# **Bank of America Corporation**

Estimated economic benefits of the Environmental Business Initiative 2013-2016

September 2017





# **Contents**

Exe	cutive summary	1
1.	Bank of America Environmental Business Initiative	
	1.1 Environmental Business Initiative description	4
	1.2 Bank of America financing in 2013-2016	4
2.	Methodology and data	6
	2.1 Economic contribution methodology	6
3.	Economic contributions of Bank of America funded projects	8
	3.1 Employment contributions	8
	3.2 Labor income	11
	3.3 Value added	13
	3.4 Gross economic output	15
4.	On-going impacts of solar and wind projects	17
	4.1 Estimating annual contributions of renewable energy project operations	17
	4.2 Annual economic contributions	17
App	endix: Economic contribution model using IMPLAN	18

# **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, and loans for hybrid and electric vehicles.<sup>1</sup>

EY was commissioned by Bank of America to estimate the economic contributions of a set of projects 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 where a direct environmental benefit occurred in years 2013 through 2016. EY did not undertake a study of 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 project type and year included in EY's analysis. Between 2013 and 2016, the bank financed \$12.6 billion US projects that yielded a direct environmental benefit by supporting energy conservation or producing alternative energy. Half of the financing amount went to projects involving the production of renewable energy, primarily photovoltaic solar and wind projects, while the remaining 50% of financing went towards energy conservation measures, the construction of new energy efficient buildings, and loans for hybrid and electric vehicles. Since 2013, the amount financed each year grew at an average annual rate of 20%.

EY | 1

<sup>&</sup>lt;sup>1</sup> Bank of America financing incorporates all of the company's divisions, including Bank of America Merrill Lynch.

Table ES-1. Summary of transaction amounts included in the economic contribution analysis, 2013-2016

Amounts in millions

Project type	2013	2014	2015	2016	TOTAL
Vehicle loans	\$272	\$189	\$267	\$371	\$1,099
Energy efficient buildings	\$744	\$739	\$934	\$792	\$3,210
Apartments	\$591	\$501	\$434	\$358	\$1,885
Non-residential	\$152	\$238	\$500	\$434	\$1,325
Energy conservation measures	\$494	\$464	\$523	\$526	\$2,007
Solar renewable energy	\$254	\$412	\$839	\$765	\$2,270
Wind renewable energy	\$299	\$818	\$836	\$1,742	\$3,696
Other renewable energy*	\$366	-	-	-	\$366
TOTAL	\$2,429	\$2,623	\$3,399	\$4,197	\$12,647

<sup>\*</sup>Includes nuclear and BioGas transactions

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 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 financing include 13,938 jobs, \$3.7 billion in labor income, \$5.0 billion in value added, and \$10.6 billion in gross economic output.

Table ES-2. Direct economic contributions of Bank of America's Environmental Business Initiative\* for years 2013-2016 in the United States

Average annual US employment; Amounts in millions

Line of business	Employment	Labor income	Value added	Output
Vehicle loans	656	\$185	\$359	\$864
Energy efficient buildings	5,168	\$1,183	\$1,513	\$3,210
Apartments	2,744	\$633	\$814	\$1,885
Non-residential	2,424	\$550	\$699	\$1,325
Energy conservation measures	3,169	\$729	\$929	\$2,007
Solar renewable energy	2,253	\$627	\$997	\$1,727
Wind renewable energy	2,001	\$801	\$957	\$2,460
Other renewable energy	691	\$162	\$223	\$366
TOTAL	13,938	\$3,687	\$4,979	\$10,634

<sup>\*</sup>Transactions included in this analysis are detailed in Ernst & Young, "Financing for a sustainable future: Estimating the environmental benefits of Bank of America's Environmental Business Initiative", 2015.

Note: Figures may not sum due to rounding.

Source: EY analysis using data provided by Bank of America and 2015 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 in the United States during the four-year period (2013-2016). Bank of America's projects supported nearly 40,000 jobs and \$9.6 billion in labor income (wages and benefits). These projects also supported \$14.8 billion of value added (contribution to GDP) and gross economic output of \$29.9 billion.

Table ES-3. US total (direct, indirect, and induced) economic contributions of Bank of America's Environmental Business Initiative\* for years 2013-2016

Average annual US employment; Amounts in millions

Line of business	Employment	Labor income	Value added	Output
Vehicle loans	2,399	\$609	\$1,079	\$2,396
Energy efficient buildings	13,167	\$2,954	\$4,486	\$8,996
Apartments	7,825	\$1,729	\$2,645	\$5,413
Non-residential	5,343	\$1,225	\$1,841	\$3,583
Energy conservation measures	8,127	\$1,835	\$2,768	\$5,586
Solar renewable energy	5,599	\$1,406	\$2,321	\$4,271
Wind renewable energy	8,973	\$2,423	\$3,638	\$7,696
Other renewable energy	1,463	\$338	\$511	\$921
TOTAL	39,728	\$9,566	\$14,805	\$29,866

Note: Figures may not sum due to rounding.

Source: EY analysis using data provided by Bank of America and 2015 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 2016 related to the ongoing operation and maintenance of solar and wind projects financed by Bank of America in 2013-2015. Based on the generating capacity of these projects, EY estimated the annual cost of operations for wind and solar power generation in 2016. These projects are estimated to have supported 490 US jobs providing \$37 million in labor income to those employed. Further, the projects contributed \$147 million in value added and \$204 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 2016

Amounts in millions

Renewable energy generation	Operational nameplate capacity in 2016 (kW)	Total employment	Total labor income	Total value added	Total output
Solar	574,261	69	\$6	\$14	\$19
Wind	3,813,945	421	\$31	\$133	\$185
Total	4,388,206	490	\$37	\$147	\$204

Note: Analysis assumes that all wind and solar projects that received funding in 2013-2015 are operational in 2016. 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 2015 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. Since 2013, EY has estimated annually the environmental benefits associated with projects in the United States where a direct environmental benefit could be measured.<sup>2</sup> For example, in 2016, EY estimated the environmental benefits for 134 energy conservation or alternative energy projects and over 15,000 hybrid, plug-in electric or electric vehicles. These projects either supported low-carbon energy production or avoided carbon-emissions.

#### 1.2 Bank of America financing in 2013-2016

As shown in Table 1, from 2013 to 2016, Bank of America provided loans for over 45,400 U.S. projects. Vehicle loans supported the production of nearly 44,800 hybrid or electric vehicles from 2013 to 2016, with the number of vehicles financed annually reaching 15,375 in 2016. During the four year period, the construction of energy efficient buildings accounted for 129 projects, while projects involving energy conservation measures such as LED lighting, upgraded HVAC systems and water conservation, accounted for 290 projects. The bank also financed 185 renewable energy generation projects involving solar, wind, nuclear and biogas.

Table 1. Number of U.S. transactions by project type, 2013-2016

Number of loans or individual projects

Project type	2013	2014	2015	2016	TOTAL
Vehicle loans	10,882	7,820	10,721	15,375	44,798
Energy efficient buildings	44	32	35	18	129
Energy conservation measures	69	58	80	83	290
Renewable energy projects	21	34	56	74	185
TOTAL	11,016	7,944	10,892	15,550	45,402

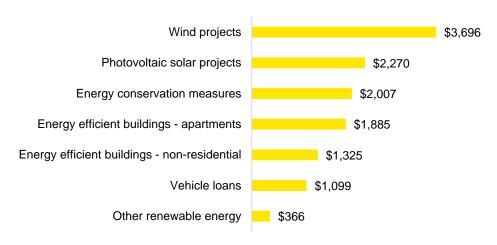
Source: EY analysis using data provided by Bank of America

<sup>&</sup>lt;sup>2</sup> For the environmental benefits methodology, see EY report, *Financing for a sustainable future – Estimating the environmental benefits of Bank of America's Environmental Business Initiative*, 2015.

Figure 1 shows the amount of Bank of America financing provided to each project type from 2013 to 2016. Wind and solar projects together accounted for nearly half of the total financing (Figure 2). Wind projects involving installation of wind turbines received \$3.7 billion (29% of total funding), while photovoltaic solar projects received \$2.3 billion (18% of total funding). Energy conservation measure (ECM) projects received Bank of America financing of \$2.0 billion (16% of total) during the four year period, while construction of energy efficient buildings (EEB) received a total of \$3.2 billion in financing, representing a quarter of all financing in this study. Figure 1 and Figure 2 show the ECM projects broken into residential (apartments) and non-residential, with residential projects accounting for 59% of new construction project financing. Bank of America provided \$1.1 billion in financing for hybrid and electric vehicles while other renewable energy projects (one nuclear and two biogas projects) received \$366 million in financing during the four year period.

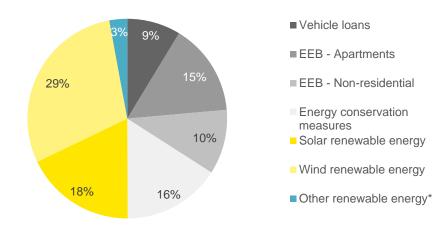
Figure 1. Bank of America financing of \$12.6 billion by line of business, 2013-2016

Amounts in millions of dollars



Source: EY analysis using data provided by Bank of America

Figure 2. Distribution of transaction amounts by project type Totals for 2013-2016



\*Includes nuclear and BioGas transactions Source: EY analysis using data from Bank of America

# 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.

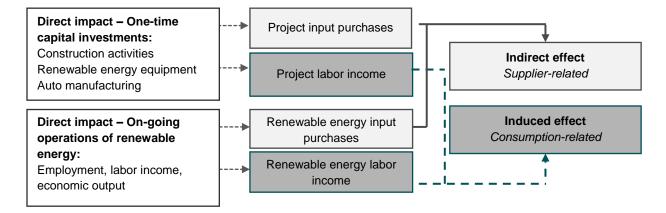


Figure 3. Overview of the components of economic contributions

Data describing projects included in the environmental 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 2015 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 US.
- Energy conservation measures. This activity was modeled as renovation to an existing building within the construction sector.

- Energy efficient buildings. These projects were evaluated 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.

Indirect and induced economic contributions were then estimated using the 2015 IMPLAN economic model for the United States. The magnitude of the economic contribution of these projects 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, the model predicts the portion that will be supplied by U.S. businesses using trade flow data from the U.S. Department of Commerce and the U.S. 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 U.S. 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 2 shows the employment contributions of US projects receiving the \$12.6 billion Bank of America financing. Since many employment effects are temporary, such as one-year construction jobs, Table 2 shows the average annual employment during the four-year time period. EY estimates projects receiving Bank of America financing supported an average of 13,938 direct jobs and 25,790 indirect and induced jobs, for a total average annual US employment contribution of 39,728.

- ▶ Energy efficient building construction projects supported the largest number of direct jobs among the project types. Construction of energy efficient apartment buildings supported over 2,700 direct jobs, and construction of non-residential energy efficient buildings supported over 2,400 direct jobs, summing to over 5,100 direct jobs. These projects supported nearly 8,000 indirect and induced jobs.
- Nearly 4,950 direct jobs were supported by renewable energy projects involving the installation of wind turbines, production of photovoltaic cells and solar equipment, construction of a nuclear energy generating station, and gasification projects. The additional indirect and induced employment effects of these projects supported an additional 11,000 jobs.
- ▶ Projects involving energy conservation measures supported over 3,100 direct jobs and nearly 5,000 indirect and induced jobs.
- ► Financing of hybrid and electric car production created supported 656 direct jobs, and over 1,700 indirect and induced jobs.

Table 2. Employment impacts by project type

Average annual US employment supported for the period 2013-2016

Project type	Direct jobs	Indirect & induced jobs	Total jobs
Vehicle loans	656	1,743	2,399
Energy efficient buildings	5,168	7,999	13,167
Apartments	2,744	5,080	7,825
Non-residential	2,424	2,919	5,343
Energy conservation measures	3,169	4,958	8,127
Solar renewable energy	2,253	3,346	5,599
Wind renewable energy	2,001	6,972	8,973
Other renewable energy	691	772	1,463
TOTAL	13,938	25,790	39,728

Note: Figures may not sum due to rounding.

Figure 4 shows the estimated total (direct, indirect, and induced) employment contributions by project type and year. In 2016, nearly 49,000 US jobs were estimated to have been supported by Bank of America financed projects. Renewable energy projects had the largest employment contributions in years 2015 and 2016 while energy efficient building construction activities supported the most jobs in 2013 and 2014.

2016 24,276 12,944 8,394 3,239 48,852 2015 42,406 16,385 15,278 8,417 2,326 2014 12,090 7,550 1,645 33,451 2013 11,391 12,281 8,145 2,387 34,204 ■ Renewable energy **■**EEB ECM ■ Vehicle loans

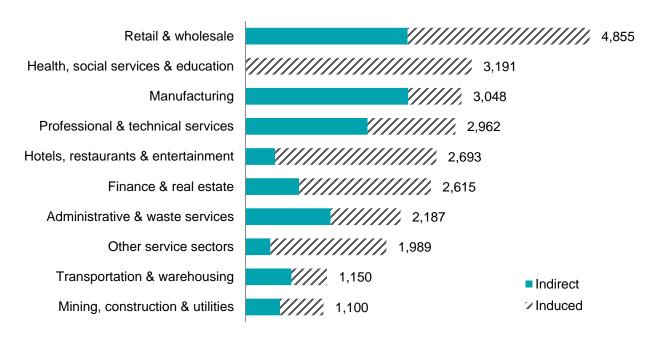
Figure 4. US total (direct, indirect, and induced) employment impacts by project type by year

Note: Figures may not sum due to rounding.

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

Indirect and induced employment contributions by industry are shown in Figure 5. These are US jobs supported in other industries due to purchases from suppliers and household consumption spending. The most indirect (supplier) jobs were supported in the manufacturing and retail and wholesale trade industries. Many induced jobs were created in the health, social services and education industries as employees spent their money on those goods and services.

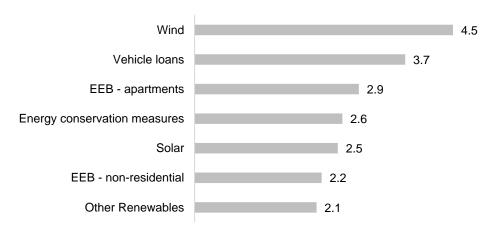
Figure 5. Average annual indirect and induced US employment contributions, by industry



Source: EY analysis based on data provided by Bank of America and 2015 US IMPLAN model.

Figure 6 shows 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, construction of energy efficient apartments is estimated to have supported 1.9 jobs for a total employment contribution of 2.9. Wind turbine installation has a higher multiplier (4.5) 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 by multipliers by project type



Source: EY analysis using 2015 US IMPLAN model.

#### 3.2 Labor income

Labor income contributions due to Bank of America financed projects are shown in Table 3. The 39,728 jobs annually supported by Bank of America financed projects (see Table 2) resulted in a cumulative \$9.6 billion in labor income (wages and benefits paid to employees plus proprietor's income) during 2013 through 2016. Of the \$9.6 billion, \$3.7 billion is estimated as direct labor income and nearly \$5.9 billion in labor income for indirect and induced employment. Figure 7 shows the labor income by year. In 2016, Bank of America financed projects supported \$3.0 billion in labor income compared to \$2.0 billion in 2013.

Table 3. Total US labor income contributions by project type for the period 2013-2016

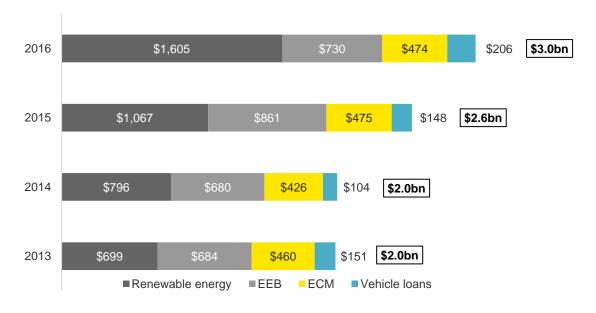
Millions of dollars

		Indirect &	
Line of business	Direct	Induced	Total
Vehicle loans	\$185	\$424	\$609
Energy efficient buildings	\$1,183	\$1,771	\$2,954
Apartments	\$633	\$1,096	\$1,729
Non-residential	\$550	\$676	\$1,225
Energy conservation measures	\$729	\$1,106	\$1,835
Solar renewable energy	\$627	\$778	\$1,406
Wind renewable energy	\$801	\$1,622	\$2,423
Other renewable energy	\$162	\$176	\$338
TOTAL	\$3,687	\$5,879	\$9,566

Note: Figures may not sum due to rounding.

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

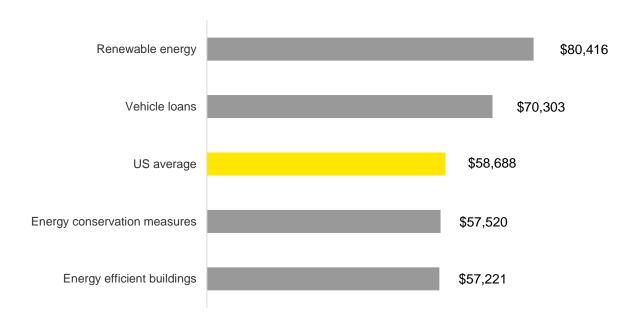
Figure 7. Total US labor income contributions by project type by year Millions of dollars



The average compensation (wages plus benefits) of employees in industries where Bank of America financing supported a direct benefit is shown in Figure 8. The US average compensation is also shown for comparison. Renewable energy projects and vehicle loans supported high average compensation while energy conservation projects and energy efficient buildings supported compensation near the US average.

Figure 8. Average compensation of U.S employees supported by Bank of America financed projects

Compensation shown in 2017 dollars



#### 3.3 Value added

Table 4 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.

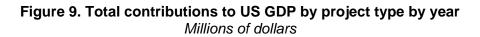
During the four-year period, the estimated contribution to value added due to the Bank of America financed projects is \$14.8 billion. This includes \$5.0 billion in direct value added and \$9.8 billion in value added from indirect and induced contributions. Estimated annual contributions to value added is shown in Figure 9. In 2016, the estimated value added contribution was \$4.7 billion.

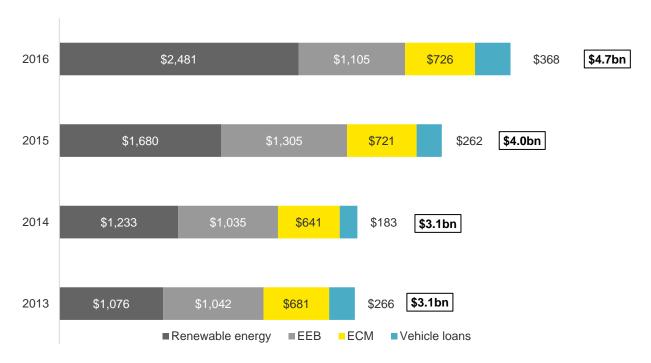
Table 4. Value added contributions due to Bank of America financed projects

Millions of dollars

Line of business	Direct	Indirect & Induced	Total
Vehicle loans	\$359	\$720	\$1,079
Energy efficient buildings	\$1,513	\$2,974	\$4,486
Apartments	\$814	\$1,831	\$2,645
Non-residential	\$699	\$1,142	\$1,841
Energy conservation measures	\$929	\$1,840	\$2,768
Solar renewable energy	\$997	\$1,324	\$2,321
Wind renewable energy	\$957	\$2,681	\$3,638
Other renewable energy	\$223	\$288	\$511
TOTAL	\$4,979	\$9,826	\$14,805

Note: Figures may not sum due to rounding.





#### 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 5 shows the economic output supported by Bank of America financing during the four-year period. It is estimated that Bank of America financing supported \$29.9 billion in US economic output, of which \$10.6 billion was direct and \$19.2 billion was output associated with indirect and induced activity. Figure 10 shows the estimated gross economic output by project type and year. Gross economic output supported by Bank of America financed projects is estimated to have been \$6.1 billion in 2013 and \$9.5 billion in 2016.

Table 5. Total US gross economic output contributions of Bank of America financed projects

Millions of dollars

		Indirect &	
Line of business	Direct	Induced	Total
Vehicle loans	\$864	\$1,532	\$2,396
Energy efficient buildings	\$3,210	\$5,786	\$8,996
Apartments	\$1,885	\$3, <i>5</i> 28	<i>\$5,413</i>
Non-residential	\$1,325	\$2,258	\$3,583
Energy conservation measures	\$2,007	\$3,579	\$5,586
Solar renewable energy	\$1,727	\$2,544	\$4,271
Wind renewable energy	\$2,460	\$5,236	\$7,696
Other renewable energy	\$366	\$555	\$921
TOTAL	\$10,634	\$19,232	\$29,866

Note: Figures may not sum due to rounding.

2016 \$5,035 \$2,201 \$1,465 \$829 \$9.5bn \$8.0bn 2015 \$3,318 \$1,455 \$581 2014 \$2,492 \$1,292 \$402 \$6.3bn \$6.1bn 2013 \$2,044 \$1,374 \$584

■EEB

ECM

■ Vehicle loans

Figure 10. Total US economic output contributions by project type by year *Millions of dollars* 

Source: EY analysis based on data provided by Bank of America and 2015 US IMPLAN model.

■ Renewable energy

# 4. On-going impacts of solar and wind projects

#### 4.1 Estimating annual 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. 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. Bank of America provided the capacity in kilowatt hours for the renewable power generation.

Since 2013, the nameplate capacity developed by solar and wind renewable energy generation projects is 7.6 million kW. EY assumed that all projects that were financed in 2013 through 2015 were operational in 2016 and that projects financed in 2016 were under construction that year and not operational. In 2016, EY estimates that operational solar and wind renewable energy projects had nameplate capacity of 4.4 million kW. Based on these parameters, EY estimates that \$129 million was spent in 2016 on renewable power generation using the Bank of America financed equipment.

#### 4.2 Annual economic contributions

The total economic contributions associated with the generation of renewable wind and solar power in 2016 is shown in Table 6. EY estimates that the \$129 million in expenditures supported 490 total (direct, indirect, and induced) US jobs, \$37 million in labor income, \$147 million in value added, and \$204 million in gross economic output in 2016.

Table 6. Total US economic contributions of renewable solar and wind projects in 2016

Amounts in millions

Renewable energy generation	2013-2016 Developed nameplate capacity (kW)	Operational nameplate capacity in 2016 (kW)	Total employment	Total labor income	Total value added	Total economic output
Solar	1,197,520	574,261	69	\$6	\$14	\$19
Wind	6,369,095	3,813,945	421	\$31	\$133	\$185
Total	7,566,615	4,388,206	490	\$37	\$106	\$204

Note: Analysis assumes that all wind and solar projects that received funding in 2013-2015 are operational in 2016.

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 2015 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 2015 IMPLAN input-output model 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

Project type	Jobs	Labor income	Value added	Economic output
Vehicle loans	3.7	3.3	3.0	2.8
EEB - apartments	2.9	2.7	3.2	2.9
EEB – non-residential	2.2	2.2	2.6	2.7
Energy conservation measures	2.6	2.5	3.0	2.8
Solar renewable energy	2.5	2.2	2.3	2.5
Wind renewable energy	4.5	3.0	3.8	3.1
Other renewable energy	2.1	2.1	2.3	2.5

Source: EY analysis based on 2015 IMPLAN economic model of the United States