

# **Cleantech Startup Growth Initiative and Manufacturing Corps Study**

*Final Executive Summary*

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## Notice

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# 1 Executive Summary

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Opinion Dynamics conducted this study with the objective to measure performance indicators for the Cleantech Startup Growth and Manufacturing Corps (M-Corps) Initiatives over the period of 2018-2020 as an update to the baseline metrics captured in 2017. To estimate the indicators, the team reviewed the Initiatives’ data, interviewed incubator and M-Corps Administrator staff, and conducted surveys of cleantech startups enrolled in the NYSERDA-sponsored initiatives (participants) and those who were not (non-participants). The New York State Energy Research and Development Authority (NYSERDA) created the Cleantech Startup Growth and M-Corps Initiatives to support the clean energy entrepreneurial ecosystem and accelerate the growth and scale of new businesses that serve the clean energy market in New York State (NYS). The Cleantech Startup Growth and M-Corps Initiatives are funded by NYSERDA’s Clean Energy Fund.

Tables 1 and 2 provide a summary of the evaluation team’s estimates of the 2018-2020 outcomes indicators for the Cleantech Startup Growth and M-Corps Initiatives. The Tables present population estimates.

**Table 1. Cleantech Startup Growth Outputs, Outcomes, and Indicators Summary**

<b>Outputs/Outcomes</b>	<b>Indicators</b>	<b>Data Source<sup>a</sup></b>	<b>Baseline<sup>b</sup></b>	<b>2018–2020 Estimate by Group</b>
Product commercialization	Number of products commercialized	3,4	Participants: 66 Non- participants: 214	Participants: 31 Non-participants: 81
Investor Agreements Executed	Number of investor agreements executed	2,3	N/A	Participants: 95 Non-participants: 125
Corporate and Strategic Partnerships Formed	Number of partnerships formed	2,3	N/A	Participants: 579 Non-participants: 495
Customer Agreements Executed	Number of customer agreements executed	2,3	N/A	Participants: 5,304 Non-participants: 2,699
Revenue (new commercial products and products that have been commercialized) <sup>d</sup>	Dollar revenue generated by cleantech startups in total and in NYS	3,4	\$45 million <i>Note: Participant specific indicator</i>	In total Participants: \$115 million Non-participants: \$318 million <sup>f</sup>
				In NYS Participants: \$66 million Non-participants: \$196 million

Outputs/Outcomes	Indicators	Data Source <sup>a</sup>	Baseline <sup>b</sup>	2018–2020 Estimate by Group
Private investment (private and follow-on capital and program funding leveraged by the incubators through sponsors other than NYSERDA) <sup>c</sup>	Private investment – participating client companies	3,4	\$103 - \$141 million	Participants raised: \$301 million <i>Note: Participant specific indicator</i>
	Dollar amount of program funding from other sponsors leveraged by incubators	4	\$1.3 million from other sponsors	NYSERDA-sponsored incubators received \$2.2 million from other sponsors <i>Note: Participant specific indicator</i>
Continued investment in the incubator program will maintain the historical investment leverage levels of incubator client companies and graduates and improve the position of client companies and graduates	Increase in dollar amount [private and follow-on capital] raised by the client companies & graduates	2,3,4	Participants: \$103– \$141 million Non-participants: \$176–\$225 million <sup>c</sup>	Participants raised: \$415 million Non-participants raised: \$173 million <i>Note: This includes private funding only</i>
	Increase in the number of deals	2,3	Participants: 90–91 Non-participants: 37	Participants made 2,690 more deals than non-participants Participant deals: 5,884 Non-participant deals: 3,194
	Decrease in time to market for client companies	2,3	Participants: 29 months to market Non-participants: 57 months to market	Participants were 3.8 times faster than non-participants to bring product to market Participants: 27 months, on average, to bring product to market Non-participants: 102
Highly targeted and timely infusions of capital through the ignition grants program will better position incubator client companies to attract follow-on capital from investors and/or secure commercialization support from development partners as well as improve the position of client companies	Dollar value of capital provided by the ignition grants	2	\$0 <i>Note: Initiative was not launched during the baseline period</i>	Participants: \$1.7 million
	Dollar value of follow-on capital raised by client companies	2,3	Participants: \$22–\$23 million Non-participants: \$49 million	Participants: \$113 million Non-participants: \$1.5 million
	Decrease in Time to first customer/end-user for qualified cleantech companies	2,3	Participants: 30 months to customer Non-participants: 76 months to customer	Participants were 1.4 times faster than non-participants to reach their first customer Participants: 26 months, on average Non-participants: 36 months, on average

Outputs/Outcomes	Indicators	Data Source <sup>a</sup>	Baseline <sup>b</sup>	2018–2020 Estimate by Group
High-performing incubators will be able to attract funding from other sponsors to help sustain their operations and programs while retaining a focus on NYSERDA’s clean energy goals	Value of sponsorship funding leveraged by the incubators	4	\$1.3 million	NYSERDA-sponsored incubators received \$2.2 million from other sponsors <i>Note: Participant specific indicator</i>
	Number of participating high-value service providers, mentors, and other stakeholders in the programming that incubators provide to client companies	1	300	390 incubator-affiliated stakeholders provided assistance <i>Note: Participant specific indicator</i>
Accelerate time-to-market for cleantech products	Decrease in time to market for cleantech products	2,3	N/A	Participants: 27 months Non-participants: 102 months
Cost share by market actors including services, equipment, machine time, as well as cash cost share	Dollar value provided by market actors to cleantech companies (Note: Includes private and public funding)	3,4	N/A	Participants: \$327 million Non-participants: \$173 million
	Non-dollar value of services, equipment, and machine time provided by market actors to Cleantech companies		N/A	Participants: 4.3 services, on average Non-participants: 1.5 services, on average
Exits or liquidity events (mergers and acquisitions, outright sale, initial public offering, private placement, etc.) realized by participant companies	Number of companies that realized exits or liquidity events in 2018–2020	1	N/A	Participants: 5 <i>Note: Participant specific indicator</i>

<sup>a</sup> Sources include: (1) incubator interviews, (2) participant survey, (3) non-participant survey, and (4) program data. The team used these sources to estimate and update the baseline values.

<sup>b</sup> Research Into Action developed baseline estimates of several output indicators as part of their evaluation in 2018.

<sup>c</sup> The team is unsure why there is range for this value. No reason was specified in the baseline report.

<sup>d</sup> Revenue refers to revenue generated from new commercial products entering the market as well as products previously commercialized by incubator client companies and graduates.

<sup>e</sup> Private Investment refers to private and follow-on capital raised by incubator client companies and graduates as well as the program funding leveraged by the incubators through sponsors other than NYSERDA.

<sup>f</sup> Please note that this value is driven by one non-participant’s answer, which when weighted, totals \$300 million.

<sup>g</sup> The lower estimate of \$103 million is based on program data, while the higher estimate of \$141 million is based on survey data that included an outlier.

**Table 2. M-Corps Outputs, Outcomes, and Indicators Summary**

Outputs/Outcomes	Indicators	Data Source <sup>a</sup>	Baseline	2018-2020 Estimate by Group
Products manufactured in total	Number of products	3,4	Participants: 23	Participants: 41 Non-participants: 91

Outputs/Outcomes	Indicators	Data Source <sup>a</sup>	Baseline	2018-2020 Estimate by Group
	manufactured in total		Non-participants: 198	
Agreements signed to invest in cleantech startup companies	Number of agreements signed to invest in cleantech startup companies	2,3	Participants: 48 Non-participants: 22	Participant deals: 5 Non-participant deals: 19
Products manufactured in NYS	Number of products manufactured in NYS	1,3	Participants: 12 Non-participants: 117	Participants: 14 Non-participants: 69
Accelerate time-to-market for cleantech products	Decrease in time to manufacturing for cleantech products	2,3	Participants: 26 months Non-participants: 68 months	Participants were four times faster than non-participants to bring product to manufacturing-stage Participants: 17 months, on average Non-participants: 68 months, on average
Revenue generated by cleantech companies producing cleantech products	Dollar revenue generated by cleantech companies producing cleantech products	2,3	\$7.9 million	M-Corps participants: \$16 million Non-participants: \$1.0 million
Revenue generated by manufacturing partners producing cleantech products	Dollar revenue generated by manufacturing partners producing cleantech products	<i>No data</i>	Not estimated	<i>Not estimated<sup>b</sup></i>

<sup>a</sup> Sources include: (1) incubator interviews, (2) participant survey, (3) non-participant survey, and (4) program data. The team used these sources to estimate and update the original CEF baseline values.

<sup>b</sup> Estimation of this metric would have required a significant, separate data collection effort to query all of the manufacturing partners. Additionally, it would have been difficult for the manufacturing partners to quantify revenue generated from M-Corps participants' products separately from their other revenue.

The evaluation team offers the following findings and recommendations.

**Finding 1: NYSERDA's incubator strategy has helped accelerate the growth of cleantech startups in NYS.** The participating cleantech companies reported raising a substantial amount of capital, more than \$415 million in private investments and follow-on capital between 2018 and 2020. Those companies that raised more capital were more highly satisfied with their experience at a NYSERDA-sponsored incubator. Additionally, findings show a considerable decrease in commercialization time for participating client companies when compared to non-participating

companies. Compared to non-participants, participants were four times faster bringing a product to market. Collectively, these findings suggest that NYSERDA's incubator support via the Cleantech Startup Growth Initiative Program has accelerated the growth of cleantech startups in NYS.

**Finding 2: NYSERDA's M-Corps Initiative is overcoming obstacles in manufacturing clean energy products.** Participating startups manufactured 41 products in 2018-2020 and one-third of them (14 of 41) were manufactured in New York. Participants were four times faster than non-participants in bringing product to manufacturing-stage. M-Corps participants generated \$16 million in revenue as compared to non-participants who generated \$1.0 million. Collectively, these findings indicate M-Corps is playing a key role in helping cleantech startups manufacture products.

**Finding 3: Participating cleantech companies that were more engaged with their incubators were more satisfied.** Cleantech companies who were either mostly or completely satisfied received an average of 4.8 services from their incubator out of the 12 asked about in the survey. While cleantech companies that were less satisfied received an average of 2.5 services. This finding may not be surprising but does illuminate an opportunity to consider additional strategies to engage participating cleantech companies to advance program goals.

**Recommendation 1:** Consider working with Incubators to design strategies to further motivate cleantech companies to leverage incubator services such as offering a bonus when a certain number of services are utilized.

**Finding 4: The ignition grants have value beyond attracting additional funding for the startup companies.** The goal of ignition grants is to better position cleantech startup companies to attract follow-on capital from investors and secure commercialization support from development partners. Unfortunately, given limitations in the data, it is difficult to estimate the impact of ignition grants in meeting these goals. However, client companies indicated they utilized ignition grants to advance their business models, fund internship staff, prepare for required testing, advance manufacturing, and attract clients. The grants also decreased the time to commercialization by more than one and a half years.

**Recommendation 2:** Continue the ignition grant program and If NYSERDA has interest in launching another targeted grant program for cleantech startups, consider conducting a study to more fully understand if ignition grants are helping cleantech startup companies attract follow-on capital from investors and secure commercialization support from development partners.



**Finding 5: The COVID pandemic affected a majority of cleantech companies in NYS.** They experienced delays in product development, and loss of contracts and customers. The move to remote work made it challenging to network and earn investments. Incubator staff continued to support the cleantech companies to the best of their ability during these challenging times. It is difficult to determine how different the metrics measured in this study would have been without the pandemic.

**Recommendation 3:** Continue to assess metrics to develop a longer time horizon of data to understand impacts of COVID-19 on key program indicators.

**Finding 6: Update cleantech startup companies population estimates.** Population estimates for non-participant cleantech startup companies are challenging to understand. This study relied on estimates provided in a 2017 report targeted to understand the population of cleantech startup companies. This report is now five years old and given the major macro- and micro- shifts in the economy, its estimates are likely outdated. In addition, given lack of a data source of current non-participant cleantech startup companies and limited budget, non-participating startups included in the survey effort were restricted to organizations who have applied to NYSERDA initiatives but who were not awarded a contract. Using them as a comparison group is challenging as there is likely something inherently different with this group by virtue of the fact NYSERDA opted to not select them for support.

**Recommendation 4:** Consider updating the 2017 *Characterizing New York State's Cleantech Ecosystem and the Role of NYSERDA's ICBD Program* report in the months preceding the next market assessment. Include in this research a task to create a more comprehensive list of non-participant cleantech startup companies that can be leveraged in the next market assessment.