

COOLNOMIX Project Checkpoint Town of Winthrop

May 30, 2019



Massachusetts Clean Energy Center (MassCEC) DeployMass Grant Scope

- DeployMass facilitates the adoption of clean energy technologies by public or public-interest customers to support the growth and development of Massachusetts-based companies while providing broader public benefits.
- Formal contract with cost share model:
 - MassCEC pays for the equipment costs (Appendix A)
 - Town of Winthrop pays for the installation costs
 - CoolGreenPower provides support for the installation and energy monitoring
- Locations: Council on the Aging, Winthrop Middle/High School, both public elementary schools

Project Objectives



1. Assist the Town of Winthrop with **MMBTU reduction goals**



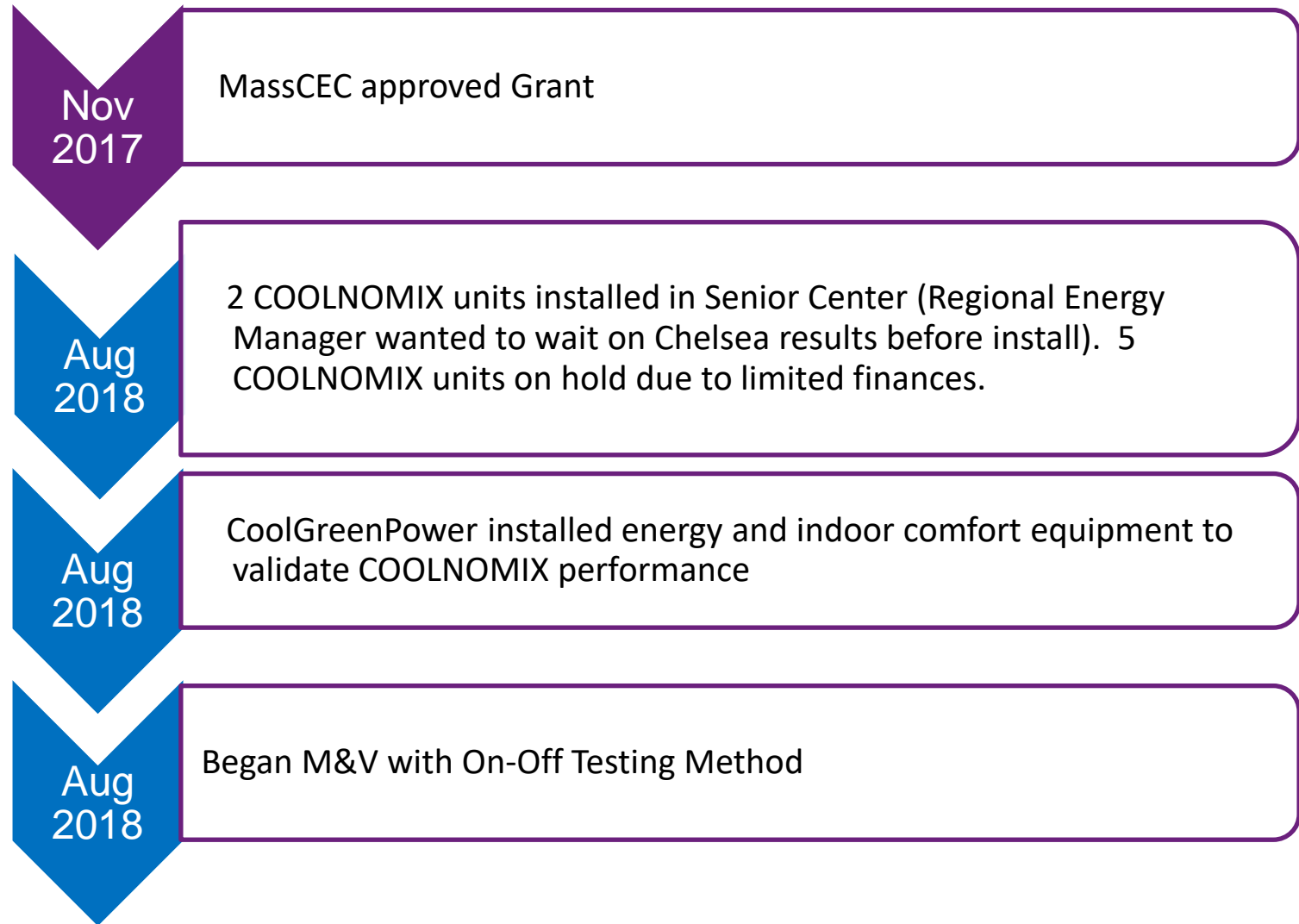
2. Provide Winthrop with **measurement and verification (M&V)** tools that can be used to assess energy saving performance for this study



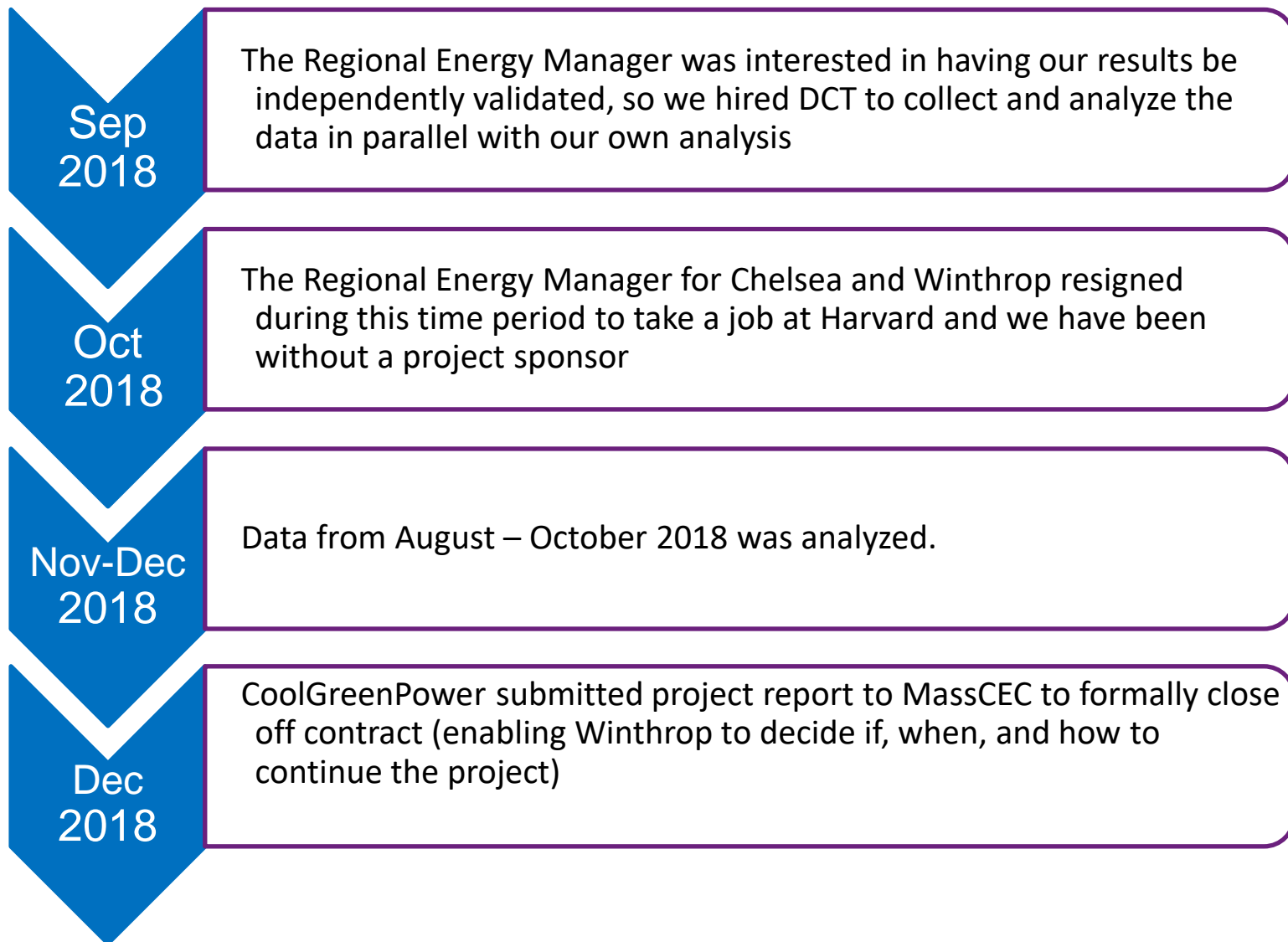
3. Save Town of Winthrop **taxpayer dollars** and support a Massachusetts **clean tech company** to build early customers and M&V case studies

This demonstration will be a model for other Winthrop cooling systems and Massachusetts City facilities

Project Chronology (1/2)



Project Chronology (2/2)



Measurement Approach August – October 2018

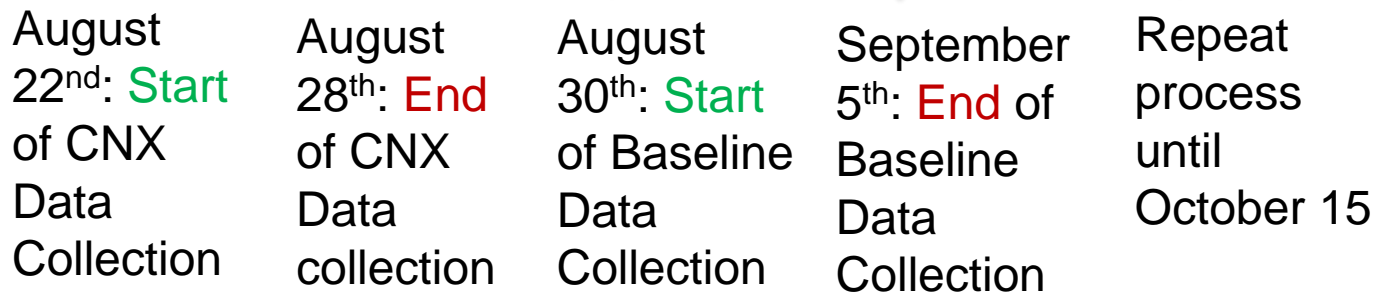
Goals

1. 20-40% energy savings
2. Maintain or improve indoor comfort

Method

Use on-off testing and weather-normalized regression analysis

Timing



Measurement Tools

Indoor comfort: Onset hygro-thermometer (1 min increments)
Weather: Microsoft weather, zip: 01754 (10 min increments)
Energy consumption: Onset (1 sec increments), Efergy (1 min) increments

Results from COOLNOMIX in Winthrop Senior Center



Dining/Computer Room

Dining/Computer Room Information	
Cooling Type	AC- RTU
Cooling Size	83,000 Btu/hr
Square Footage Cooled Space	~3,900 SF
Cooling Operating Hours	7AM-4PM, Mon-Fri
Regression R ² Value	Baseline: 0.95 COOLNOMIX: 0.88

	Annual Cooling kWh Consumption	Annual Cooling Cost (\$0.11/kWh)
Baseline	7,030 kWh	\$773
CNX	4,715 kWh	\$518

Annual kWh Savings: 2,314 kWh
Annual Cost Savings*: \$255
Simple Payback w/o grant: 4.3 yrs
% Cooling Energy Savings: 32%

*\$0.11/kWh