

# **NJCEP – TRM PROTOCOLS UPDATE**

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## **Project Summary - Webinar**

A scenic landscape photograph of rolling green hills under a blue sky with scattered white clouds. A dirt path with small rocks leads through tall grasses in the foreground. The hills are covered in dense green vegetation.

**Bruce Harrington – Principal-in-Charge**  
**Kerri-Ann Richard – Project Manager**  
**Jon Maxwell – Technical Advisor**

**10/11/2017**

# AGENDA

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- ❑ Project Objectives and Scope
- ❑ Process Overview
- ❑ Key Changes to Protocols
- ❑ Best Practice Recommendations
- ❑ Future Studies and Research
- ❑ Further Protocols Development
- ❑ Final Comments

# PROJECT OBJECTIVES AND SCOPE

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- **Objective** – Bring the Protocols up to date with current content that is specific to the New Jersey Clean Energy Program (NJCEP).
  - Document as a whole
    - Introduction, programs, appendices
  - Individual measures
    - General overview and in-depth review
  - Best practices and future considerations

# PROJECT OBJECTIVES AND SCOPE

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## □ Scope – Protocols Content

- Review, compare and update; assumptions, algorithms, lifetimes using other TRM's and online databases
- Remove obsolete measures, add new measures
- Review and update non-measure specific information (introduction)
- Review and update measure lives

# PROJECT OBJECTIVES AND SCOPE

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## □ Scope – Non-Protocols Content

- Best Practices
  - Other states' TRMs
  - Review of best practice studies
- Future Studies and Research
  - Filling data gaps
  - Conduct targeted research
- Further Protocols Development
  - Updating and maintenance
  - Custom measures approach



# PROCESS OVERVIEW - LITERATURE

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- ❑ Other TRMs and measure references
- ❑ New Jersey Administrative Code and other codes such as the International Energy Conservation Code (IECC) and ASHRAE
- ❑ Voluntary best-practice standards that are adopted by program administrators as program baselines or targets
- ❑ Original baseline study research and “mini-surveys” completed by ERS
- ❑ Newly introduced efficiency innovations that “move the bar” affecting established baselines and/or calculation protocols

# PROCESS OVERVIEW - MEASURES

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- Conduct completeness and consistency review across all measures
  - Checklist to validate accuracy of algorithms, assumptions, and references
  - Online program documentation
  - Program tracking databases
  - Identify measures to be updated, added, or deleted
  - Identify measures (30) to be reviewed in-depth

# IN-DEPTH MEASURE LIST - ELECTRIC



Sector	Program	Measure
Residential	ES Products	Specialty LEDs
Residential	ES Products	Standard LED/LED fixtures
Residential	ES Products	Lighting controls
Commercial	EE	Performance lighting
Commercial	EE	Prescriptive lighting
Commercial	EE	Lighting controls
Commercial	EE	Commercial VFD
Commercial	EE	Air compressor VFD
Commercial	EE	Commercial refrigerator doors
Commercial	EE/Direct Install	Electric HVAC
Commercial	EE/Direct Install	Lighting/controls
Commercial	Direct Install	Vending machine controls
Commercial	Distributed Energy Resource/CHP Program	DG/fuel cells/biomass



# IN-DEPTH MEASURE LIST - GAS



Sector	Program	Measure
Residential	Gas HVAC	Furnaces
Residential	Gas HVAC	Boilers
Residential	Gas HVAC	Combo-boiler
Residential	Gas HVAC	Instantaneous hot water heater
Residential	Gas HVAC	Tank type hot water heater
Residential	Gas HVAC	Boiler reset
Commercial	EE	Instantaneous hot water heater
Commercial	EE	Tank type hot water heater
Commercial	EE/Direct Install	Boiler reset
Commercial	EE/Direct Install	Dual enthalpy economizers
Commercial	EE/Direct Install	Boiler/furnace fuel use economizer
Commercial	EE/Direct Install	Gas water heating
Commercial	EE/Direct Install	Gas space heating
Commercial	Direct Install	DCV
Commercial	Direct Install	Pipe insulation
Commercial	Direct Install	Low-flow devices
Commercial	Direct Install	Programmable thermostats

# KEY CHANGES TO PROTOCOLS

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- ❑ Added 5 new measures that were NJCEP programs but were not in the Protocols:

Sector	Measures	Changes to Measures
Residential	<ul style="list-style-type: none"><li>• Boiler reset controls</li><li>• ES lighting – specialty lighting</li></ul>	<ul style="list-style-type: none"><li>• New measure in Protocols based on program data</li></ul>
Commercial/ Direct Install	<ul style="list-style-type: none"><li>• Programmable thermostats</li><li>• Boiler reset controls</li><li>• Vending machine controls</li></ul>	<ul style="list-style-type: none"><li>• New measure in Protocols based on program data</li></ul>

# KEY CHANGES TO PROTOCOLS (CONT.)



- Noted 10 measures not currently active as part of the NJCEP and were not reviewed by ERS. These measures remained in the Protocols with added notation stating [Inactive 2017, Not Reviewed]:

Sector	Measures	Changes to Measures
Residential	<ul style="list-style-type: none"> <li>GSHP desuperheater</li> <li>Solar domestic HW</li> <li>DWHR</li> <li>ES room air purifier</li> <li>ES soundbar</li> <li>ES RAC</li> <li>ES freezers</li> <li>Set top boxes</li> </ul>	<ul style="list-style-type: none"> <li>Inactive 2017, Not Reviewed</li> </ul>
Commercial/ Direct Install	<ul style="list-style-type: none"> <li>Motors</li> <li>Small commercial boilers</li> </ul>	<ul style="list-style-type: none"> <li>Inactive 2017, Not Reviewed</li> </ul>

# KEY CHANGES TO PROTOCOLS (CONT.)

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- ❑ Edited 41 measures materially changing savings estimates:
  - Updated baselines
  - Changed savings algorithms
  - Other new content – assumptions, references, structure
  
- ❑ Edited 10 measures without materially changing savings:
  - ❑ Clarification and modernization of references
  - ❑ Moving from one program to another

## KEY CHANGES TO PROTOCOLS (CONT.)

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- Completed comparative measure life study using comparable TRM's from MA, NY, PA, and NEEP Mid-Atlantic
  - Upwards for nine measures
  - Downward for seven measures
  - Removed measures not part of the program
  - Added new measure life for 27 measures

# KEY CHANGES TO PROTOCOLS (CONT.)

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## □ Immediate Impacts

- Increase savings 5-15%
  - Residential space cooling
- Increase savings 20-25%
  - Residential water heating
- Decrease savings 5-25%
  - Residential space heating
- Decrease savings 20%-40%
  - Direct Install space and water heating



# KEY CHANGES TO PROTOCOLS (CONT.)

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- Long-term Impacts
  - Measure life
    - Across all measures
  - Protocols methodology
    - CHP

# BEST PRACTICE RECOMMENDATIONS

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- ❑ Interactive effects recommendation
  - Clearer picture of overall impacts
    - Lighting and refrigeration
- ❑ Protocol structure
  - Ease reviewing and tracking
    - Glossary and common assumptions
    - Expanded appendices
- ❑ Dual baselines
  - Early retirement
  - Direct install

# FUTURE STUDIES AND RESEARCH

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- Baseline Definition
  - Use NJ specific research
  - Expanded discussion within Protocols
  - Evaluation Results
  - Industry Standard Practice (ISP) Studies
  - Secondary Research – publication review, interviews, etc.

# FUTURE STUDIES AND RESEARCH



- Move toward the incorporation of NEI in benefit/cost calculation
  - Especially where NEI's are large or the measure is marginally cost effective
  - Program marketing and policy support
    - Direct economic benefits or negative added cost
    - Help encourage program participation

# FUTURE STUDIES AND RESEARCH

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## □ Incremental Costs

- Updated some incremental costs with NEEP Mid-Atlantic data where applicable
- Recommend a systematic incremental cost update with such data listed in each Protocol measure chapter

# FUTURE PROTOCOLS DEVELOPMENT

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- ❑ Updating and Maintenance
  - Periodic Updates
    - Once per year update based upon opportunistic accumulation of changes to selected parameters based upon evaluation results or program research
    - Every 1 to 3 years commission a more systematic approach and comprehensive review
  - Update Triggers
    - New measures, obsolete measures, measure updates, global assumptions update



# FUTURE PROTOCOLS DEVELOPMENT

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- Develop Custom Measure Protocol
  - Define eligible measures
  - Some projects will require Technical Assistance
  
- Net-to-Gross Calculation\*
  - Freeridership and Spillover
  - Over/under state savings

\* ERS reviewed memo submitted by CEEEP

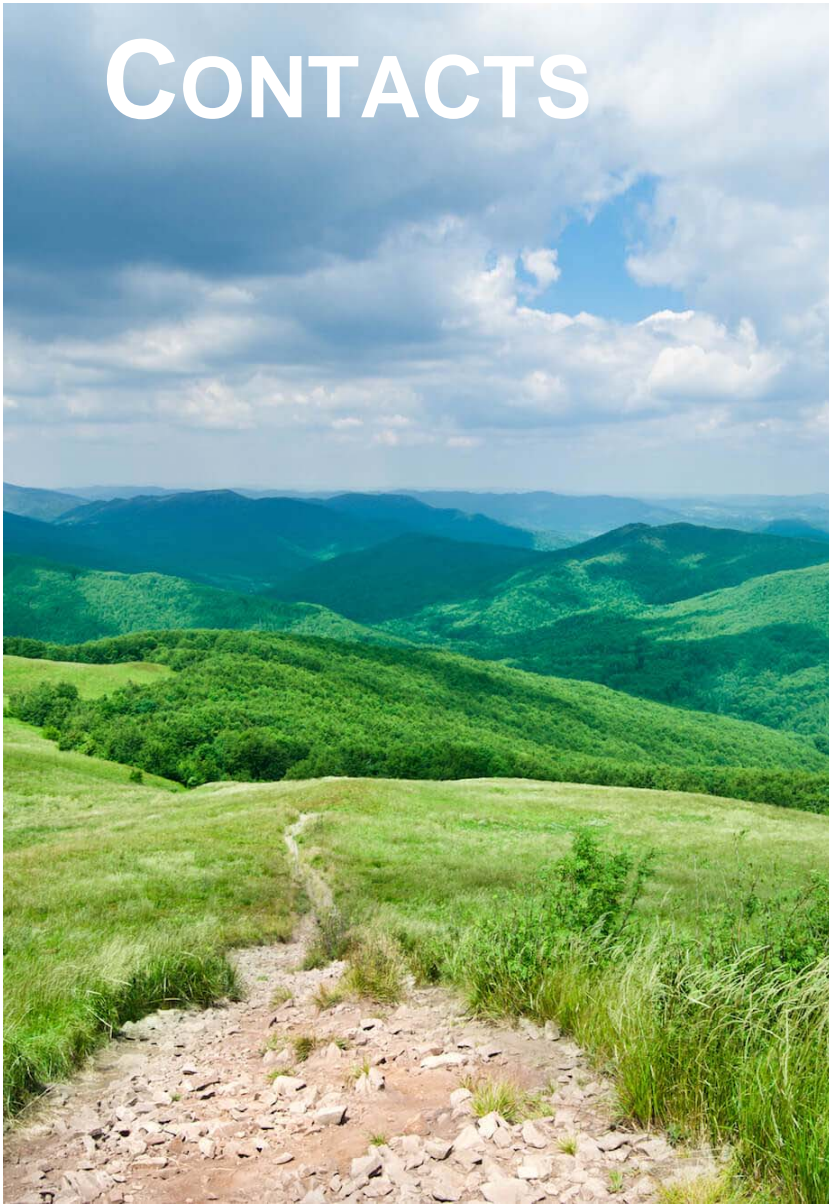
# FINAL COMMENTS

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- Updated Protocols Document
  - Underscore integrity of Protocols
  - More accurate representation of savings
- Continuing Process
  - Updating and maintaining
  - Opportunities for improvement
- Further Review and Comment
  - ERS will incorporate applicable suggestions and issue a final version

# CONTACTS



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