

Matter Number 16-00681, In the Matter of the Clean Energy Fund  
Investment Plan

Clean Energy Fund:  
**Product and Appliance Standards**  
**Chapter**

Portfolio: Market Development

**Submitted by:**

**The New York State Energy Research and Development Authority**

Revised May 7, 2021

Product and Appliance Standards Investment Plan: Product and Appliance Standards		
Revision Date	Description of Changes	Revision on Page(s)
May 8, 2017	Original Issue	Original Issue
November 9, 2018	<ul style="list-style-type: none"> <li>Updated savings and budget to reflect current program goals and progress, including a shift in budget to allocate a larger portion of the budget to ASHP activities</li> <li>Updated the timing of milestones to reflect current program activities and timelines.</li> <li>Expanded the advanced rooftop unit initiative to encompass a wider group of advanced commercial HVAC systems.</li> <li>For product and appliance standards, added activities, budget, savings, and milestones, as well as market status and engagement plans.</li> <li>Expanded product and appliance standards in the logic model.</li> </ul>	Multiple
April 19, 2019	As part of the Annual Investment Plan & Performance Report (IPPR) process, NYSERDA has updated budget and benefit values to align with actuals for past years and adjusted budget and benefit forecasts for future years, as appropriate, based on experience to date. Budget and benefit tables have been moved to Appendix B of this chapter and output/outcome tables have been moved to Appendix C of this chapter. Updated rounding convention has been applied to budget and benefit tables.	Multiple
May 15, 2020	As part of the Annual Investment Plan & Performance Report (IPPR) process, NYSERDA has updated budget and benefit values to align with actuals for past years and adjusted budget and benefit forecasts for future years, as appropriate, based on experience to date. Renamed Chapter and initiative to <i>Product and Appliance Standards</i> . Removed ASHP content, which will now be reporting in the Clean Heating & Cooling Chapter. Removed Advanced Commercial HVAC activity that will not commence. Incorporated revisions to benefits estimation following detailed market analysis and updates to modeling of savings opportunities. Plan contents and appendices (A, B, C) updated to reflect these changes.	Multiple
June 5, 2020	Plan was recently updated and is being refiled here as part of the Annual Investment Plan & Performance Report (IPPR) process in which all plans are collectively filed. No changes to plan documents.	None
May 7, 2021	<p>As part of the Annual Investment Plan &amp; Performance Report (IPPR) process, NYSERDA has updated budget and benefit values to align with actuals for past years and adjusted budget and benefit forecasts for future years, as appropriate, based on experience to date.</p> <p>The chapter has been updated to provide a bridge between committed and acquired planning. Committed budget and benefits summaries have been added to plan text, while Appendix B has been updated to reflect expenditure &amp; acquired benefits plans.</p> <p>Appendix C updated; properly listing indicators that were mistakenly moved to Heat Pumps Phase 1 (2017) table.</p>	<p>Appendix B</p> <p>6, Appendix B</p> <p>Appendix C</p>

## 20 Product and Appliance Standards

Through its Product and Appliance Standards strategy, NYSEERDA will implement approaches and interventions that accelerate the adoption of certain underutilized clean energy products – those with proven energy savings but limited adoption – by supporting product and appliance standards that set minimum energy performance requirements for commercial products. NYSEERDA will support activities related to product and appliance standards in New York for product categories that are not currently covered by federal standards. These cost-effective standards will save customers money on their utility bills, while at the same time significantly reducing GHG emissions. Program investments and activities will continue to be informed through ongoing research, technical analysis, and engagement with stakeholders and subject matter experts.

The 2015 New York State Energy Plan calls on NYSEERDA to “address supply chain limitations and lack of knowledge of clean and efficient product options” in the market. Additionally, the 2018 New Efficiency: New York white paper calls on NYS to promote product and appliance standards. Together, these efforts can help increase market share of underutilized technologies which can help to reduce costs and greenhouse gas emissions.

This chapter was modified in November 2018 to add funding and activities to support product and appliance standard work.

### 20.1 Product and Appliance Standards

#### 20.1.1 Theory of Change

NYSEERDA will support activities related to the development, promulgation, compliance, and enforcement of product and appliance standards for categories not currently covered by the federal government.

<b>Market Barriers Addressed</b>	<ul style="list-style-type: none"> <li>• <b>Lack of action at the national level:</b> Without actions on new and updated product standards at the federal level, manufacturers of commodity products have little incentive to improve efficiency. State product standards, especially when actively coordinated across multiple states, can help address this gap in select categories not currently preempted by federal standards.</li> </ul>
<b>Testable Hypotheses</b>	<ul style="list-style-type: none"> <li>• If New York State promulgates new state level product standards in partnership with stakeholders and other states, more efficient products and appliances will be sold in New York, reducing usage of energy, water and emissions of greenhouse gases.</li> </ul>
<b>Activities</b>	<ul style="list-style-type: none"> <li>• <b>Research &amp; Outreach</b> <ul style="list-style-type: none"> <li>○ Provide technical, market, and stakeholder analysis and support for potential state and federal appliance and product standards.</li> <li>○ Conduct studies to determine whether a new standard should be established, considering factors including potential impact on electricity usage, product availability, consumer and environmental benefits, and manufacturing costs, as well as research completed, and actions taken by other states and stakeholders</li> <li>○ Work closely with other regulatory authorities and stakeholders at the state, national, and international levels to share findings, collaborate on strategies, and ensure compliance.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Technical &amp; Regulatory</b> <ul style="list-style-type: none"> <li>○ Develop technical requirements and testing protocols for proposed standards. Work with technical consultants procured through a competitive solicitation and partner with market actors, trade associations, stakeholders, testing bodies, and other regulatory authorities to determine what standards are technically feasible and cost effective for manufacturers and consumers. This work will leverage and build on research and actions from other states and stakeholders to inform these standards.</li> <li>○ In conjunction with the New York Department of State and with outside consultant support procured through a competitive solicitation, develop and implement processes for compliance and enforcement, building on the work of other states and authorities.</li> </ul> </li> </ul>
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20.1.2 Target Market Characterization

<b>Target Market Segment(s)</b>	<ul style="list-style-type: none"> <li>• Product and appliance standards will target products in the residential and commercial sectors. Other participants include: <ul style="list-style-type: none"> <li>○ NYS Electric Utilities</li> <li>○ NYS Local Governments</li> <li>○ NYS Communities</li> <li>○ New York Department of State</li> <li>○ Product &amp; appliance manufacturers</li> <li>○ Product &amp; appliance distributors</li> <li>○ Product &amp; appliance retailers</li> <li>○ Contractors</li> <li>○ Regulators at the state, national, and international levels</li> </ul> </li> </ul>
<b>Stakeholder/Market Engagement</b>	<ul style="list-style-type: none"> <li>• Studies have shown that New York State has numerous opportunities to cost-effectively address product and appliance standards that are not currently preempted by federal actions.<sup>1</sup></li> <li>• States like Connecticut, California, and Washington have been promoting product standards for years, laying a foundation for collaboration and consistency among and between states.</li> <li>• Organizations like the US Climate Alliance, Appliance Standards Awareness Project, and Northeast Energy Efficiency Partnership will provide mechanisms for better coordination and effectiveness across states to ease updates and adoptions to standards, as well as maintain consistency.</li> <li>• NYSERDA will continue to engage with stakeholders, including trade associations, regulatory bodies, environmental organizations, and market actors, to inform product standards work. Outreach and engagement will occur regularly and take many forms, including through pre-rulemaking research and negotiations to create technologically feasible and market accessible standards that are cost-effective; and with other regulatory bodies to share learnings and create consistency in the market.</li> </ul>
<b>Relationship to Utility Programs and REV Initiatives</b>	<ul style="list-style-type: none"> <li>• Product and appliance standards will complement utility incentives already in the market. NYSERDA will continue to work with teams at the utilities to coordinate efforts.</li> </ul>

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<sup>1</sup> *States Go First*, Report A1702, Appliance Standards Awareness Project, July 2017

## Key Implementation Milestones

<b>Key Milestones</b>	<p><b><u>Milestone 1 (2017) - Complete</u></b></p> <ul style="list-style-type: none"> <li>• Issue competitive solicitation for technical analysis related to product and appliance standards.</li> </ul> <p><b><u>Milestone 2 (2021)</u></b></p> <ul style="list-style-type: none"> <li>• Issue competitive solicitation to support the development of product standards.</li> </ul> <p><b><u>Milestone 3 (2021)</u></b></p> <ul style="list-style-type: none"> <li>• Issue competitive solicitation to support compliance with product standards, in conjunction with other states.</li> </ul>
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### 20.1.3 Fuel Neutrality

<b>Fuel Neutrality</b>	<ul style="list-style-type: none"> <li>• Justification for fuel neutrality is based on anticipated direct savings and is not applicable for this initiative as only indirect savings are expected.</li> </ul>
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### 20.1.4 Performance Monitoring and Evaluation Plans

<b>Performance Monitoring &amp; Evaluation Plan</b>	<p>Routine reporting on energy savings to date, project lists developed, and progress against identified annual energy savings goals will be collected and reviewed. Redirecting (as needed) will ensure continued progress against goals.</p> <p>NYSERDA's approach to monitoring and assessing the effectiveness of the initiative and overall market development is described below. Where appropriate, evaluation efforts for this initiative may be combined with other NYSERDA evaluation studies to optimize resources where technologies, market actors, strategy or geographical regions overlap. While serving to reduce and mitigate potentially duplicative evaluation efforts, this approach will also reduce uncertainty in evaluation findings where discrete, initiative-level assessments are otherwise difficult to discern due to such overlaps.</p> <p><b><u>Test-Measure-Adjust Strategy</u></b></p> <p>Each year, NYSERDA will undertake a reassessment of priorities and funding levels and will adjust the program as appropriate. Specifically:</p> <ul style="list-style-type: none"> <li>• Track and monitor the promulgation of state level product standards</li> <li>• Assess the portfolio of standards annually regarding goals and metrics.</li> </ul> <p><b><u>Market Evaluation and Market-Based Impact Evaluation</u></b></p> <ul style="list-style-type: none"> <li>• Market Evaluation will draw on the logic model and will focus on key indicators of programmatic and broader market success.</li> <li>• Assessment of the adoption and compliance of established NYS standards promulgated under this initiative is planned</li> <li>• The evaluation of standards-related impacts is planned to commence in the later years, once the standards are known, developed, promulgated, and adopted and is planned to assess the adoption and compliance of established NYS standards.</li> <li>• Regular (e.g., annual or biennial) updates to key performance indicators and measurement of market change will occur once the initiative is underway.</li> </ul>
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	<ul style="list-style-type: none"> <li>Sources of data include commercially available data, and primary data collection through surveys of key market actors.</li> </ul>
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**20.1.5 Budgets**

The commitment budget for all activities included in this chapter is as follows:

Funding Commitments		----- Commitments Plan -----						
Budget	Plan Total	Previously Committed	2020	2021	2022	2023	2024	2025
Incentives and Services	-	-	-	-	-	-	-	-
Implementation	2,012,000	176,200	5,530	-	330,270	500,000	500,000	500,000
Research and Technology Studies	-	-	-	-	-	-	-	-
Tools, Training and Replication	19,687,000	-	325,000	100,000	4,262,000	5,000,000	5,000,000	5,000,000
Business Support	-	-	-	-	-	-	-	-
<b>Total</b>	<b>21,699,000</b>	<b>176,200</b>	<b>330,530</b>	<b>100,000</b>	<b>4,592,270</b>	<b>5,500,000</b>	<b>5,500,000</b>	<b>5,500,000</b>

An annual expenditure budget for all activities included in this chapter is shown in Appendix B alongside expected acquired benefits. Budgets do not include Administration, Evaluation, or Cost Recovery Fee; these elements are addressed in the Budget Accounting and Benefits chapter filing. The budget as presented in the Budget Accounting and Benefits Chapter will serve as the basis for any subsequent reallocation request. The additional level of detail presented within Appendix B is intended for informational purposes only.

**20.1.6 Progress and Performance Metrics**

The anticipated commitment benefits totals for the initiative with respect to CEF Order target metrics is as follows:

Benefit Commitments		-----	
Direct Benefit (2016-2025)	Plan Total	Indirect Benefit (2016-2030)	Plan Total
Energy Efficiency MWh Annual	-	Energy Efficiency MWh Annual	4,421,378
Energy Efficiency MMBtu Annual	-	Energy Efficiency MMBtu Annual	7,990,429
Renewable Energy MWh Annual	-	Renewable Energy MWh Annual	-
CO2e Emission Reduction (metric tons) Lifetime	-	CO2e Emission Reduction (metric tons) Lifetime	31,363,212
Participant Bill Savings Lifetime	-		
Leveraged Funds	-		

Benefits summarized in Appendix B represent the plan for acquiring impacts through completed projects or activities.

Benefits listed as direct, are near term benefits directly associated with this initiative’s projects. These benefits will be quantified and reported on a quarterly basis and will be validated through later evaluation.

Benefits listed as indirect represent the estimated indirect market effects expected to accrue over the longer term as a result of this investment and follow on market activity. The indirect benefits that accrue from this investment will be quantified and reported based on periodic Market Evaluation studies to validate these forecasted values. Market Evaluation may occur within one year (-/+ ) of the years noted in the Appendix and projected future indirect benefits and/or budgets necessary to achieve them may be updated based on the results of market evaluation. Indirect

impact across NYSERDA initiatives may not be additive due to multiple initiatives operating within market sectors. The values presented above and in Appendix B are not discounted, however NYSERDA has applied a discount of 50% to the overall portfolio values in the Budget Accounting and Benefits chapter.

Appendix C provides program Activity/Output indicators representing measurable, quantifiable direct results of activities undertaken in the initiative. Outputs are a key way of regularly tracking progress, especially in the early stages of an initiative, before broader market changes are measurable. Outcome indicators can encompass near-term through longer-term changes in market conditions expected to result from the activities/outputs of an intervention. Outcome indicators will have a baseline value and progress will be measured periodically through Market Evaluation.

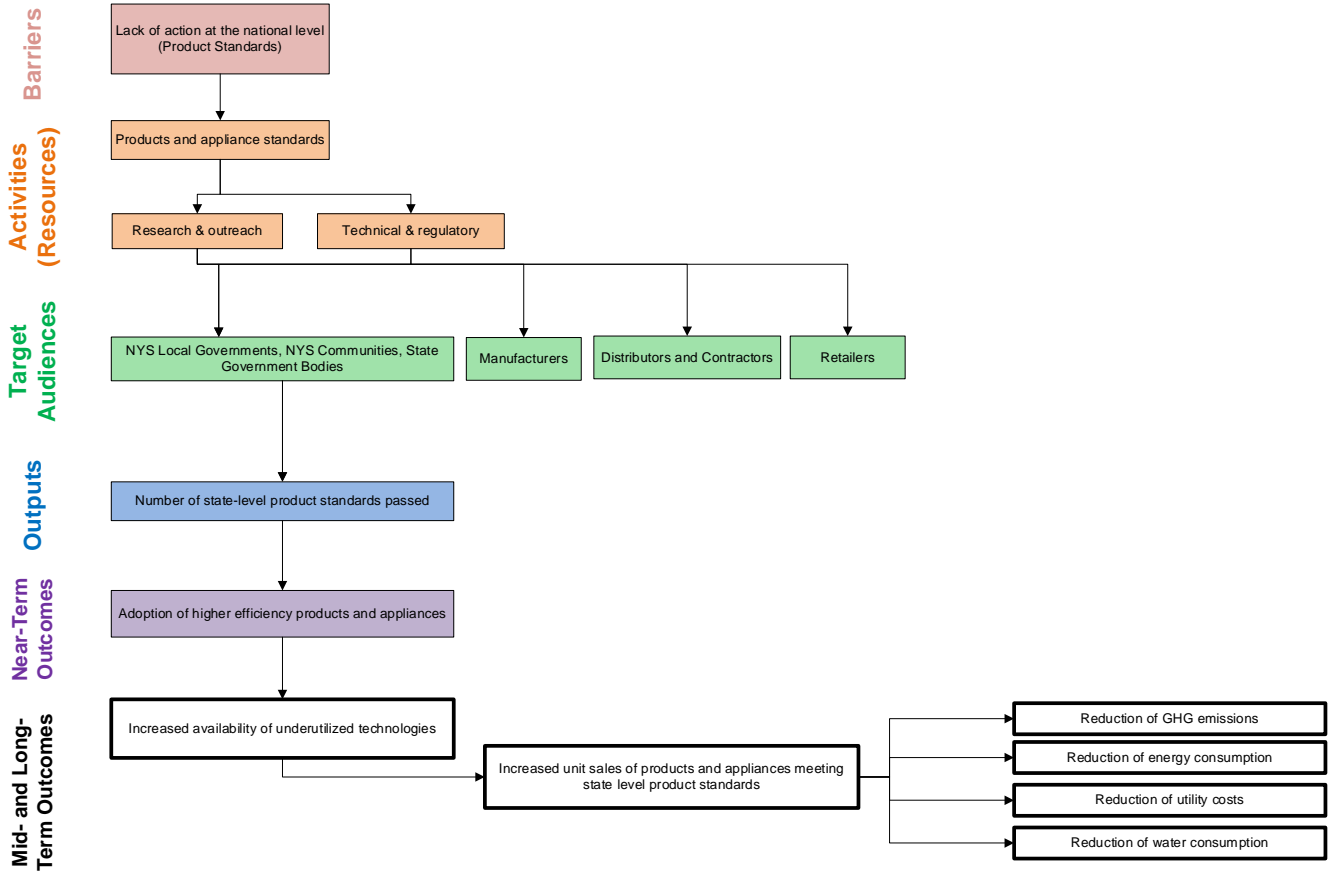
In addition, NYSERDA will also assess the following broad outcomes associated with Product and Appliance Standards:

- Number of products sold for covered categories
- Peak load reduction
- Water savings

<b>Verified Gross Savings Specification Products</b>	
Date of CEF filing: <i>see cover page</i>	
CEF Chapter Name	Product and Appliance Standards (Formerly Clean Energy Products)
Initiative Name	Product and Appliance Standards (2017)
Initiative Period	Formerly launched as Underutilized Product Support in 2017.
Initiative Description	NYSERDA will support activities related to the development, promulgation, compliance, and enforcement of product and appliance standards for categories not currently covered by the federal government.
Gross Savings Methodology	N/A: all savings for the initiative are indirect and will be evaluated through market evaluation.
Realization Rate (RR)	N/A
Planned VGS Approach	N/A: all savings for the initiative are indirect and will be evaluated through market evaluation.
Exemption from EAM Status	N/A

# Appendix A – Logic Models

## LOGIC MODEL: Products (r03/2020)





# Appendix B | Initiative Budget and Benefits Summary

## Product and Appliance Standards

		Benefits Acquisition Plan														
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Direct Benefit</b>	<b>Plan Total</b>															
Energy Efficiency MWh Annual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Energy Efficiency MWh Lifetime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Energy Efficiency MMBtu Annual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Energy Efficiency MMBtu Lifetime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Energy Efficiency MW	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Renewable Energy MWh Annual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable Energy MWh Lifetime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable Energy MW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2e Emission Reduction (metric tons) Annual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2e Emission Reduction (metric tons) Lifetime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Participant Bill Savings Annual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Participant Bill Savings Lifetime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leveraged Funds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Indirect Benefit</b>	<b>Plan Total</b>															
Energy Efficiency MWh Annual	4,421,378	-	-	-	-	-	-	302,116	609,483	615,535	607,788	606,120	608,861	470,854	298,162	302,459
Energy Efficiency MMBtu Annual	7,990,429	-	-	-	-	-	-	443,194	943,964	994,112	983,515	969,808	952,222	930,148	902,974	870,492
Renewable Energy MWh Annual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable Energy MW Annual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2e Emission Reduction (metric tons) Annual	2,650,104	-	-	-	-	-	-	175,448	356,680	362,457	358,000	356,414	356,821	286,565	198,675	199,044
CO2e Emission Reduction (metric tons) Lifetime	31,363,212	-	-	-	-	-	-	2,081,083	4,228,410	4,294,985	4,242,084	4,223,804	4,229,656	3,387,784	2,334,598	2,340,809
<b>Energy Usage</b>	<b>Plan Total</b>															
Direct Energy Usage MWh Annual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Direct Energy Usage MWh Lifetime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Direct Energy Usage MMBtu Annual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Direct Energy Usage MMBtu Lifetime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indirect Energy Usage MWh Annual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indirect Energy Usage MWh Lifetime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indirect Energy Usage MMBtu Annual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indirect Energy Usage MMBtu Lifetime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Participants</b>	<b>Plan Total</b>															
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Budget Expenditures Plan														
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Budget</b>	<b>Plan Total</b>															
Incentives and Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Implementation	2,012,000	-	-	-	151,061	20,848	-	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	240,092
Research and Technology Studies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tools, Training and Replication	19,687,000	-	-	-	-	125,000	250,000	1,000,000	2,000,000	3,000,000	3,000,000	2,000,000	2,000,000	2,000,000	2,000,000	1,312,000
Business Support	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>21,699,000</b>	-	-	-	151,061	145,848	250,000	1,200,000	2,200,000	3,200,000	3,200,000	2,200,000	2,200,000	2,200,000	2,200,000	1,552,092

**Table Notes:**  
 \* With the May 2021 IPPR filing of all investment plans, each Appendix B table that accompanies an investment plan was transitioned from yearly commitment-based budget and benefit plans to plans that forecast expenditures and acquired benefits.  
 a. In 2020 this initiative was renamed Product and Appliance Standards, previously known as Undertutilized Product Support; at that time, components of the initiatives that were managed and implemented by NYSERDA's Clean Heat and Cooling group were also removed, namely Air Source Heat Pumps.

## Appendix C | Initiative Outputs and Outcomes Summary

### Product and Appliance Standards

	Indicators	Baseline (Before/Current)	2020 Target	2021 Target
			(cumulative)	(cumulative)
Outputs	Number of technical requirements and protocols finalized	0	20	20
	Number of cost/benefit studies completed	0	30	30
	Number of compliance and enforcement processes established	0	1	1
	# of new state-level product standards passed, by product type	0	20	25
Outcomes	Adoption of new state level product standards, by product type	0	10	10
	Unit sales of products and appliances meeting new state level product standards	0	TBD	TBD

#### Table notes

- a. A 0 (zero) in a baseline/market metrics field denotes that the actual value is currently believed to be zero.
- b. Outcomes associated with state level products and standards include energy and carbon savings which are provided in Appendix B for this initiative.