

ENERGY EFFICIENCY POTENTIAL STUDIES: WHAT, WHY, HOW, AND SO WHAT?

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OVERVIEW

What?

What is a potential study?

What are the different types of EE potential?

Why?

What are the purposes of potential studies?

How does the purpose influence the methods, data and level of analysis?

How?

What are the basic methods to estimate potential?

What are some important methodological considerations?

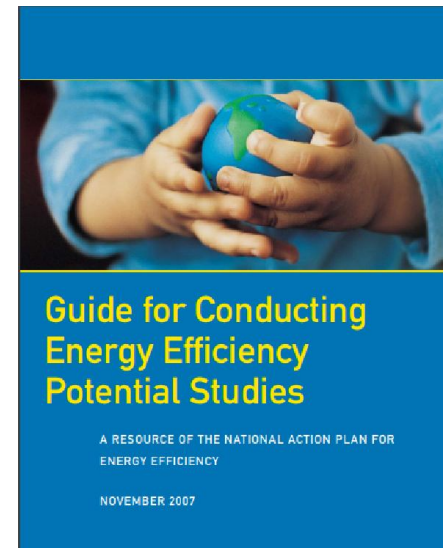
So What?

How are potential studies used at the policy level?

How are potential studies used at the program level?

A “WHY AND “HOW” RESOURCE

- ▶ **Guide for Conducting Energy Efficiency Potential Studies, 2007***
 - Part of the U.S. EPA National Action Plan for Energy Efficiency
 - Developed as a guide for policy makers and others
 - Assists in identifying need, purpose, type of study, data, methods, uses, and contracting guidance



[*https://www.epa.gov/sites/production/files/2015-08/documents/potential_guide_0.pdf](https://www.epa.gov/sites/production/files/2015-08/documents/potential_guide_0.pdf)

WHAT?

“A potential study is a quantitative analysis of the amount of energy savings that either exists, is cost-effective, or could be realized through the implementation of energy efficiency programs and policies.”

- ▶ **Boundaries can be as small as a neighborhood or as large as an entire region**
- ▶ **May focus solely on electricity, natural gas, or another fuel or look at all energy consumption**
- ▶ **Can consider only efficiency, or broader distributed energy resources**
- ▶ **Timeframes can be short (3 yrs.) or long (10-20 yrs.)**

WHAT: TYPES OF EFFICIENCY POTENTIAL

► Four different types of efficiency potential analysis

Technical

- All technologically feasible efficiency, disregarding all non-engineering constraints

Economic

- Portion of Technical Potential that is cost-effective assuming no market barriers

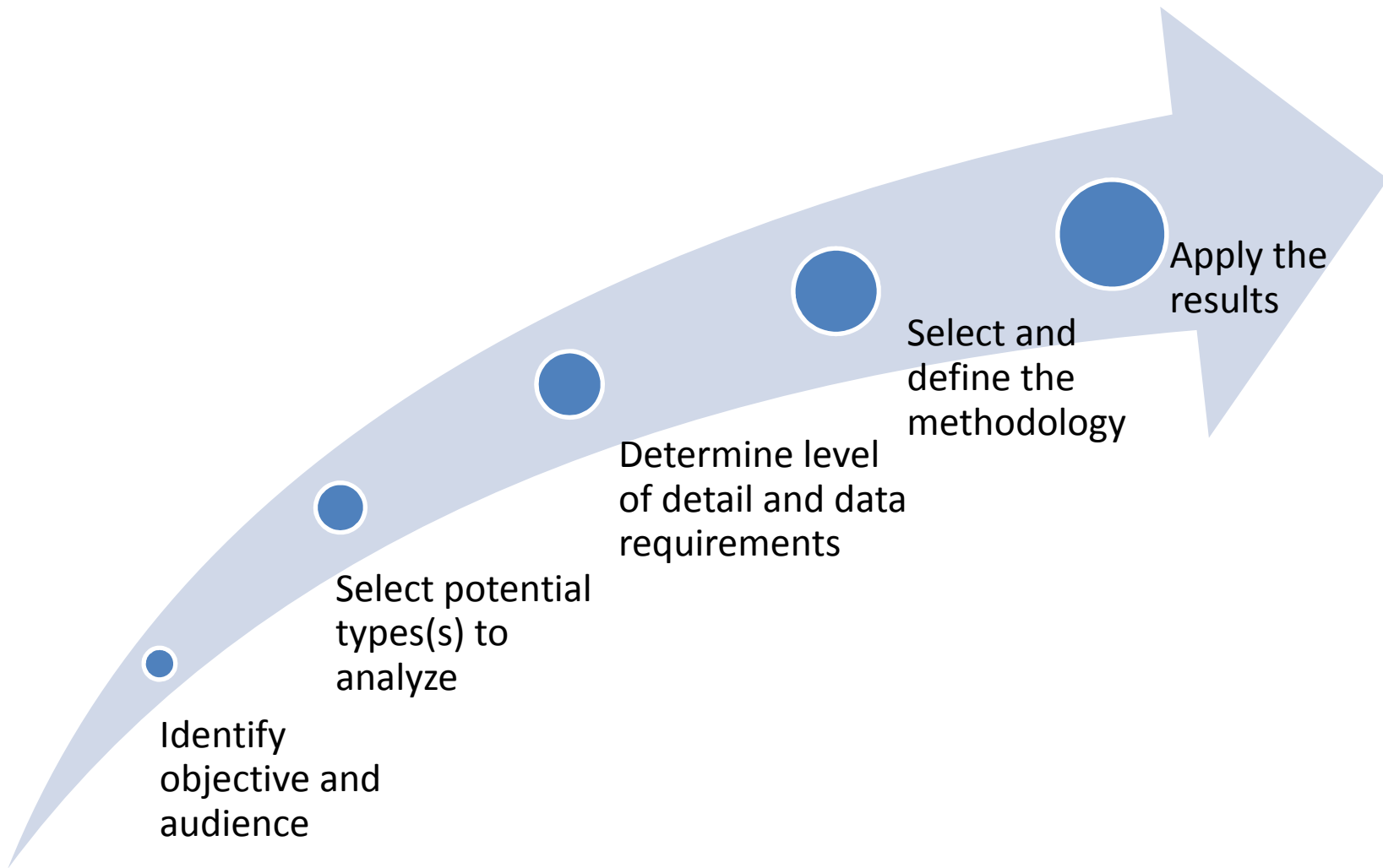
Achievable

- Maximum level of cost-effective potential recognizing market barriers

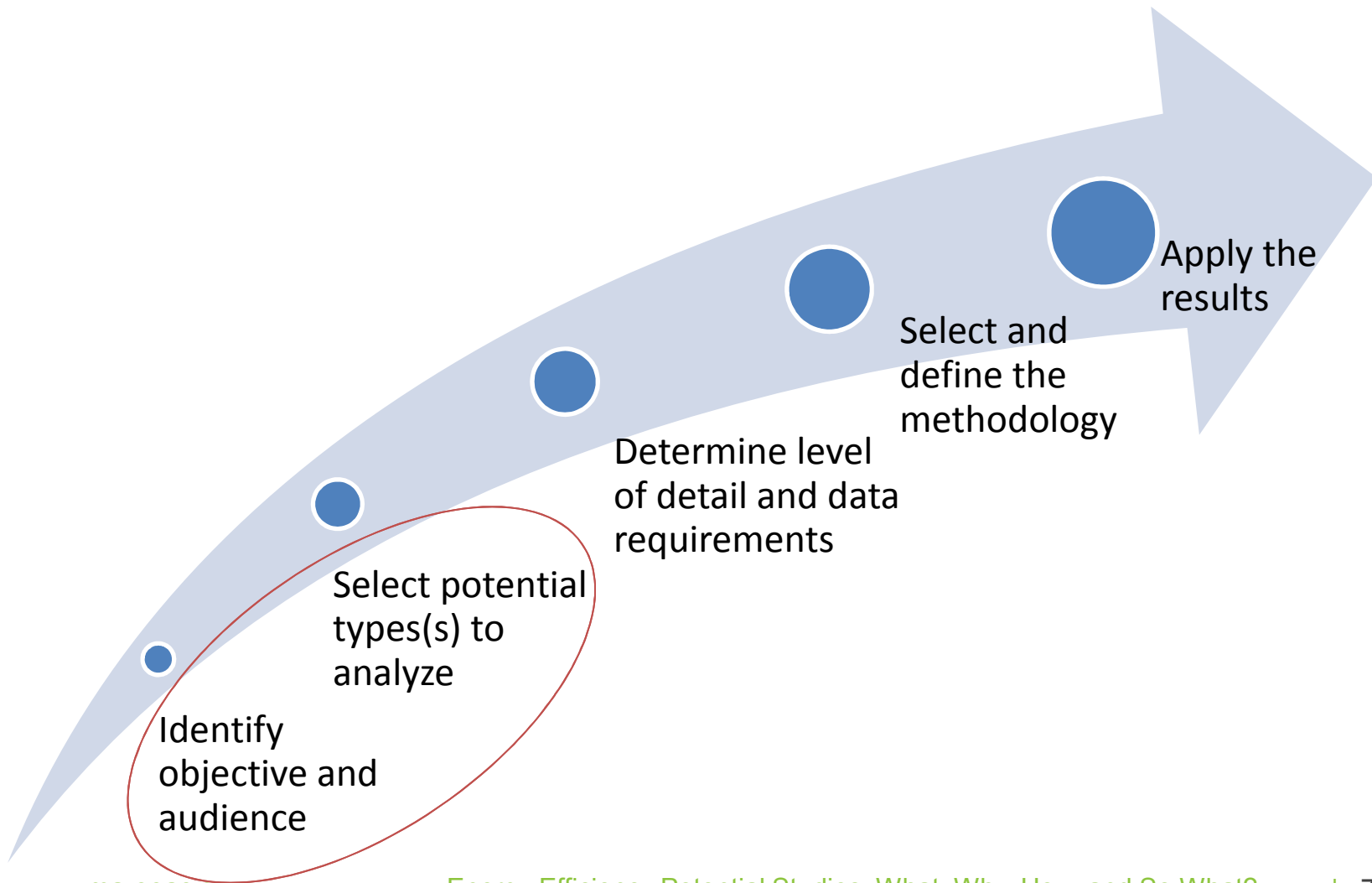
Program

- Level of savings given specific program funding levels and designs, or other constraints

KEY STEPS



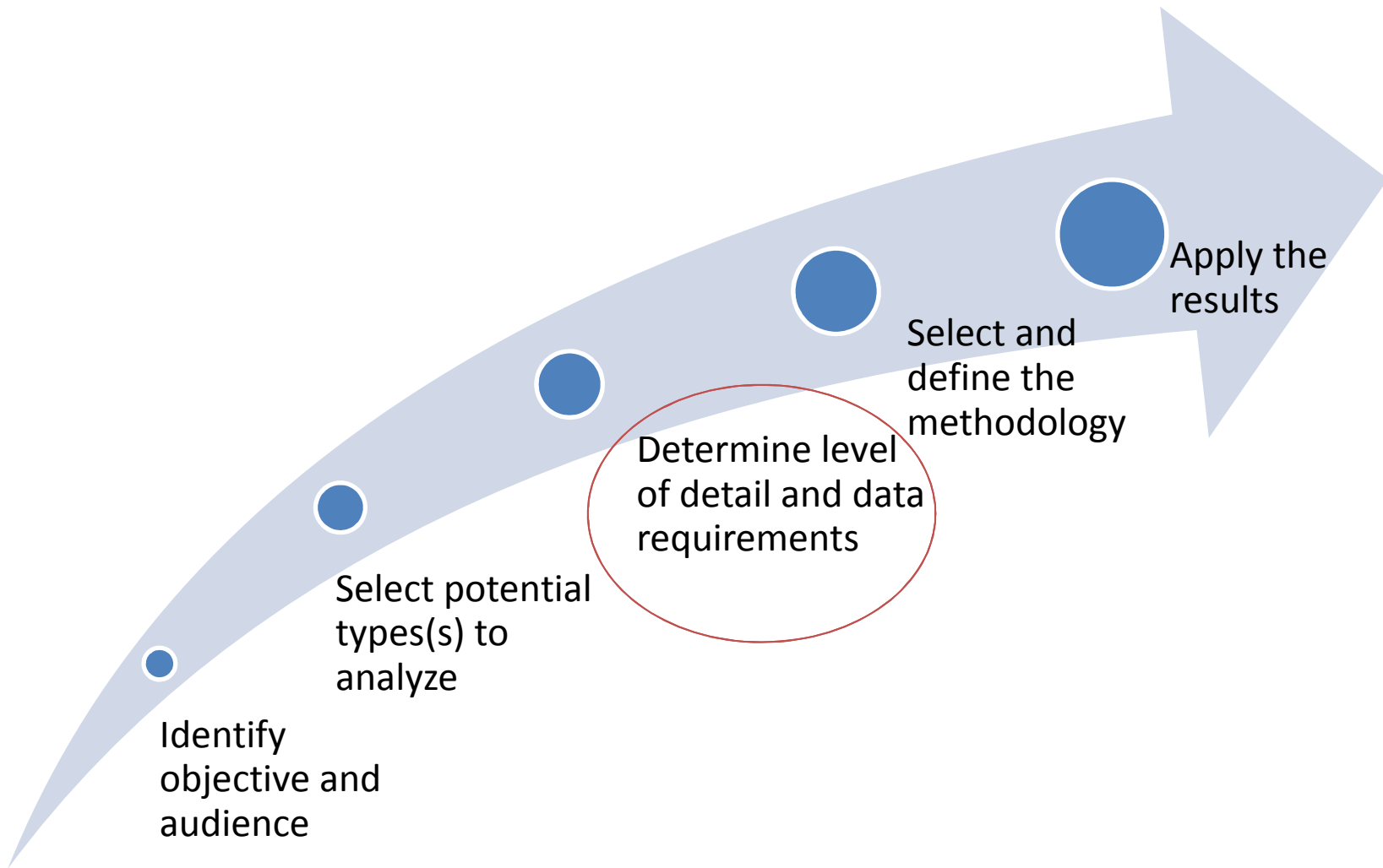
KEY STEPS



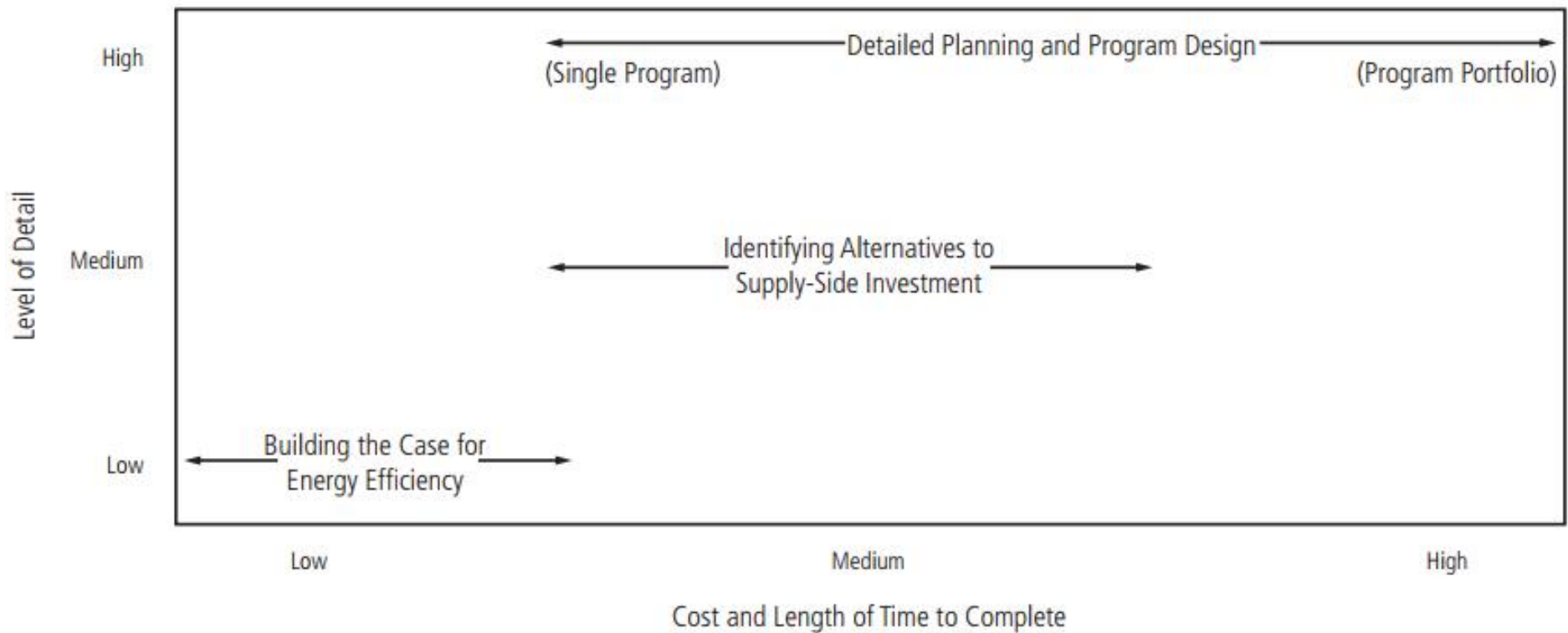
WHY: COMMON REASONS TO DO POTENTIAL STUDIES

- ▶ **Making the case for efficiency**
- ▶ **Establishing energy efficiency portfolio funding levels and goals, and informing broad policy decisions**
- ▶ **Allocating focus to different program and resource areas (*e.g.*, codes, standards, DSM, DR, CHP, RE)**
- ▶ **Assessing alternatives to supply-side resources**
- ▶ **Program design support and analysis**
- ▶ **Reassessing energy efficiency opportunities as conditions change and impacts on programs/policies**

KEY STEPS



HOW: CONSIDERATION FOR CONDUCTING POTENTIAL STUDIES



HOW: THE PURPOSE OF THE STUDY SHOULD DRIVE THE METHODS

Making the case for efficiency, informing broad policy decisions

- Focus on overall opportunities and economics, don't sweat the details

Setting portfolio funding levels and goals

- Focus on overall opportunities and economics of maximum achievable potential
- Less detailed studies that don't require a high level of granularity may be sufficient

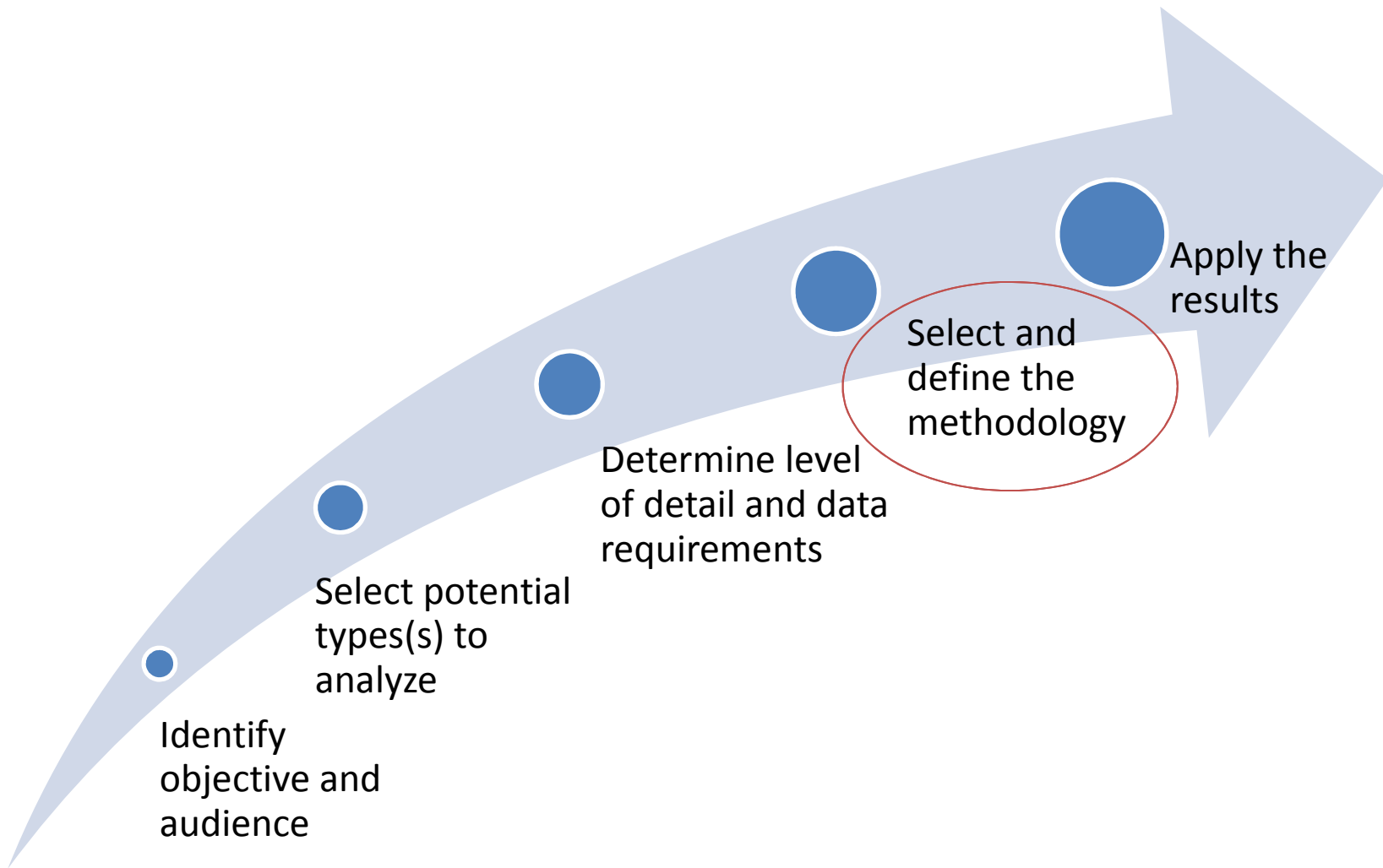
Assessing alternatives to specific supply investments

- Need greater detail, disaggregation and precision if driving time-critical resource planning decisions
- Smaller targeted regions need greater detail and primary data

Supporting program design or policy allocations

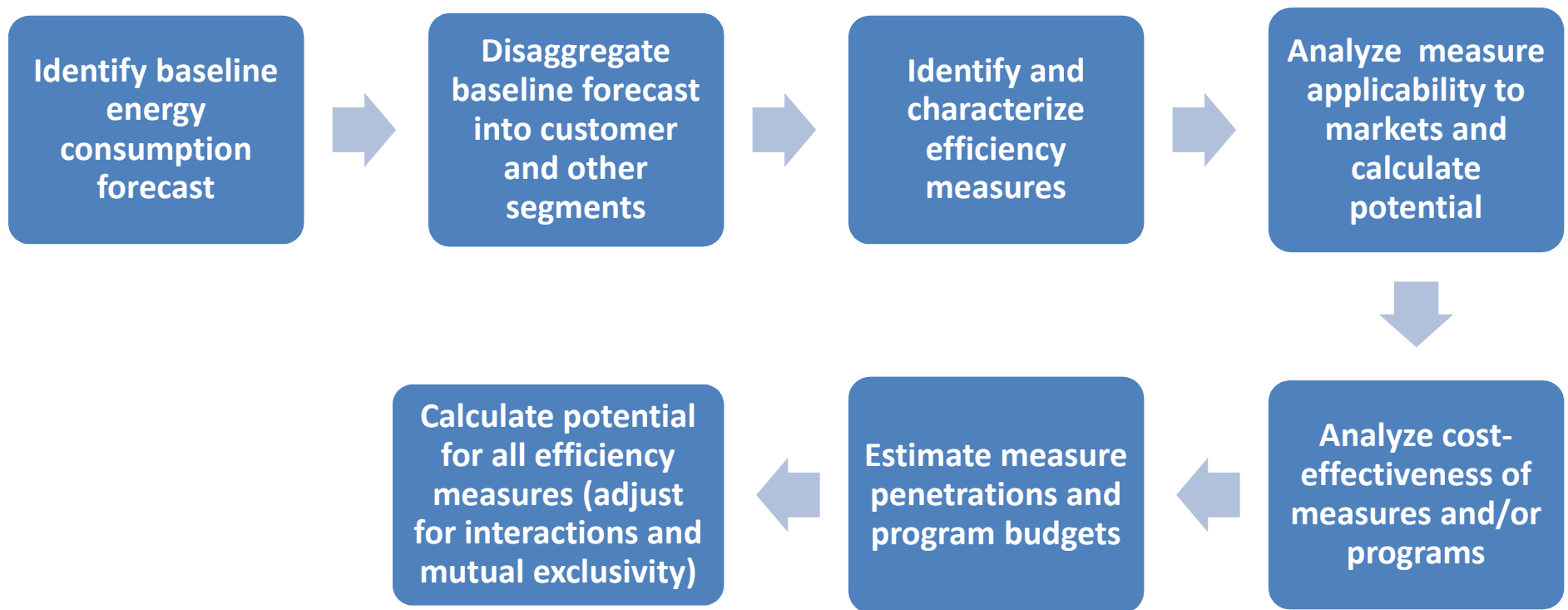
- Focus on markets that matter, don't worry about theoretical opportunities
- Greater detail and measure granularity appropriate to inform specific strategies and design

KEY STEPS



HOW: METHODOLOGY

► Potential studies involve the following activities:

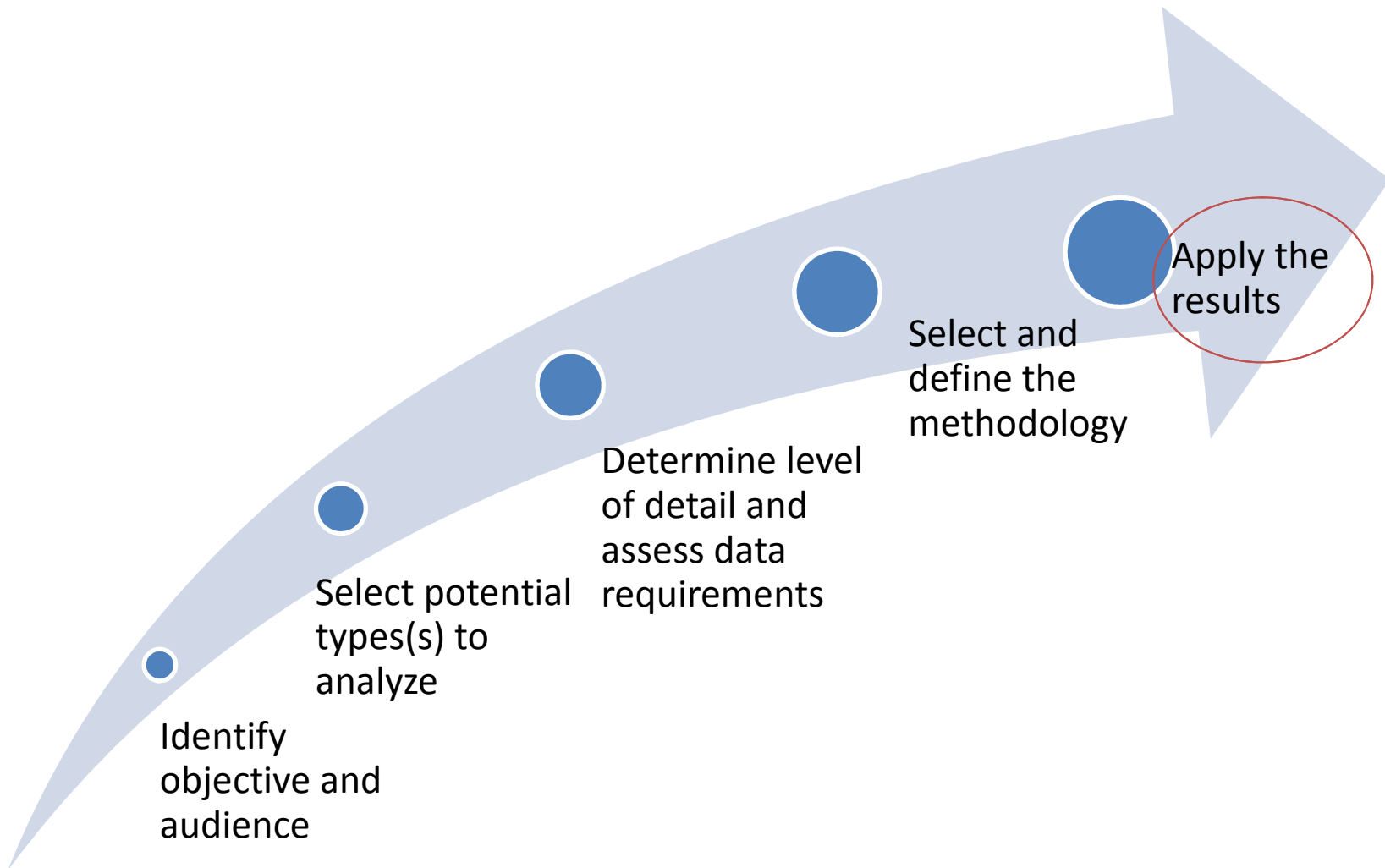


HOW: METHODOLOGICAL CONSIDERATIONS

- ▶ **Fully understanding purposes of the study and how it will be used**
- ▶ **Identifying the overall scope of study – resources (EE, DR, DG), constraints, etc.**
- ▶ **Selecting a cost-effectiveness test for economic screening and global assumptions and methods**
- ▶ **Determining need for full-scale study with primary data collection**
 - Does level of precision require primary data or can you rely on secondary data?
 - How granular does the study need to be? – bundled measures and markets?

Beware of False Precision

KEY STEPS



CAVEAT EMPTOR

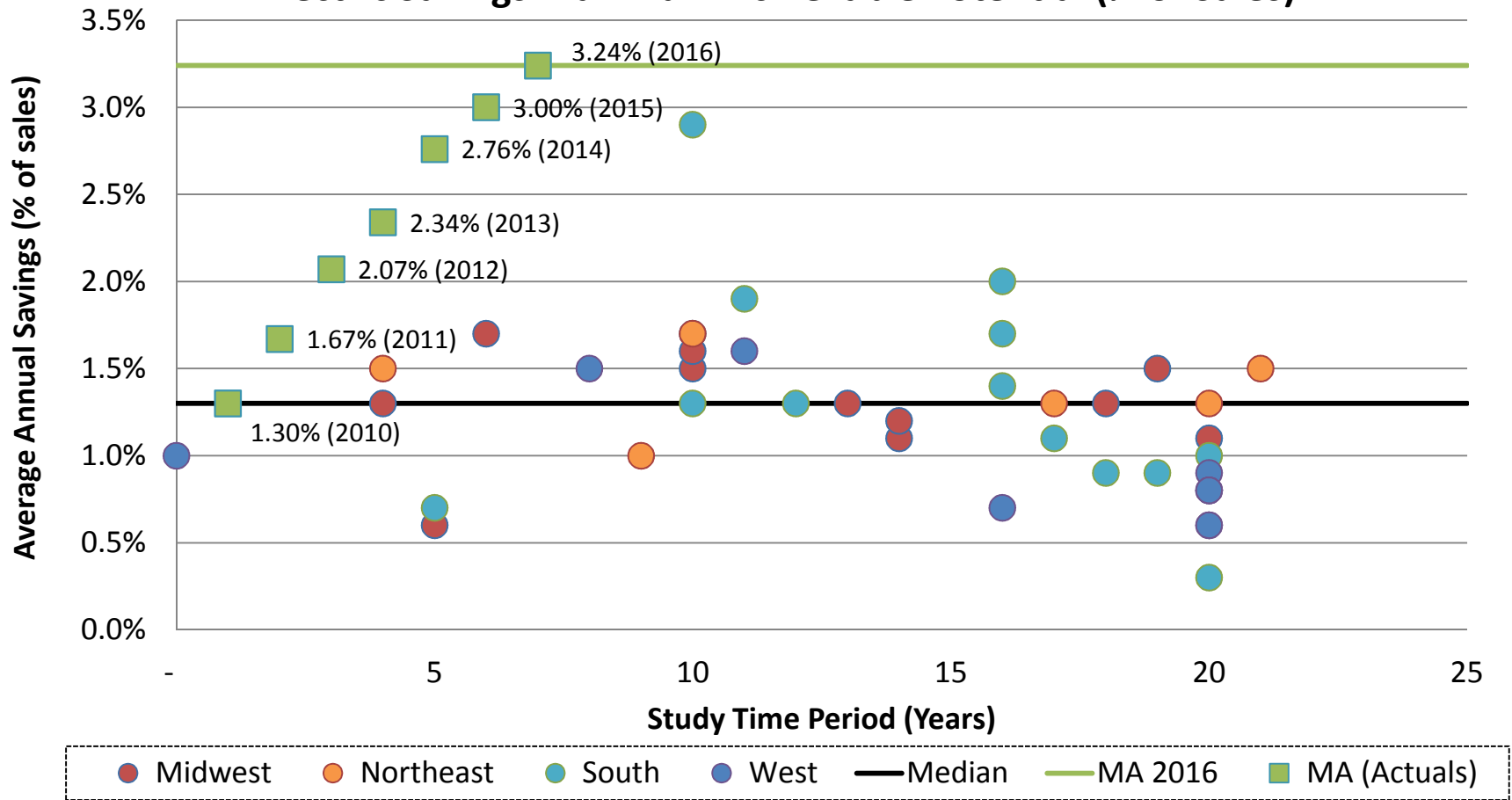
- ▶ **In general, potential studies inherently produce conservative (low) estimates**
- ▶ **Several recent reports and presentations have addressed this issue such as those from:**
 - RAP, ACEEE, NRCD, EFG, OEI
- ▶ **Examples of limitations include:**
 - Generally model “business as usual”
 - Measure and strategy limitations tend to focus on current status and knowledge
 - Everything assessed “on average”
 - Lack of inclusion of comprehensive benefits



IS THIS REALLY “MAXIMUM ACHIEVABLE”?



Electric Savings Maximum Achievable Potential (% of Sales)



THANK YOU

Questions?

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