

# RI Renewable Energy Growth Program: Carport Adder and Benefit-Cost Analysis, Revised November 2021

Sustainable Energy Advantage, LLC Mondre Energy, Inc.

# Carport Adder Analysis



## REG Carports Selected, & 2021 Cost Data

Enrollm ent Period	Facility	Location	kWdc	Actual or Target COD	Incremental Carport Cost/kWdc
2020-1	Project 1			4/23/2021 (Actual)	
2020-1	Project 2			8/2022 (Est.)	
2020-2	Project 3			4/2023 (Est.)	
2021-1	Project 4			7/2023 (Est.)	\$1,099.37 (Revised)
2021-1	Project 5			7/2023 (Est.)	\$1,597.65 (Included)
2021-2	Project 6			Not Available	\$1,503.50 (Added)



## **Carport Cost Input Assumptions**

#### **Commercial Category**

Cost Case	Incremental Cost Input	Notes
Low	\$1,277 \$1,011	Publicly available <sup>1</sup> carport quote for 500 kW system
High	\$1,400 \$1,277	Average of incremental costs from 2021 Open Enrollments 1 + 2.

#### **Large Category**

Cost Case	Incremental Cost Input	Notes
Low	\$1,254 \$1,000	Publicly available <sup>1</sup> carport quote for 1,000 kW system
High	\$1,254	Publicly available <sup>1</sup> carport quote for 1,000 kW system

Text in red denotes data added or adjusted subsequent to September 23, 2021 stakeholder presentation.

(1) https://www.solarelectricsupply.com/commercial-solar-systems/solar-carport



### Carport Adder: Revenue Requirement Results

#### Required Adder Revenue, ¢/kWh

Size Category	Modeled Size (kW)	Low Cost/ High Production	Low Cost/ Low Production	High Cost/ High Production	High Cost/ Low Production
Commercial I	500	8.2	11.4	8.9	12.2
Commercial II	1,000	8.2	11.0	8.9	11.8
Large	5,000	8.3	11.7	8.3	10.7
Weighted Average		8.3	10.8	8.4	11.0
"Carport Adder Revenue Requirement" (Rounded to nearest 0.25 ¢/kWh)		8.25	10.75	8.50	11.0



# Benefit-Cost Analysis



#### NPV of Quantified Benefits

 Total net present value of quantified benefits, assuming a societal discount rate of 2.5%

	Commercial (\$/kW)		Large (\$/kW)	
	Low Benefits	High Benefits	Low Benefits	High Benefits
	Deficitio	Deficites	Deficitio	Deficites
Interconnection Cost Savings	\$85	\$106	\$85	\$106
Carbon Sequestration				
	\$17	\$237	\$46	\$105
Ecosystem Services				
	\$2	\$3	\$2	\$3
Avoided Property Value Loss				
	\$824	\$3,295	\$183	\$366
Total (Weighted by Avoided Project Type)	<b>\$927</b>	\$3,641	\$316	<b>\$581</b>



#### **BCA Results**

- 2.5% Societal Discount Rate, 8.25 cent Adder
- Bolded results denote rows with Benefit-Cost Ratio greater than 1

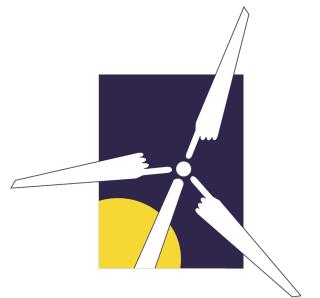
Case	Project Category	NPV Total Benefits (\$/kW)	NPV Total Costs (\$/kW)	Benefit-Cost Ratio
Low Benefits,	Commercial	\$608	\$1,378	0.44
<b>Low Costs</b>	Large	\$354	\$1,414	0.25
High Benefits,	Commercial	\$2,294	\$1,378	1.66
<b>Low Costs</b>	Large	\$660	\$1,414	0.47
Low Benefits,	Commercial	\$608	\$1,536	0.40
<b>High Costs</b>	Large	\$354	\$1,575	0.22
High Benefits,	Commercial	\$2,294	\$1,536	1.49
<b>High Costs</b>	Large	\$660	\$1,575	0.42



# **BCA Results: Sensitivity Analysis**

Case	Project	Benefit-Cost Ratio			
	Category	8.5 ¢ Adder	<b>10.75</b> ¢ Adder	<b>11.0</b> ¢ Adder	
Low Benefits,	Commercial	0.43	0.34	0.33	
<b>Low Costs</b>	Large	0.24	0.19	0.19	
High Benefits,	Commercial	1.62	1.28	1.25	
<b>Low Costs</b>	Large	0.45	0.36	0.35	
Low Benefits,	Commercial	0.38	0.30	0.30	
<b>High Costs</b>	Large	0.22	0.17	0.17	
High Benefits,	Commercial	1.45	1.15	1.12	
<b>High Costs</b>	Large	0.41	0.32	0.31	





Sustainable Energy Advantage, LLC 161 Worcester Road, Suite 503 Framingham, MA 01701 <a href="http://www.seadvantage.com">http://www.seadvantage.com</a>

Jim Kennerly

**\*\*** 508-665-5862

⊠ <u>tarmstrong@seadvantage.com</u>

Jason Gifford **☎** 508-665-5856

⊠ jgifford@seadvantage.com