

# Two Key Issues: Monitoring Plan and Verification

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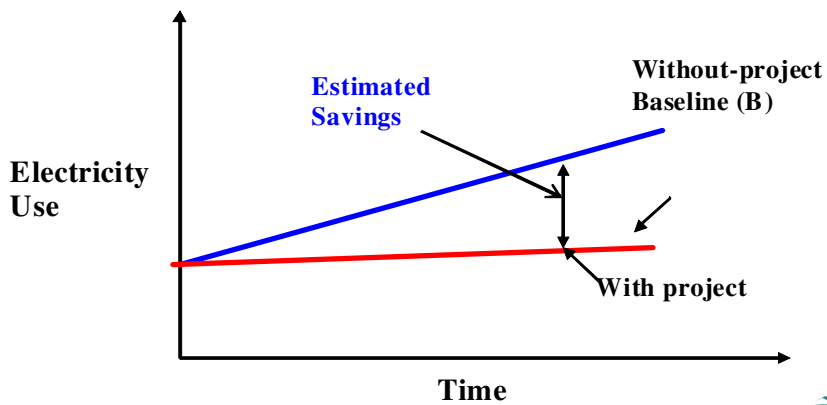
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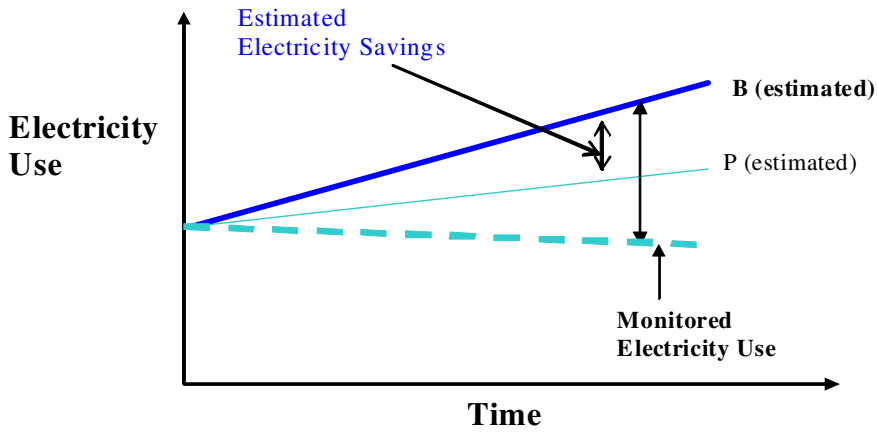
MERC,  
Mumbai, India  
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## Concept: Estimating Baseline and Project Savings *Prior to project implementation*

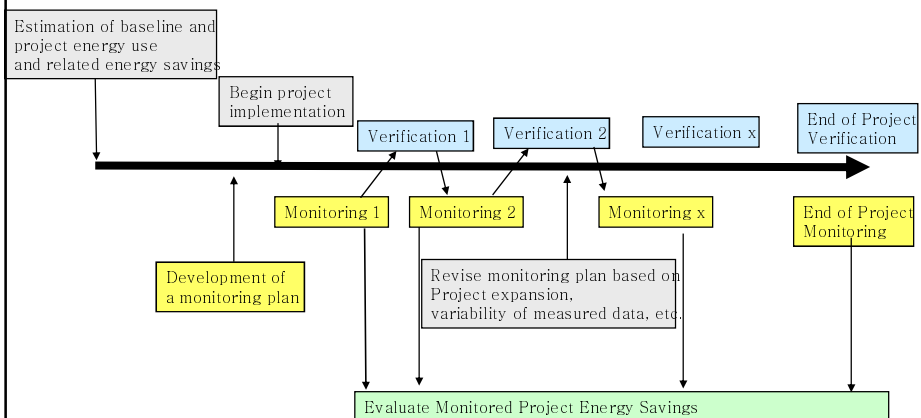


## Concept (Contd.): Monitoring and Evaluating Electricity Use During and After Project Implementation



*Note: P (measured) can be above P (estimated);  
Monitored electricity savings would then be less than the estimated amount*

## Sequence of EM&V Events



## Monitoring Plan

Plan Carefully. Don't skip elements for expediency

- What is to be monitored?
  - Electricity use, hours of use, wattage, power factors, lumen output, lamp life
- How is the monitoring and evaluation to be done?
  - Data collection methods: End-use metering, sample surveys, engineering calculations, modeling, etc.
  - Data analysis methods – engineering methods, basic statistical models, etc.
  - Pre-testing is a critical element
- Who will do the monitoring?
  - Utility company, private consultants, other organizations
- How often is the monitoring to be done?
  - Hourly, daily, annually
- Verification
  - What, how and who will verify are important issues
  - More importantly verification should be of the adherence of the evaluation and monitoring activities to the monitoring plan
- Reporting
  - Use a Standard form to report monitored and evaluated data and information and a similar one for verification

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## Verification

- Utility companies may have an incentive to overstate the electricity savings from a given project. They may overstate baseline electricity use or understate the project's electricity use. To resolve this problem, there is a need for verification
- Verification refers to establishing whether the measured GHG reductions actually occurred, similar to an accounting audit performed by an objective, certified party.

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## Primary Actors

External (third party) verification is the preferred approach.

	Monitoring	Evaluation	Reporting	Verification
Utility company			X	
Organizations hired by utility company	X	X		X
Organizations hired by SERC		X		X

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## Verifier's Responsibilities

- The verifier is expected to conduct an overall assessment of the quality and completeness of the electricity savings estimates.
- To this end, the verifier should request information in a Verification Reporting Form (VRF) similar to a Monitoring and Evaluation Reporting Form
- It is expected that the VRF will be distributed to project participants. Verifiers may modify this form based on their past experience in using similar forms.

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## Verifier's Tasks

- Review continued compliance of the project operator with the agreed procedures for project maintenance and monitoring.
- Audit the relevant physical measurements and statistical data collected at the project site and, if so required by the monitoring and evaluation plan
  - Outside of the project boundaries (especially if positive project spillover and market transformation are expected).
- Check whether energy savings have been calculated correctly
  - including a check of the data used in the calculation of the baseline
- Examine the comparison of the actual, verified energy savings with the estimated energy savings
- Alert the project participants of any developments that could lead to increased risks and that could jeopardize the success of the project.

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## Reporting of Verified Results

- The verifier would issue a report for each verification period.
- The report would cover the above information in a transparent manner and in such a way that the quantification of energy savings achieved during the verification period could, in principle, be reproduced by other interested parties.
- Based on the verification report and other lessons learned, the project participants may want to amend their monitoring and evaluation plan or other procedures

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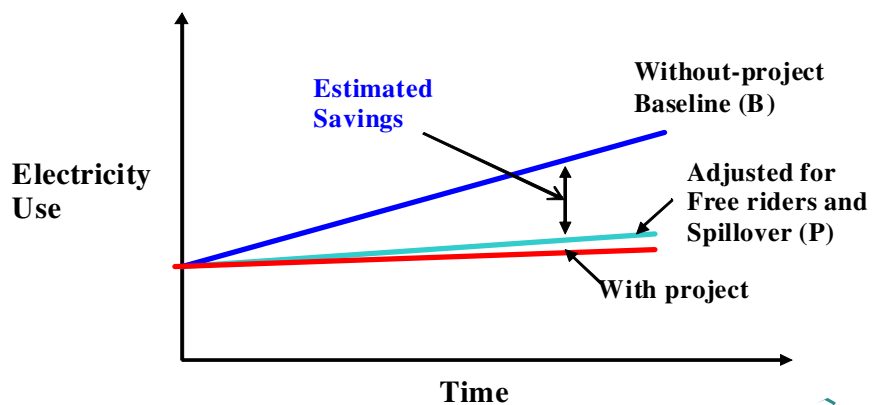
# Time for Questions



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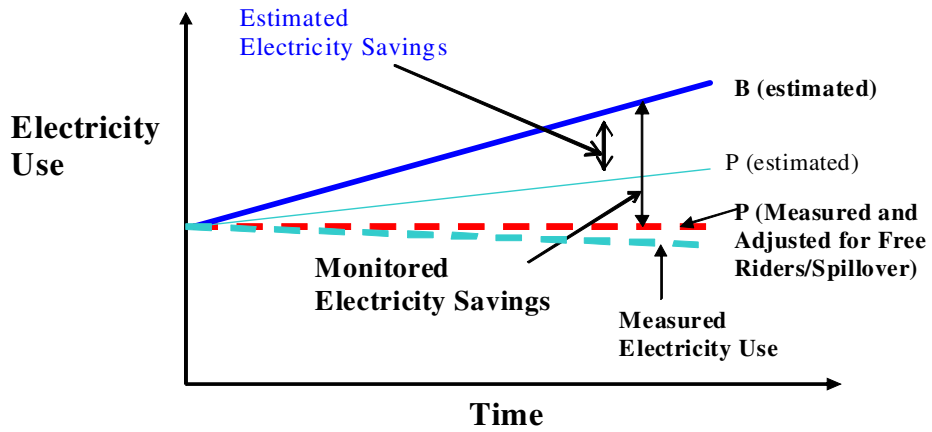
## Concept: Estimating Baseline and Project Savings *Prior to project implementation*



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**Concept (Contd.):**  
**Monitoring and Evaluating Electricity Use**  
*During and After Project Implementation*



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