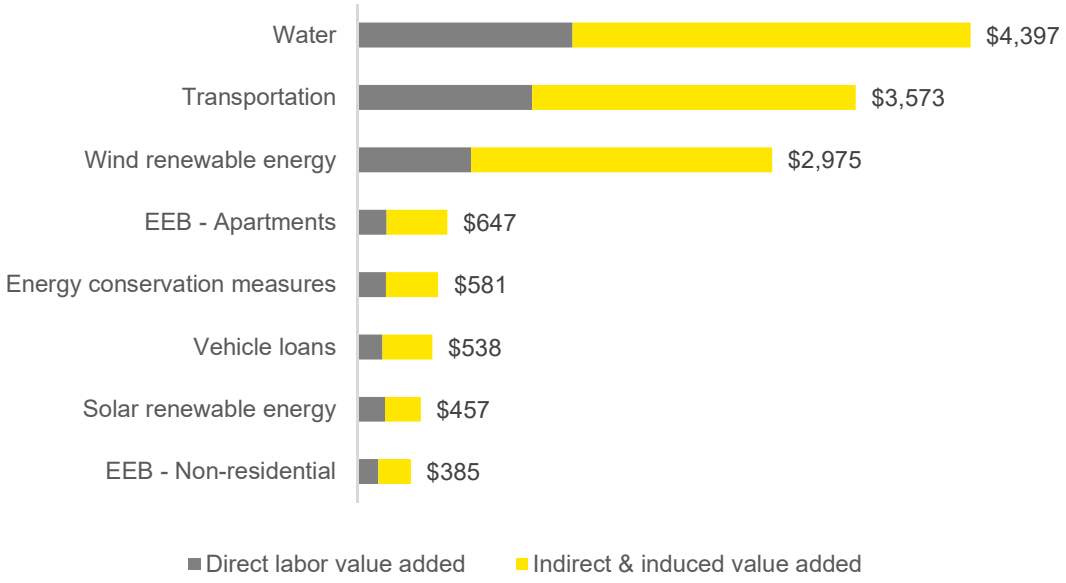
In 2018, the estimated contribution to value added due to the Bank of America financing is $15.8 billion. This includes $5.4 billion in direct value added and $10.4 billion in value added from indirect and induced contributions. Figure 11 and Figure 12 illustrate the value added contributions by project/company type. The estimated value added contributions from project financing and corporate financing were $13.6 billion and $2.2 billion, respectively.

Table 5. Value added contributions due to Bank of America financing by sector in 2018
Millions of dollars

Line of business	Direct	Indirect & Induced	Total
Project Financing			
Vehicle loans	$182	$357	$538
Energy efficient buildings	$364	$668	$1,032
Apartments	*$212*	*$435*	*$647*
Non-residential	*$152*	*$233*	*$385*
Energy conservation measures	$208	$374	$581
Solar renewable energy	$199	$258	$457
Wind renewable energy	$815	$2,160	$2,975
Other renewable energy	-	-	-
Water	$1,544	$2,853	$4,397
Transportation	$1,255	$2,318	$3,573
Subtotal	**$4,566**	**$8,988**	**$13,554**
Corporate Financing			
Hybrid vehicle manufacturers	-	-	-
Energy efficient buildings	$350	$561	$911
Apartments	*$47*	*$97*	*$144*
Non-residential	*$303*	*$464*	*$767*
Energy conservation companies	$47	$94	$141
Solar renewable energy companies	$312	$443	$754
Solar energy generation	*$312*	*$443*	*$754*
Solar cell manufacturers	-	-	-
Wind renewable energy companies**	$103	$271	$375
Other renewable energy companies*	$6	$11	$16
Subtotal	**$817**	**$1,380**	**$2,198**
GRAND TOTAL	**$5,384**	**$10,368**	**$15,751**

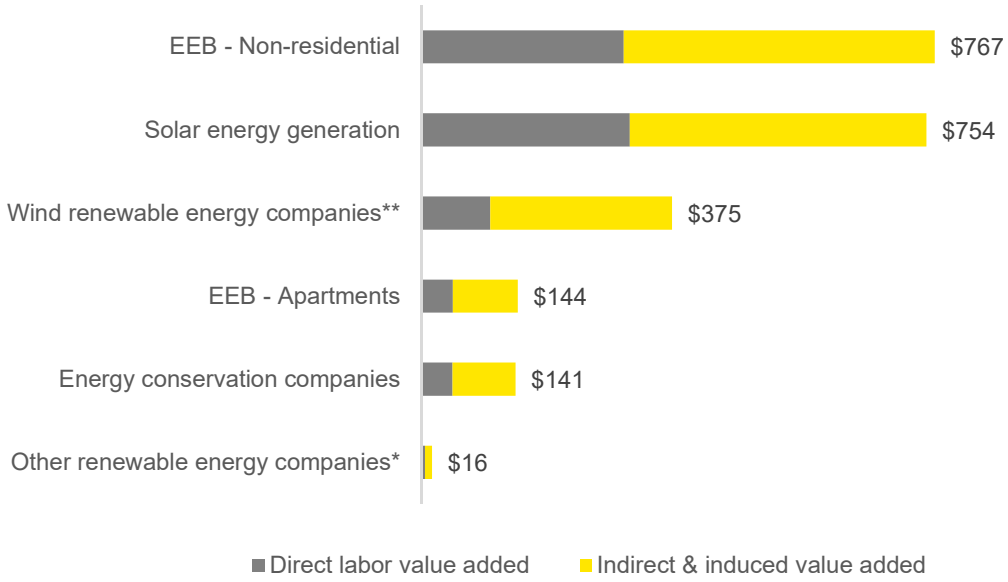
*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: Figures may not sum due to rounding. Other renewable energy did not have any project financing in 2018, and hybrid vehicle manufacturers and solar cell manufacturers did not have any corporate financing in 2018.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

Figure 11. Total (direct, indirect, and induced) contributions to US GDP from project financing by project type in 2018
Millions of dollars



Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

Figure 12. Total (direct, indirect, and induced) contributions to US GDP from corporate financing by company type in 2018
Millions of dollars



*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

3.4 Gross economic output

The final economic contribution measure is gross economic output related to projects receiving Bank of America financing. This is also equivalent to value added plus intermediate purchases used in the production of a good or service rendered by a Bank of America financed project. It is equivalent to the sales or receipts associated with the project. For example, the sale price of a domestically manufactured car would be the gross economic output associated with the hybrids purchased by the Bank of America vehicle loans.

Table 6 shows the economic output supported by Bank of America financing in 2018. It is estimated that Bank of America financing supported $30.4 billion in US economic output, of which $11.0 billion was direct output and $19.4 billion was output associated with indirect and induced activity. Figure 13 and Figure 14 show the estimated gross economic output by sector for project financing and corporate financing.

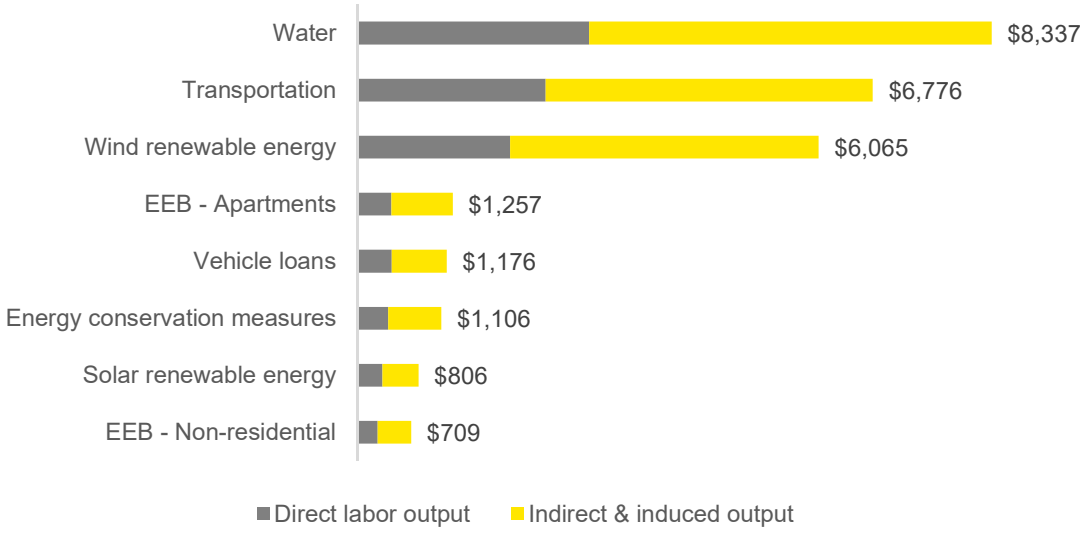
Table 6. Total US gross economic output contributions of Bank of America financing by sector in 2018

Millions of dollars

Line of business	Direct	Indirect & Induced	Total
Project Financing			
Vehicle loans	$452	$724	$1,176
Energy efficient buildings	$717	$1,248	$1,965
Apartments	*$449*	*$808*	*$1,257*
Non-residential	*$269*	*$440*	*$709*
Energy conservation measures	$410	$697	$1,106
Solar renewable energy	$333	$473	$806
Wind renewable energy	$2,008	$4,057	$6,065
Other renewable energy	-	-	-
Water	$3,048	$5,290	$8,337
Transportation	$2,477	$4,299	$6,776
Subtotal	**$9,444**	**$16,788**	**$26,232**
Corporate Financing			
Hybrid vehicle manufacturers	-	-	-
Energy efficient buildings	$635	$1,056	$1,691
Apartments	*$100*	*$180*	*$280*
Non-residential	*$535*	*$876*	*$1,411*
Energy conservation companies	$110	$181	$291
Solar renewable energy companies	$556	$812	$1,368
Solar energy generation	*$556*	*$812*	*$1,368*
Solar cell manufacturers	-	-	-
Wind renewable energy companies**	$263	$514	$777
Other renewable energy companies*	$11	$20	$31
Subtotal	**$1,573**	**$2,583**	**$4,157**
GRAND TOTAL	**$11,017**	**$19,371**	**$30,388**

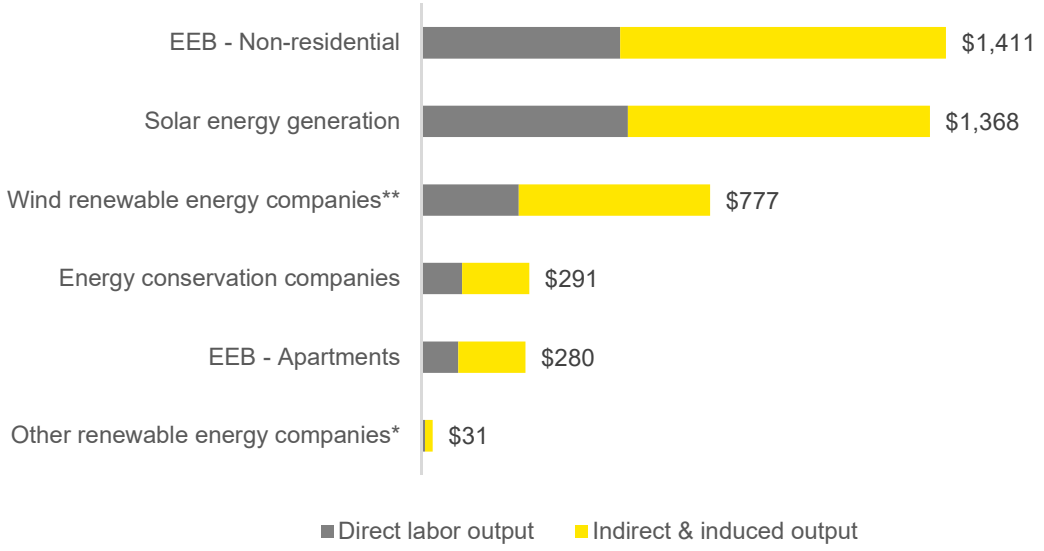
*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: Figures may not sum due to rounding. Other renewable energy did not have any project financing in 2018, and hybrid vehicle manufacturers and solar cell manufacturers did not have any corporate financing in 2018.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

Figure 13. Total US (direct, indirect, and induced) economic output contributions from project financing distributed by project type in 2018
Millions of dollars



Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

Figure 14. Total US (direct, indirect, and induced) economic output contributions from corporate financing distributed by company type in 2018
Millions of dollars



*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

4. On-going impacts of project and corporate financing

4.1 Estimating contributions of renewable energy project operations

Some of the projects financed by Bank of America have ongoing US economic impacts after the initial capital investment occurs. Annual expenditures on operations and maintenance of wind and solar renewable energy supports employment, labor income, and output in years after the equipment is purchased. For the renewable wind and solar projects, EY estimated the annual expenditures associated with operation and maintenance of the equipment. The cost per kilowatt hour of electricity generation is from the US National Renewable Energy Laboratory 2016 data (most recent). Bank of America provided the capacity in kilowatt hours for the renewable power generation.

Between 2013 and 2017, solar and wind renewable energy generation projects developed 11.6 million kW in nameplate capacity. EY assumed that all projects that were financed between 2013 and 2017 were operational in 2018. Based on these parameters, EY estimates that $450 million was spent in 2018 on renewable power generation using the Bank of America financed equipment.

4.2 Economic contributions of renewable energy project operations

The total economic contributions associated with the generation of renewable wind and solar power in 2018 is shown in Table 7. EY estimates that the operation of these renewable energy projects supported 2,666 total (direct, indirect, and induced) US jobs, $198 million in labor income, $544 million in value added, and $880 million in gross economic output in 2018.

Table 7. Total US economic contributions of renewable solar and wind projects in 2018
Millions of dollars

Renewable energy generation	Operational nameplate capacity (kW) in 2018	Total employment	Total labor income	Total value added	Total economic output
Solar	1,721,140	248	$21	$42	$64
Wind	9,621,195	2,419	$177	$502	$816
Total	**11,342,335**	**2,666**	**$198**	**$544**	**$880**

Note: Analysis assumes that all wind and solar projects that received financing between 2013 and 2017 are operational in 2018. Figures may not sum due to rounding.
Source: EY analysis using data provided by Bank of America, NREL models and O&M costs in 2016 for PV solar and wind projects, and 2017 US IMPLAN model.

4.3 Estimating ongoing contributions of companies receiving corporate financing

The companies financed by Bank of America have ongoing US economic impacts after the initial capital investment. Annual expenditures on operations and maintenance supports employment, labor income, and output in years after the equipment is purchased. For each company, EY estimated the revenue generated as a result of the capital investments made using Bank of America financing. For each company, the revenue per dollar of total assets obtained from the company's financial statements was applied to the amount of financing the company received from Bank of America that was used to make capital investments. This provided an estimate of how much revenue for each company was generated by the operation of those assets, and hence, how much revenue could be attributed to Bank of America financing. The total amount of revenue from operation of the capital assets related to Bank of America financing the past six years (2013-2018) was estimated to be $1.2 billion in 2018, of which $231 million was due to corporate financing in 2018.

4.4 Ongoing economic contributions of companies receiving corporate financing

The total economic contributions associated with ongoing operations of companies receiving corporate financing in 2018 are shown in Table 8. EY estimates that these companies' operations supported 2,220 total (direct, indirect, and induced) US jobs, $154 million in labor income, $304 million in value added, and $512 million in gross economic output in 2018.

Table 8. Total US economic contributions from ongoing operations of companies supported by corporate financing in 2018
Millions of dollars

Sector	Employment	Labor income	Value added	Output
Hybrid vehicle manufacturers	-	-	-	-
Energy efficient buildings	1,104	$67	$100	$186
Apartments	*135*	*$8*	*$12*	*$24*
Non-residential	*969*	*$59*	*$88*	*$162*
Energy conservation companies	72	$4	$8	$16
Solar renewable energy companies	497	$43	$84	$129
Solar energy generation	*497*	*$43*	*$84*	*$129*
Solar cell manufacturers	-	-	-	-
Wind renewable energy companies**	515	$38	$107	$174
Other renewable energy companies*	32	$2	$4	$8
TOTAL	**2,220**	**$154**	**$304**	**$512**

*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: Figures may not sum due to rounding. Hybrid vehicle manufacturers and solar cell manufacturers did not have any corporate financing in 2018.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

Table 9 shows the benefits in 2018 of projects that received corporate financing from Bank of America during the past six years (2013-2018). This assumes that the assets purchased with the corporate financing are still operational at their original capacity and creating an economic impact

in 2018. Bank of America corporate financing supported more than 10,300 jobs, $743 million of labor income, $1.4 billion of value added and nearly $2.6 billion in economic output in 2018.

Table 9. Ongoing economic contributions of US corporate financing by Sector in 2018 for projects that received financing from 2013-2018

Millions of dollars

Sector	Total employment	Labor income	Value added	Output
Hybrid vehicle manufacturers	2,212	$146	$264	$578
Energy efficient buildings	1,104	$67	$100	$186
Apartments	*135*	*$8*	*$12*	*$24*
Non-residential	*969*	*$59*	*$88*	*$162*
Energy conservation companies	221	$13	$21	$39
Solar renewable energy companies	3,244	$265	$500	$791
Solar energy generation	*2,294*	*$199*	*$389*	*$594*
Solar cell manufacturers	*950*	*$66*	*$111*	*$197*
Wind renewable energy companies**	1,281	$94	$266	$432
Other renewable energy companies*	2,240	$158	$293	$537
TOTAL	**10,302**	**$743**	**$1,444**	**$2,563**

*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: Figures may not sum due to rounding.
Source: EY analysis based on data provided by Bank of America and 2017 US IMPLAN model.

Appendix: Economic contribution model using IMPLAN

This analysis uses an input-output model to estimate the economic contributions of US projects receiving Bank of America financing. The regional economic multipliers in this study were estimated using the 2017 IMPLAN input-output models of the United States. IMPLAN is used by more than 500 universities and government agencies. Unlike other economic models, IMPLAN includes the interaction of 530 industry sectors, thus identifying the interaction of specific industries that relate to the projects studied in this report.

Total contributions presented in this report include direct, indirect, and induced contributions. Direct contributions are related to sectors receiving Bank of America financing. Indirect effects are attributable to suppliers. Induced effects are attributable to spending by direct and indirect employees, based on regional household spending patterns for different levels of income.

Indirect and induced effects are driven by (1) input purchases by businesses and their suppliers; (2) the percentage of each type of commodity that is purchased from within the United States; and (3) household consumption profiles for employees. The implied multipliers for the indirect and induced activity are shown in Table A-1.

Table A-1. Multipliers used in analysis

Sector	Employment	Labor income	Value added	Output
Project Financing				
Vehicle loans	3.9	3.4	3.0	2.6
Energy efficient buildings	2.5	2.4	2.8	2.7
Apartments	2.8	2.6	3.1	2.8
Non-residential	2.2	2.1	2.5	2.6
Energy conservation measures	2.5	2.4	2.8	2.7
Solar renewable energy	2.5	2.2	2.3	2.4
Wind renewable energy	4.3	2.9	3.6	3.0
Other renewable energy	-	-	-	-
Water	2.5	2.4	2.8	2.7
Transportation	2.5	2.4	2.8	2.7
Corporate Financing				
Hybrid vehicle manufacturers	-	-	-	-
Energy efficient buildings	2.3	2.2	2.6	2.7
Apartments	2.8	2.6	3.1	2.8
Non-residential	2.2	2.1	2.5	2.6
Energy conservation companies	2.9	2.7	3.0	2.7
Solar renewable energy companies	2.7	2.3	2.4	2.5
Solar energy generation	2.7	2.3	2.4	2.5
Solar cell manufacturers	-	-	-	-
Wind renewable energy companies**	4.4	3.0	3.6	3.0
Other renewable energy companies*	3.0	2.5	2.9	2.9

*Includes biomass and hydroelectric energy companies for corporate financing.
**Wind renewable energy companies are involved in wind energy generation.
Note: Other renewable energy did not have any project financing in 2018, and hybrid vehicle manufacturers and solar cell manufacturers did not have any corporate financing in 2018.
Source: EY analysis based on 2017 IMPLAN economic model of the United States