

Show Me The Savings: A Statewide Technical Reference Manual As A Catalyst for Energy Efficiency in Missouri

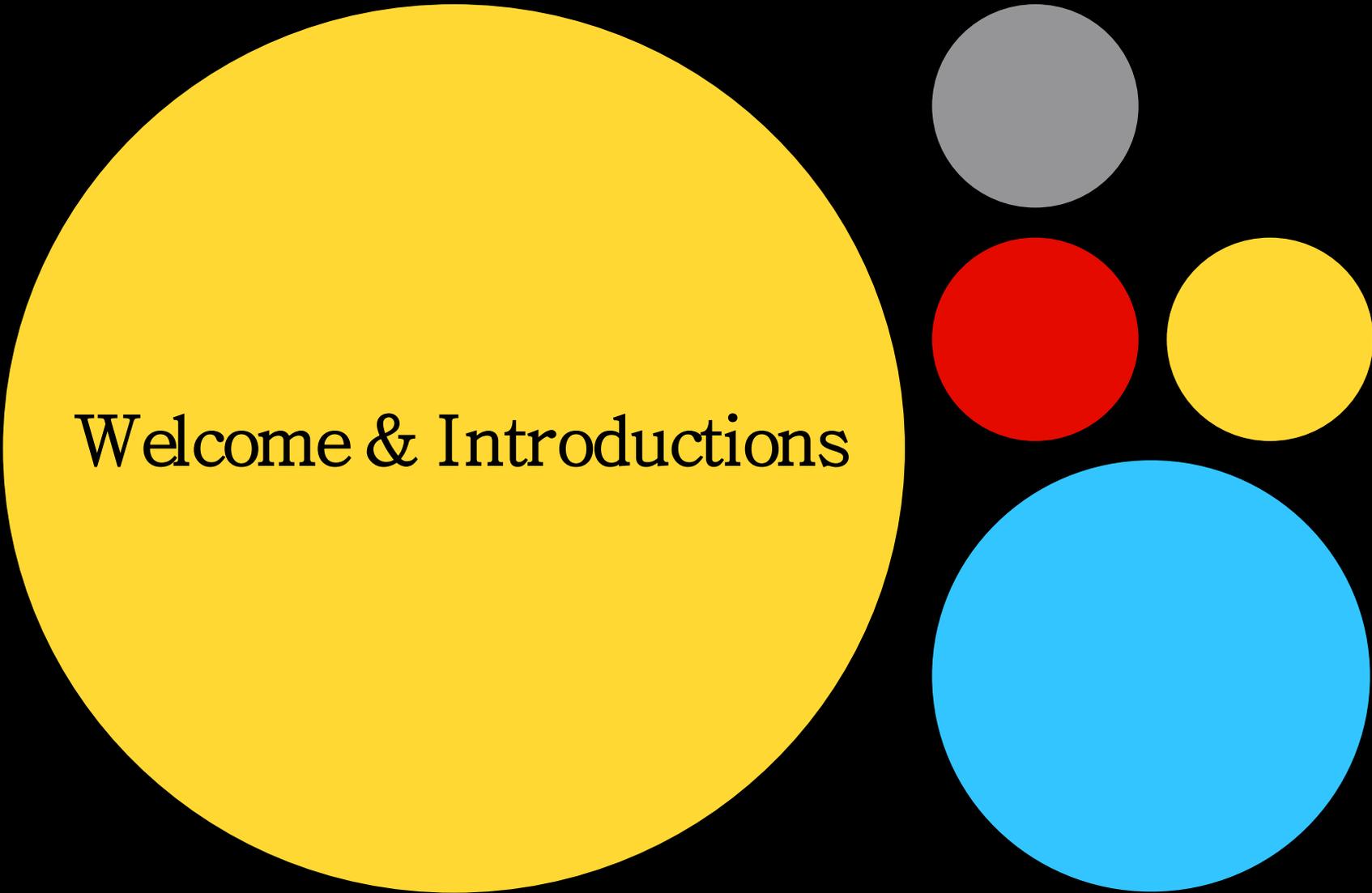
Stakeholder Kick-Off Meeting

Vermont Energy Investment Corporation

January 22, 2016

Zoe Dawson
Rebecca Foster
Sam Dent

Cheryl Jenkins
Asa Parker
Stephanie Baer



Welcome & Introductions

Topics for this Morning's Discussion

Agenda

- VEIC: Who we are, our experience
- Highlights of the Missouri TRM Project
- Stakeholder Engagement and Collaboration
- Information Sharing and Communications Plans
- Questions and Discussion Throughout

Goals for This Morning

- Review the work
- Confirm key actors and roles for moving the project forward
- Agree on a common communications approach
- Facilitate open discussions
- Get to know each other

VEIC TRM Management Team



**Rebecca Foster, Project Advisor
and EM&V 2.0 Lead**



**Cheryl Jenkins, Project and Policy
Guidelines Lead**



Zoe Dawson, Project Manager



**Sam Dent, TRM Senior Technical
Advisor**



Asa Parker, TRM Technical Lead

VEIC: Delivering Services with Proven Results

Highlights

- Nonprofit with 30 years experience reducing the economic & environmental costs of energy
- Comprehensive focus and results
- Total Energy: Energy efficiency – Renewable energy – Transportation efficiency
- National & international consulting & implementation
- Program design, planning, & evaluation – policy & advocacy – research
- Clients include government agencies, regulators, utilities, foundations, advocates

VEIC's Three Energy Efficiency Utilities



Comprehensive Energy Efficiency Program Administration

- Design, implement, and continuously improve data systems to support:
 - Savings calculations
 - Tracking
 - Reporting
 - Cost-effectiveness
 - Demand resource planning and forecasting
- Developed the first “Technical Reference Manual:” Efficiency Vermont in 2000
- TRM now an integral part of a broad set of electronic tools and applications

Relevant Experience

Technical Reference Manuals

- Vermont
- Illinois
- Iowa
- Ohio
- Mid-Atlantic
- District of Columbia
- Efficiency Smart (AMP)

Electronic TRM and Tools

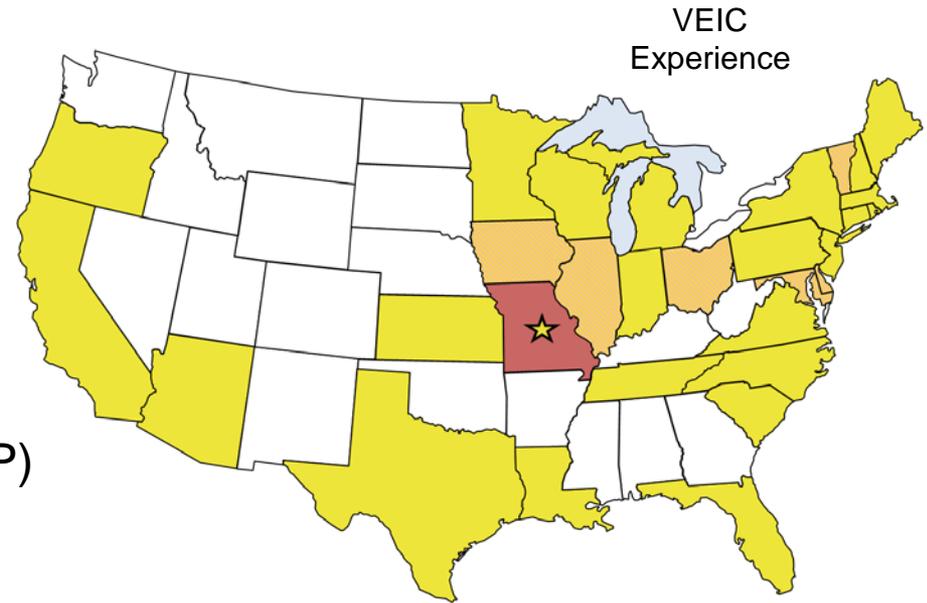
- Public Version - 2015

Savings Calculations

- Savings & TRM Reviews
- Potential Studies
- Demand-side Resource Plans

Wholesale Market Participation

- ISO-NE Forward Capacity Market



Program Implementation

- Vermont
- District of Columbia
- Efficiency Smart (multiple municipalities)

Program Implementation Support

- Program Design
- Product & Equipment Savings and Technical Support



TRM Project Overview



Highlights

Show Me the Savings: A Statewide TRM as a Catalyst for Energy Efficiency in Missouri

Missouri Department for Economic Development, Division of Energy
Vermont Energy Investment Corporation

Consistency in Deemed Savings and Framework for EM&V 2.0

Easier Program Design and Evaluation

More Utilities Running Programs

Greater Energy Savings

Goals:

1. Facilitate coordinated program planning across all Missouri utilities, leading to greater energy savings.
2. Provide a transparent, consistent set of standard measures for tracking and documentation of energy efficiency savings.

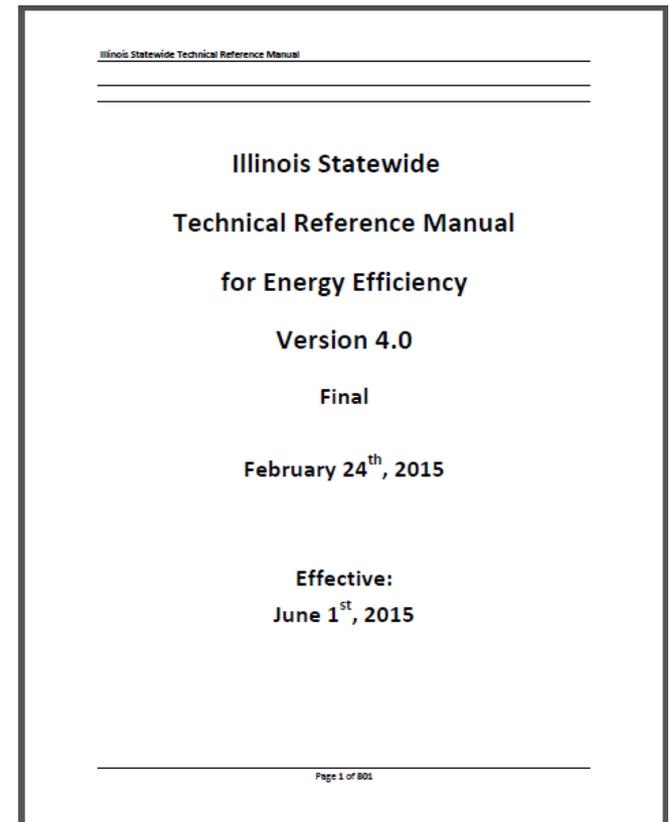
Impacts:

1. Missouri will have a statewide common agreement that will facilitate planning, implementation, and evaluation of all cost-effective energy efficiency programs.
2. The effort will support DOE SEE Action Network's EM&V goals by engaging stakeholders in the region to develop a framework for EM&V 2.0 for the future.

What is a TRM?

Your Owner's Manual for estimating savings for many common energy efficiency measures

- Provides a full narrative of the measures and instructions on how savings calculations should be applied
- Documents all details of the calculations and assumptions
- Includes guidelines for use and sets the information contained into the Missouri energy efficiency context



Missouri TRM Work Plan and Timeline

Tasks

1. Gather Information and Identify TRM Content
2. Characterize TRM Measures
3. Prepare Final TRM
4. Develop TRM Update and Maintenance Process
5. Catalyze Regional Engagement on EM&V 2.0

Work Plan, Timeline, Milestones, and Deliverables

Task 1. Gather Information and Identify TRM Content

- Establish Technical Advisory Committee (TAC) and Communication Plan
- Identify, gather, and review available information
- Prepare templates for measure documentation and TRM policy guidance
- Prepare common measure list
- Review with stakeholders and finalize

**Timeline: Feb-
April 2016**

Project/Task:	Month:	Q1			
		1	2	3	4
Task 1: Gather Information and Identify TRM Content					
1.1: Establish TAC and Communication Plan			M		
1.2: Gather and review available information					M
1.3: Prepare framework for measures and TRM policy guidance					M
1.4: Prepare common measure list					M

Work Plan, Timeline, Milestones, and Deliverables

Task 2. Characterize TRM Measures

- Review current utility assumptions
- Pursue significant questions from initial review; research and analysis
- Draft measure characterizations
- Review with stakeholders and finalize measures

Timeline: April - Dec 2016

Project/Task:	Month:	Q2			Q3			Q4		
		4	5	6	7	8	9	10	11	12
Task 2: Characterize TRM Measures										
2.1: Review current utility assumptions									M	
2.2: Pursue significant questions from initial review									M	
2.3: Draft measure characterizations									M	
2.4: Review with stakeholders and finalize measures			m	m	m	m	m			
			m	m	m	m	m	m	m	M

Work Plan, Timeline, Milestones, and Deliverables

Task 3. Prepare Final TRM

- Draft Full TRM document
- Review with stakeholders and finalize full TRM

**Timeline: Dec 2016
- Feb 2017**

		Q4		Q5		
Project/Task:	Month:	11	12	13	14	15
Task 3. Prepare Final TRM						
3.1: Draft full TRM document						
				M		
3.2: Review with stakeholders and finalize full TRM						
					M	

Work Plan, Timeline, Milestones, and Deliverables

Task 4. Develop TRM Update and Maintenance Process

- Review current planning and evaluation cycles
- Develop recommended update process
- Review with stakeholders and finalize TRM update process

**Timeline: Dec 2016
- Feb 2017**

		Q4		Q5	
Project/Task:	Month:	12	13	14	15
Task 4: Develop TRM Update and Maintenance Process					
4.1: Review current planning and evaluation cycles			M		
4.2: Develop recommended update process			M		
4.3: Review with stakeholders and finalize TRM update process				M	

Work Plan, Timeline, Milestones, and Deliverables

Task 5. Regional Engagement on EM&V 2.0

- Conduct Best Practice review on EM&V 2.0
- Share EM&V 2.0 Best Practices
- Convene Missouri stakeholders to develop framework for EM&V 2.0
- Share Best Practices and framework with stakeholders
- Issue final framework for EM&V 2.0

**Timeline: Dec 2016
- Oct 2017**

Project/Task:	Month:	Q4		Q5		Q6			Q7			Q8		
		12	13	14	15	16	17	18	19	20	21	22	23	24
Task 5. Regional Engagement on EM&V 2.0														
5.1: Conduct Best Practice review on EM&V 2.0					M									
5.2: Share EM&V 2.0 best practices					M									
5.3: Convene Missouri stakeholders to develop framework for EM&V 2.0							M							
5.4: Share EM&V 2.0 Best Practices and framework to Midwest stakeholders											M			
5.5: Issue final framework for EM&V 2.0													M	

Definitions

EM&V 2.0 = Use of “big data” to reduce the cost of EM&V, produce more timely results, and increase the acceptance of savings

Framework = Plan that Missouri stakeholders can use as they integrate these new data sources to ensure that investments are made in an intentional, thoughtful way

“EM&V 2.0 – New tools for measuring energy efficiency program savings” by Tom Eckman, NPCC, and Mark Sylvia, MA DOER, on behalf of SEE Action EM&V Working Group, at <http://www.elp.com/Electric-Light-Power-Newsletter/articles/2014/02/em-v-2-0-new-tools-for-measuring-energy-efficiency-program-savings.html>

Our Approach

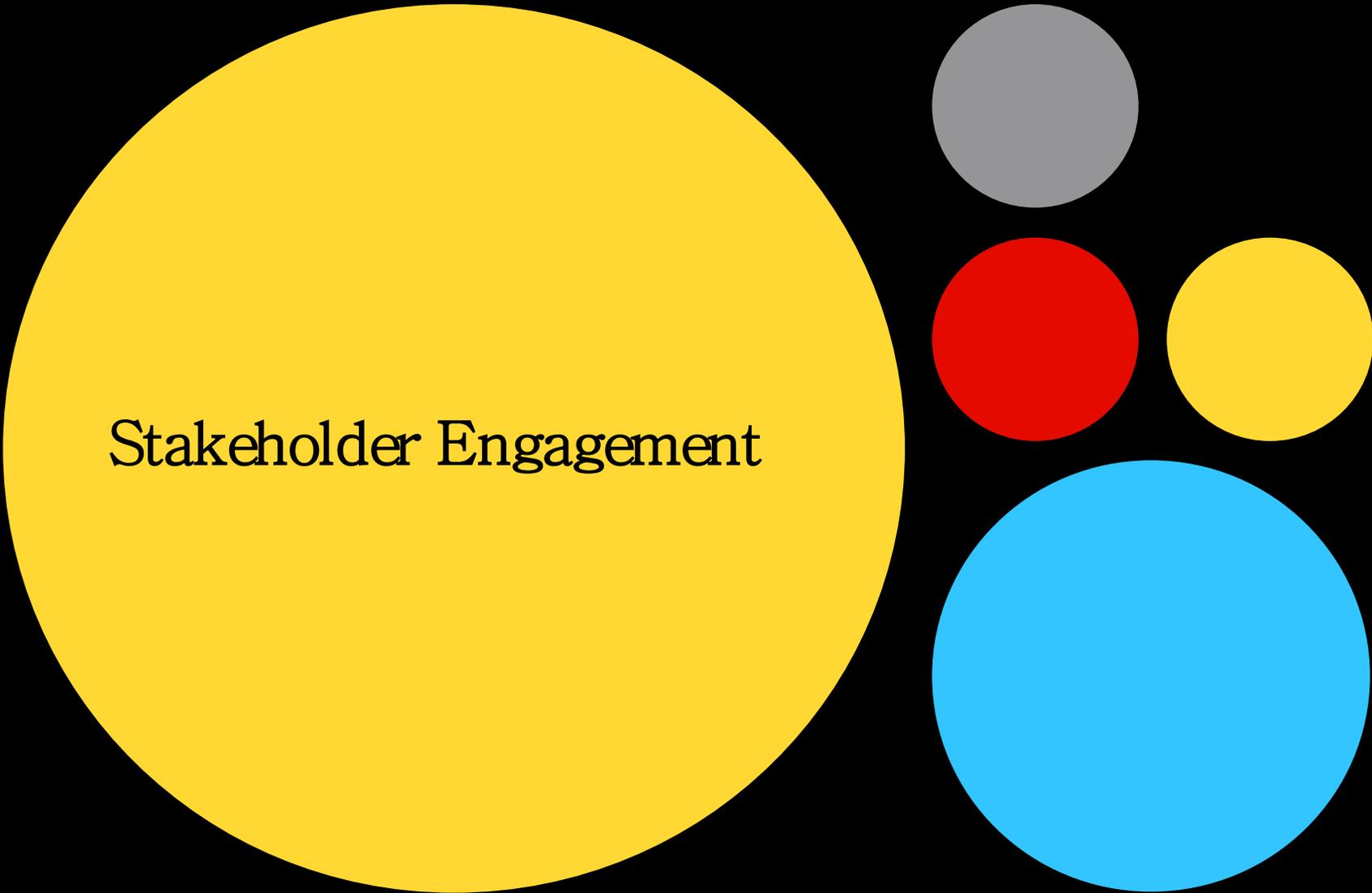
- Define EM&V 2.0 for Missouri
 - Map out current processes (managing data, calculating and reporting savings, using customer data, new TRM), informed by best practices
 - Plan out how Missouri could enhance those processes and tools to take advantage of and be prepared for new data streams and analytics
- Share this framework with regional stakeholders
- Benefits of this approach:
 - Allows us to build a statewide TRM while being mindful of potential to incorporate more data in the future
 - Enables Missouri to vet new approaches such as sub-metering or third party program management software with a framework in place – e.g., “Does this solution fit into our plan or not?”
 - Enables Missouri stakeholders to make investments in data and IT infrastructure informed by a vision and plan for future, preventing lost opportunities and duplication of effort

Missouri TRM Work Plan and Timeline - Review

Our work together for the next two years:

		2016												2017											
		Q1			Q2			Q3			Q4			Q5			Q6			Q7			Q8		
Project/Task:	Month:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Task 1: Gather Information and Identify TRM Content			M		M																				
Task 2: Characterize TRM Measures											M		M												
Task 3: Prepare Final TRM															M	M									
Task 4: Develop TRM Update and Maintenance Process															M	M									
Task 5: Regional Engagement on EM&V 2.0																	M		M					M	M

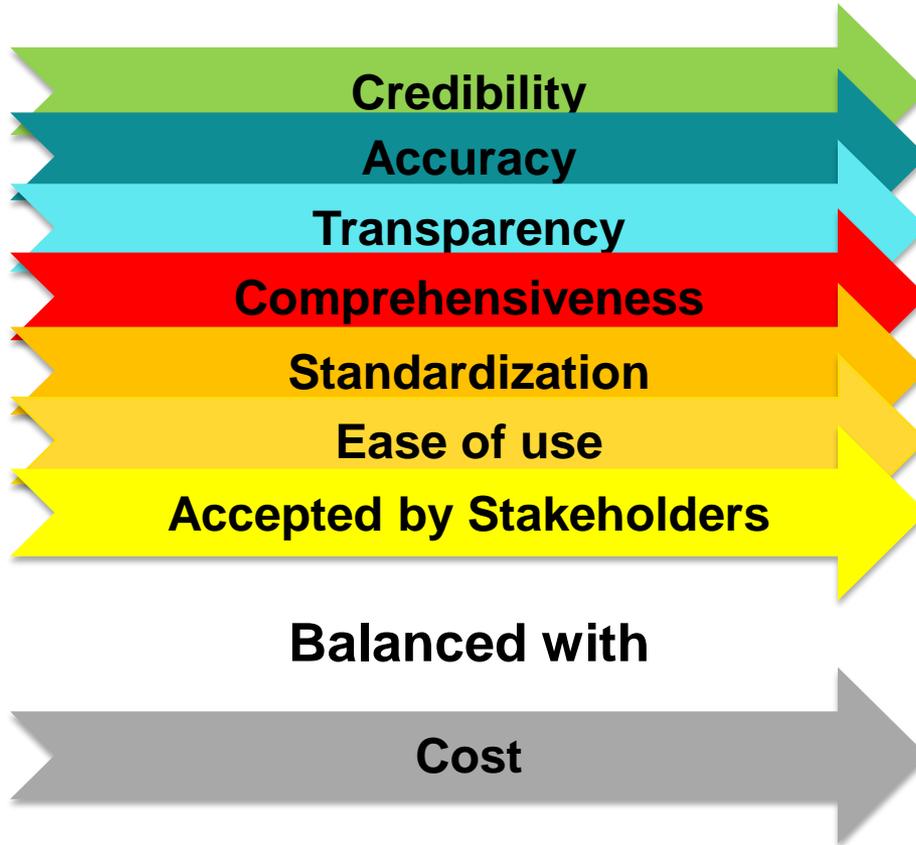
Questions?



Stakeholder Engagement

Desired Attributes for Successful TRMs

Project Objectives



Achieving Success Requires

- ✓ Using Best Data
- ✓ Following Best Practices
- ✓ Engaging Stakeholders Early and Often

Prioritization

Missouri TRM PARTNERS

Missouri Department of Economic Development: Division of Energy
Missouri Department of Natural Resources
Missouri Office of Public Counsel
Missouri Public Service Commission

Utilities

- Ameren Missouri
- Empire District Electric
- Kansas City Power and Light
- Laclede Gas Company
- Missouri American Water Company
- Summit Natural Gas

Advocates

- Missouri Energy Initiative
- Natural Resources Defense Council
- Renew Missouri
- Sierra Club

Proposed Committee Structures: Purpose and Role

Working Together: Decision making using a consensus-driven approach

Oversight Committee

Provides policy guidance, final consensus decision-making, and approval that informs decisions made across the TRM

All Cost-Share Parties will be members of the Oversight Committee

Technical Advisory Committee

Provides data and information for measure development; reviews and reaches consensus on methods and assumptions; provides recommendations to the Oversight Committee

Members of the Oversight Committee should participate or have representatives

Additional Contributors

TRM Oversight Committee

Roles and responsibilities:

- Consider the advice of the Technical Advisory Committee (TAC), VEIC, company's consultants, and other credible resources
- Share relevant information/resources
- Help craft policy positions and methods for integrating the TRM into internal as well as regulatory processes
- Help outline the ways the TRM can be maintained and updated in the future so as to continue to be as useful as possible across the many activities it will inform
- Be prepared to identify and explain the basis for positions
- Strive for consensus on decision-making items
- Identify early in the project a process for handling any non-consensus issues

Technical Advisory Committee

Roles and responsibilities:

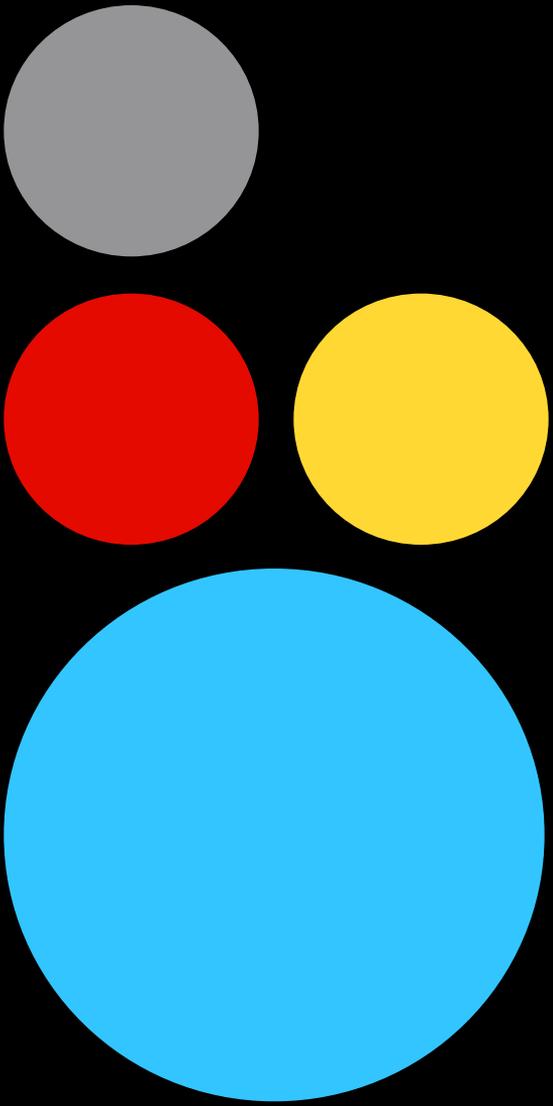
- Solicit data and information for measure development
- Review and reach consensus on technical issues and measure characterization
- Provide recommendations to the Oversight Committee

Valuable input comes from:

- Program managers
- Implementation contractors
- Evaluators and technical consultants
- Regulatory/oversight staff

Questions?

1. Does this structure work for you?
2. What is the role and benefit of engaging additional contributors?
3. How would they be engaged?
4. How do we ensure transparency within this framework?
5. How will the TAC reach consensus, and what if they don't?
6. How will the Oversight Committee reach consensus, and what if they don't?
7. How will the TRM be approved, implemented, and used?
8. How will the information from the TRM be coordinated with the implementers' data systems?
9. How else can we make the project as useful as possible for you?



Getting Started: Communication Plan

Planning for Participation

It is important to define how we will work together up front

- The Players:
 - Oversight Committee
 - Technical Advisory Committee
 - Other interested parties – we invite you to join us more formally
- How will we engage others who might be interested in only specific parts of the project?
 - Manufacturers, trade ally groups, others with more-limited interest
 - By invitation? Or open access to meeting and information?

Planning for Effective Communication

A proposed structure for engaging efficiently and effectively

- Email communications
- Access to the project document sharing site
- Regular committee meetings
 - Conference calls
 - In-person meetings
- Other?

Understanding access and information sharing parameters is key

Confidential Information Sharing & Transparency

SharePoint: Secure web-based collaboration and document management platform build by Microsoft that streamlines the management of and access to data by authorized end-users

SharePoint is the **primary** communication sharing tool and information repository

- Sharing data, memos, drafts, and policy documents
- Tracking measure discussions, work papers, reference documents

ShareFile: Cloud based secure data transfer and collaboration platform

ShareFile is your **secondary** tool for sending and receiving information security between stakeholders and VEIC:

- Sharing documents related to the TRM process with individuals that do not have SharePoint access
- For secure individual communications on measure development

Email Repository and Admin contact: MOTRMAadministrator@veic.org

SharePoint Site: Missouri Statewide TRM

- Libraries
- Shared Documents

- Lists
- Calendar
- Measure Tracker
- VEIC Project Contacts

- Discussions
- Team Discussion

- Recycle Bin
- All Site Content

Missouri Statewide TRM

The Missouri SharePoint Site is a secure web-based collaboration and document management platform that streamlines the supervision of and access to data by authorized end-users on this project only. It is a key tool for stakeholder engagement and is only accessible with your unique "user" log-in credentials. Access is only granted to identified Missouri Stakeholder group members to view shared documents, work papers, references, the MO-TRM calendar and group discussion threads.

To ensure transparency in all communications related to the Missouri TRM development process all questions and comments should be copied to MOTRMAdministrator@veic.org.

This site is secured with a strong encryption (RSA 2048) and is backed up nightly.

Shared Documents

<input type="checkbox"/>	Type	Name	Modified	<input type="checkbox"/> Modified By
<input type="checkbox"/>	Folder	Data from Utilities	1/7/2016 11:17 AM	Stephanie Baer
<input type="checkbox"/>	Folder	Distribution List	1/7/2016 11:27 AM	Stephanie Baer
<input type="checkbox"/>	Folder	EMV 2.0	1/7/2016 11:25 AM	Stephanie Baer
<input type="checkbox"/>	Folder	Full TRM	1/7/2016 11:19 AM	Stephanie Baer
<input type="checkbox"/>	Folder	High Impact Measures	1/7/2016 11:19 AM	Stephanie Baer
<input type="checkbox"/>	Folder	Low Impact Measures	1/7/2016 11:19 AM	Stephanie Baer
<input type="checkbox"/>	Folder	Measure List Development	1/7/2016 11:19 AM	Stephanie Baer
<input type="checkbox"/>	Folder	Meetings	1/7/2016 11:18 AM	Stephanie Baer
<input type="checkbox"/>	Folder	Memos	1/7/2016 11:18 AM	Stephanie Baer



MO TRM Project Contacts

Name	Email Address	Business Phone
Asa Parker	apparker@veic.org	802-540-7502
Barb Meisenheimer	barb.meisenheimer@ded.mo.gov	
Brenda Wilbers	Brenda.Wilbers@ded.mo.gov	
Candice Hubbard	Candice.Hubbard@ded.mo.gov	
Cheryl Jenkins	cjenkins@veic.org	802-540-7603
Jane Epperson	Jane.Epperson@ded.mo.gov	
Sam Dent	sdent@veic.org	802-540-7754
Stephanie Baer	sbaer@veic.org	802-540-7892
Zoe Dawson	zdawson@veic.org	802-540-7699

Committee Communication Process

We want to ensure effective and collaborative discussion that leads to buy-in and ultimately consensus decisions and TRM approval

- Frequency and format of meetings designed to provide:
 - Efficiency between off-line input and review vs. meetings
 - Opportunity for formal presentations
 - Discussions to lead to consensus decisions
- Additional review expectations?
 - Frequency and timing of draft reviews
 - Turnaround time for comments and information requests
 - Additional smaller group discussions, etc. when necessary

Proposal: Meeting Schedules

Technical Advisory Committee Engagement

- Monthly meetings during active TRM development: Feb 2016 - Feb 2017
 - Discuss data needs and availability
 - Review measure development
 - Review comments and proposed resolution
- Additional meetings may be required for other parts of the project
- Recommended Structure:
 - Schedule for 2 hours (actual time will depend on subject)
 - GoToMeeting/Webinar conference call
 - VEIC facilitated
 - TAC participation and active engagement required

Additional time for work review and comment will be required

Proposal: Meeting Schedules

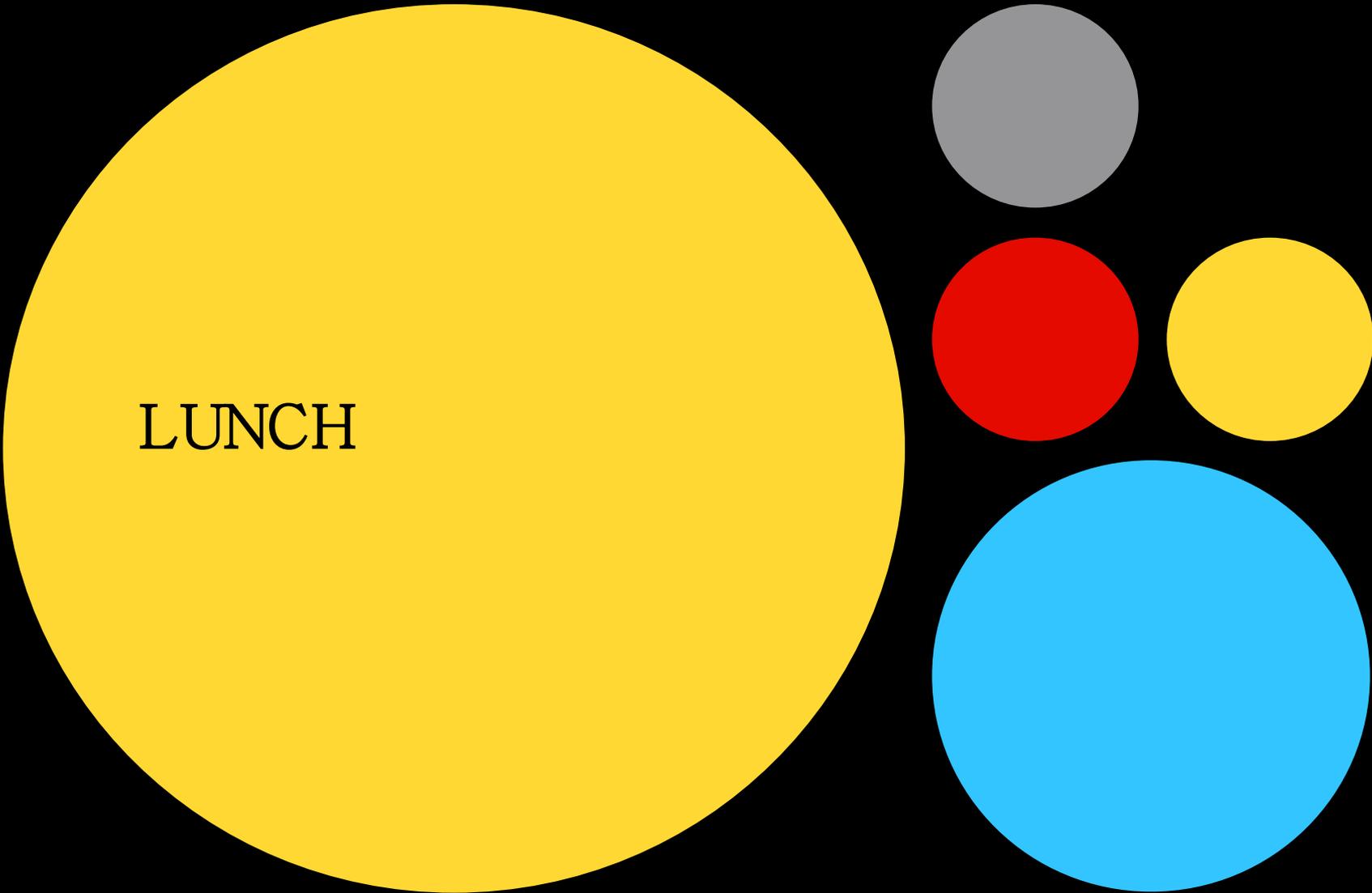
Oversight Committee Engagement

- Quarterly meetings at a minimum (scheduled at dates for key decision making)
- Two in-person meetings to review project deliverables and discuss policy
- Additional ad-hoc meetings may be required
 - Question – schedule placeholders, or call ad-hoc meetings?
- Structure:
 - Schedule for 2 hours (actual time will depend on subject)
 - GoToMeeting/Webinar conference call
 - VEIC facilitated
 - Full participation and active engagement required

Additional time for review and deliberation will be required

Questions?

- Is this a reasonable frequency, process, expectation (off-line/formal/in-person)
- Who will be your primary point of contact for communications with the group?
- Are these reasonable expectations for:
 - How TAC meetings will be managed (frequency and collaboration)?
 - When agendas, presentations, notes are sent/made accessible (SharePoint site)?
 - “MO TRM Administrator” email address and function (transparency)?
- How else can we structure communications and information sharing so they are as useful as possible for you?



LUNCH



Topics for This Afternoon's Discussion

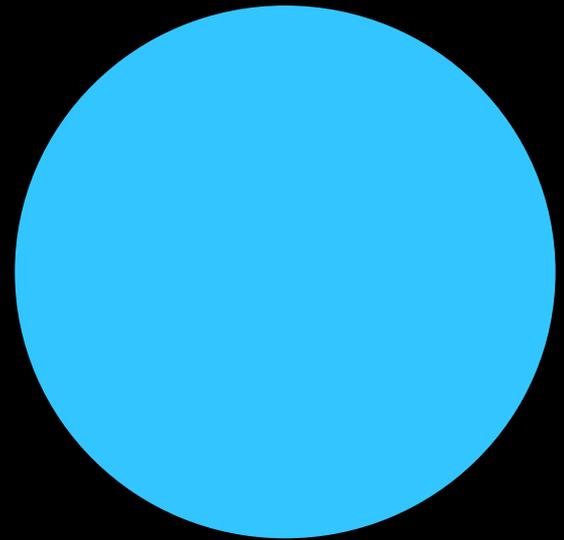
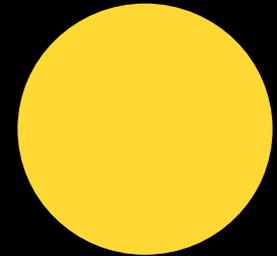
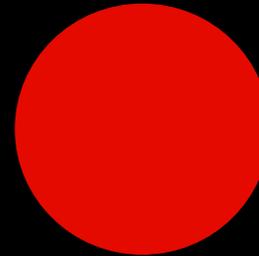
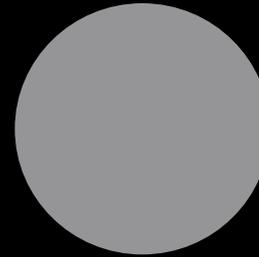
Agenda

- Review outstanding questions from this morning's session
- Highlights of the TRM Content and Structure
- Stakeholder Collaboration - What we need from you
- Next Steps & Follow-up Action

Goals for This Afternoon

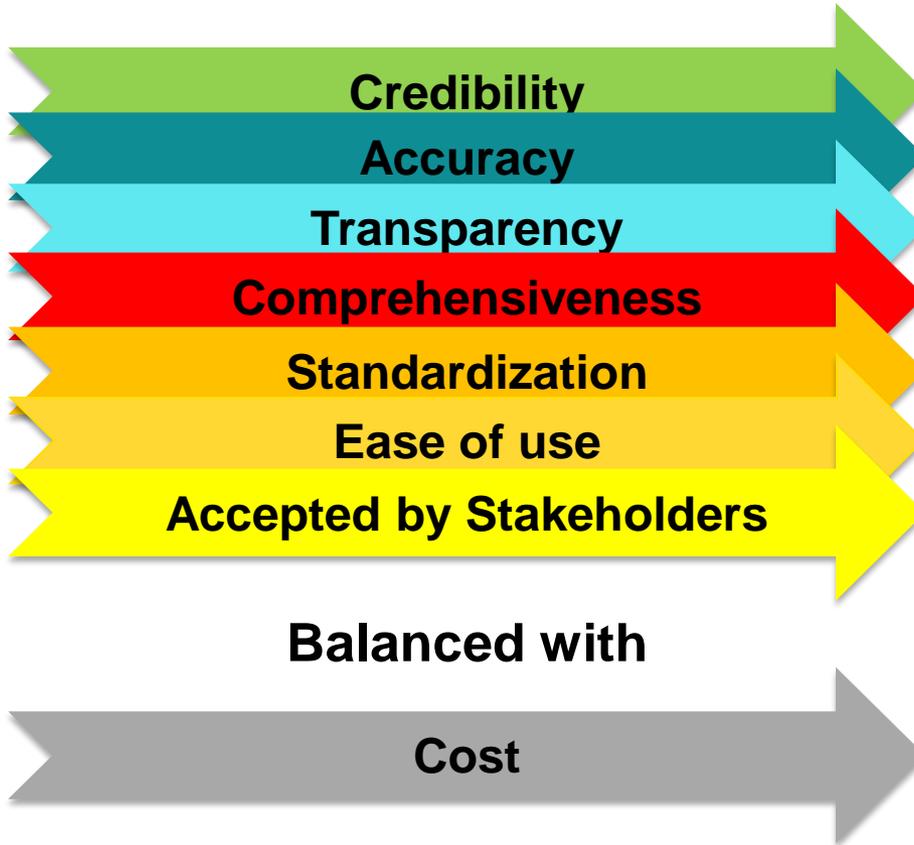
- Provide a deeper view into TRM content
- Set expectations for:
 - Required and useful information
 - Turnaround on data collection and responses to questions and requests
- Confirm point of contact for information from each stakeholder
- Next steps and start work on Monday morning!

TRM Content and Structure



Desired Attributes for Successful TRMs

Project Objectives



Achieving Success Requires

- ✓ Using Best Data
- ✓ Following Best Practices
- ✓ Engaging Stakeholders Early and Often

Prioritization

The Need for Savings Documentation

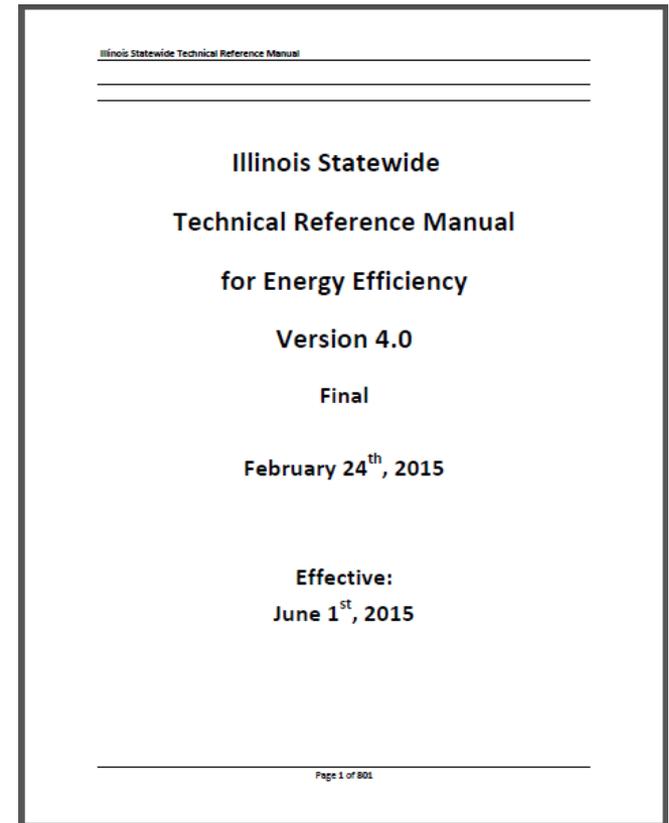
- Consistent, transparent and predictable ways of calculating savings help programs achieve performance goals.
- Savings calculations are critical for:
 - Program planning and goal setting
 - Cost-effectiveness screening
 - Tracking and reporting
 - Program evaluation
 - Program Administrator performance review
- Plus, new uses are emerging for:
 - Market valuation (Forward Capacity Markets)
 - Environmental compliance

What is a TRM?

A manual with a standard methodology for estimating savings for many common, mass marketed EE measures

- **Advantages**

- Provides a full narrative of the measures and how calculations should be applied
- Documents all details of the calculations and assumptions
- High transparency makes accounting and tracking exercises easier
- Helps streamline annual evaluation and verification exercises



A Few Best Practices for TRMs...

- **More standardization**
 - Collective learning and sharing to enhance TRM quality
 - Uniform Methods Project and other standardized protocol approaches are informing characterizations
- **Increased rigor to meet (future) compliance requirements**
 - When possible, using data from sub-metering and / or AMI or adopting compliance standards can enhance savings calculations, inform goals, and improve realization rates
- **Broader scope**
 - Non-energy benefits are increasingly being addressed, e.g., water savings, health impacts, and more

TRM Components #1

Description of Measure

Name and Description

Eligibility Criteria

Definition of Baseline
Case

Definition of Efficient
Case

Measure ID

Effective Dates

TRM Components #2

Savings Calculations

Electric Savings:
kW, kWh

Gas Savings:
Therms, peak therms

Algorithms

Assumptions

Examples / Supporting
Documentation

Net to Gross Adjustment

TRM Components #3

Additional Inputs for Cost-Effectiveness

Measure Life

Persistence

Loadshape

Measure cost

Coincidence
Factor

Interactive
Effects

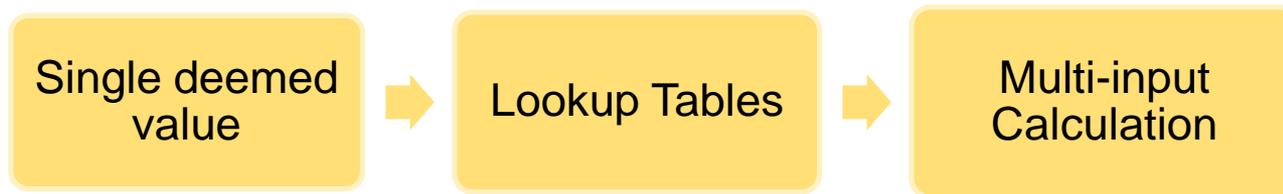
O&M Cost and
Schedule

Water and
Other Non-
Energy Benefits

Retrofit
Baseline
Adjustment

Measure Variables

- Balance between the “accuracy” of more-custom calculations and the additional costs to develop and to provide more-complex implementation



- Rarely is there a right answer!
 - Work to reach agreement within the entire group that the assumptions are reasonable, well supported, and provide an appropriate assumption for savings claims
- It will be essential to calculate and justify savings in a way that integrates with EE program operations and reporting

Steps for Developing a Common Measure List

Gather data

- Collect information such as:
 - Measures – name, sector, end-use, deemed savings /algorithms
 - Past performance – programs, measures, penetration, and savings
 - Future plans – programs, measures, penetration, and savings
 - Keep in mind future work (e.g., “High Impact” & due diligence) when gathering data

Analyze

- Develop common understanding of measures, categories, and inputs:
 - Gas & electric
 - Commercial & residential
 - End-uses
 - Measure implementation and consolidation where appropriate

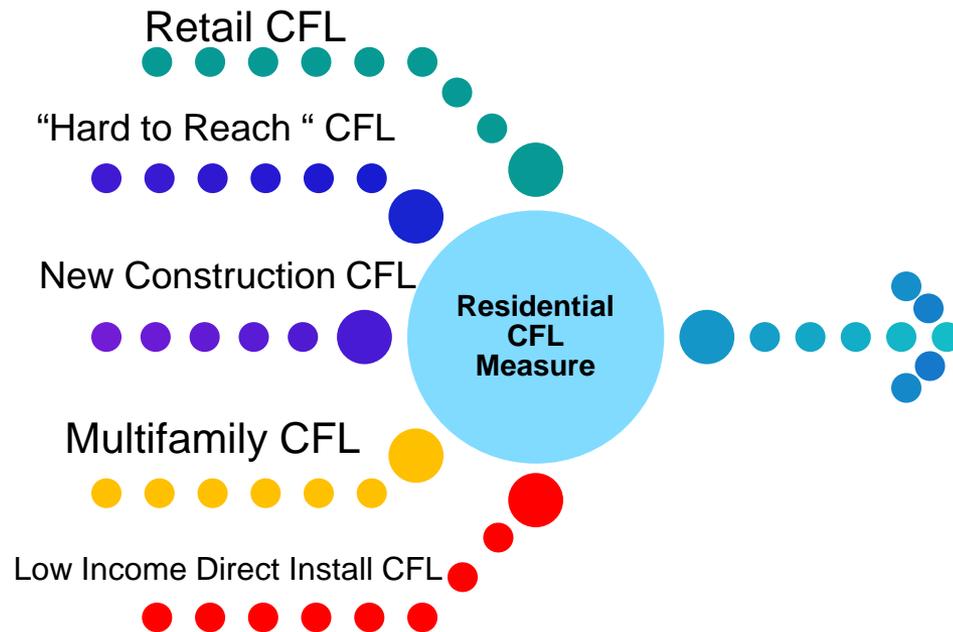
Assemble

- VEIC will develop a single measure list:
 - Drafts will be designed for tracking and transparency
 - Input from TAC will be key – is this the right list?
 - Final list will be the basis for TRM content

Organize Information by Measure

When organized by measure:

Provide utility-, program-, or site-specific options within the measure



Market	Hours per day
Single Family	2.7
Multifamily In-Unit	2.5
Multifamily Common Area	8

Market	Freerider Rate
Retail	40%
Hard to Reach	5%
New Construction	50%
Multifamily	40%
Low Income Direct Install	20%

TRM Policy and Overview Section

Documents the approach used to guide TRM development and use

Will include policy guidance:

- Purpose of the TRM
- Components & Proper Application
- Enabling Policy
- TRM Development Process
- Stakeholder Involvement
- Glossary

And documentation of cross-cutting assumptions:

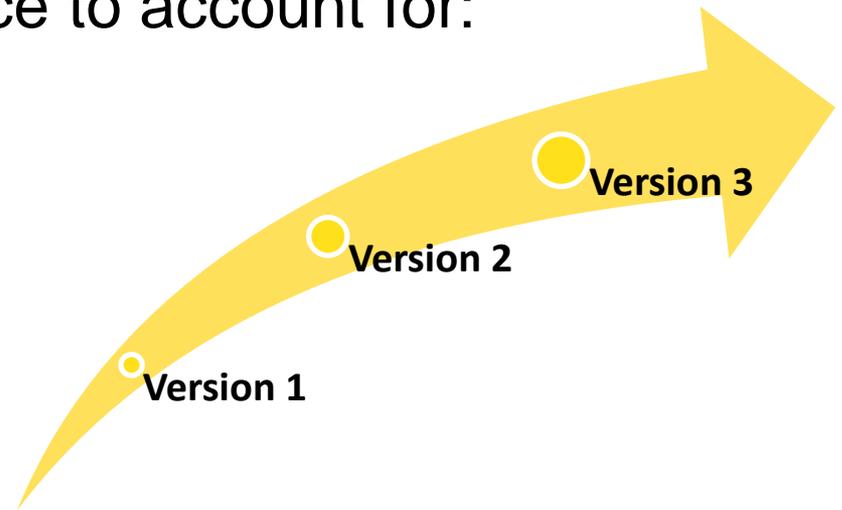
- Program Delivery and Baseline Definitions
- Loadshape Profiles
- Assumptions



TRM Update Process

A need for ongoing maintenance to account for:

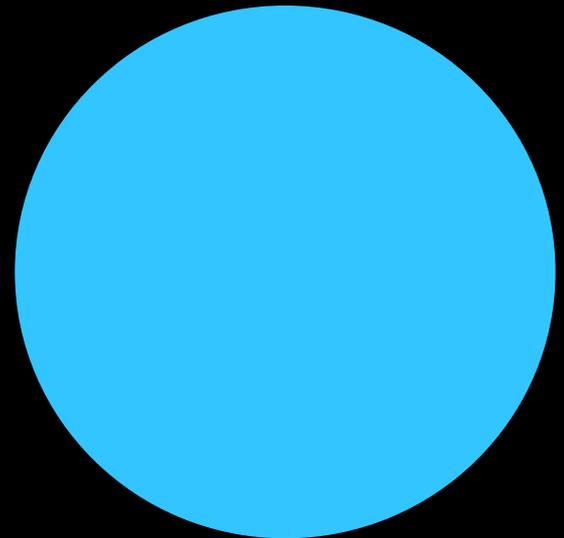
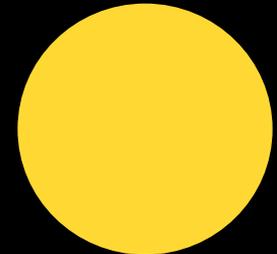
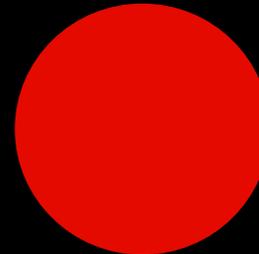
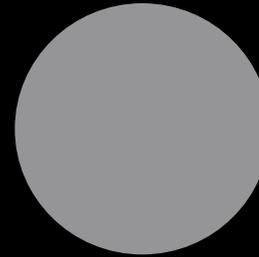
- New measures
- Existing measure updates
- Retiring measures
- Correction of errors
- Policy changes



Will work with you to develop a process and timelines to meet the varied needs of stakeholders:

- Planning
- Review
- Screening
- Evaluation
- Tracking
- Potential studies
- Reporting
- Compliance

Next Steps



Next Steps: Materials Needed for TRM

Data, protocols, and calculations currently used by the implementers –
Needed first:

- Updated program measure lists with quantities and savings – for determination of common measure list and high-impact measures
- TRMs or other savings calculations – underlying data, analysis, supporting documentation
- Evaluations
- Program design/delivery information
- Sources for information:
 - Ideal = recent, vetted Missouri program-specific evaluation results
 - Evaluations from similar jurisdictions/programs, Federal Standard technical documents, ENERGY STAR, ACEEE, CEE, CALMAC, etc.
 - Consider study size, age, program specifics, geography, and demographic information
 - Often appropriate to adjust evaluation result to better reflect jurisdiction
 - Can be used to identify gaps for future evaluation

Next Steps and Follow-up Action

What additional information do you have available?

- Measure lives, persistence
- Loadshapes; avoided cost periods
- Mid-life adjustments
- Interactive effects
- Costs – first year, O&M, deferred baseline replacements
- Utility discount rate

Primary contacts for gathering information about:

- Programs and delivery
- Data, and data system and tracking capabilities
- Regulatory filings, program plans, evaluation plans

Contact Information

Cheryl Jenkins, TRM Project Lead

cjenkins@veic.org

(802) 540-7603

Zoe Dawson, TRM Project Manager

zdawson@veic.org

(802) 540-7699

Asa Parker, TRM Technical Lead

apparker@veic.org

(802) 540-7502

Rebecca Foster, EM&V 2.0 Lead

rfoster@veic.org

(802) 540-7882