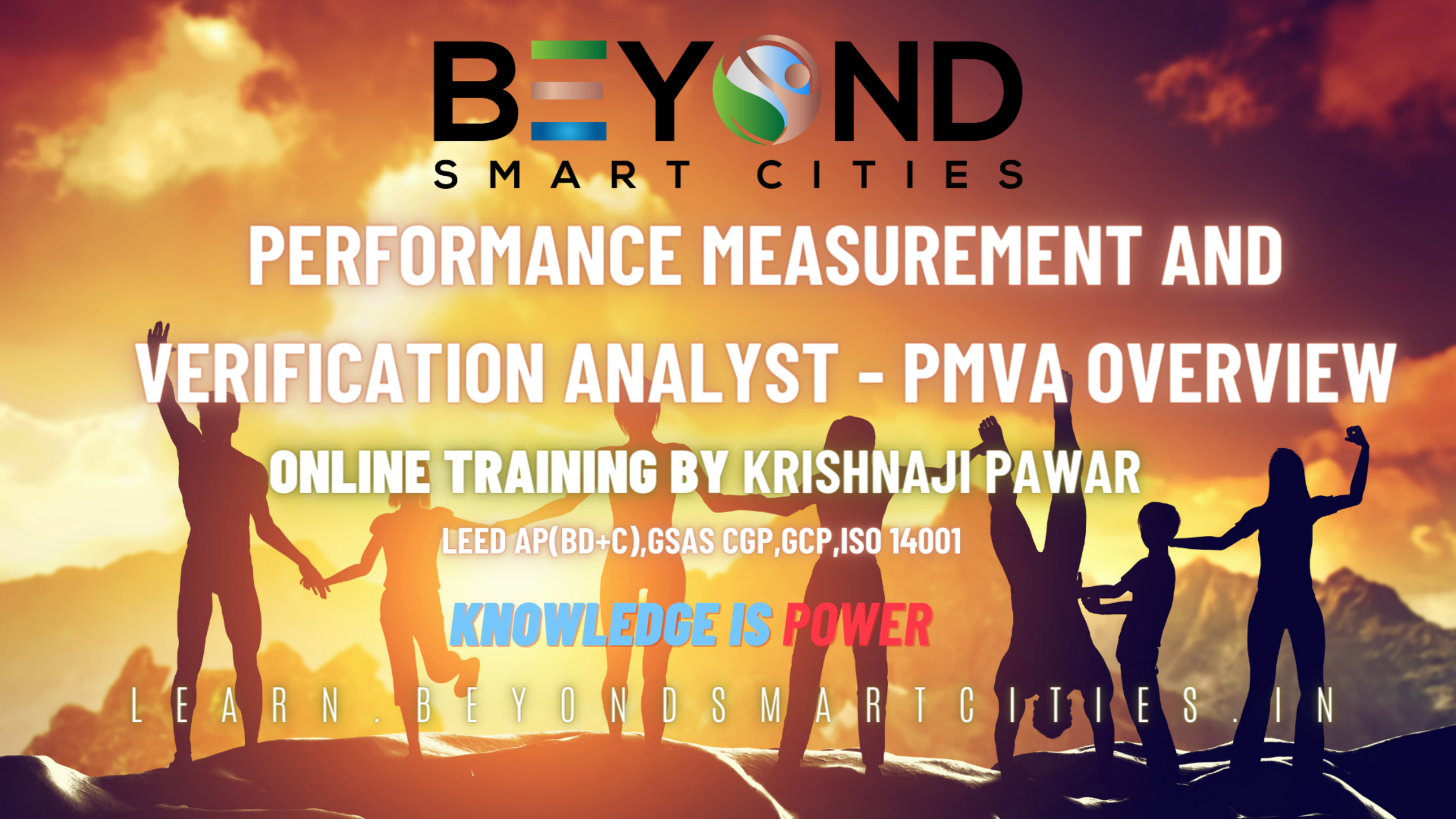

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PERFORMANCE MEASUREMENT AND
VERIFICATION ANALYST - PMVA OVERVIEW
ONLINE TRAINING BY KRISHNAJI PAWAR
LEED AP(BD+C),GSAS CGP,GCP,ISO 14001
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MODULE 1

Introduction and Course Outline

KRISHNAJI PAWAR - CEO & FOUNDER

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BRIEF ABOUT ME

Krishnaji PAWAR

CEO & FOUNDER



Krishnaji Pawar is founder and CEO of Beyond Smart Cities. Before being named CEO in January 2020, Krishnaji held leadership roles at Beyond Smart Cities in both Sustainability ,Energy & Environmental Consultancy.

Specialized in developing sustainable design strategies for Green Building Certification Systems (LEED, GSAS, etc.), Energy & Water Conservation, Commissioning, Environmental Impact Assessment & Environmental Management Systems.

Currently responsible for 3,787 million square feet Green Building /Energy modeling Consulting since January 2008 in UAE, India and Qatar.



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PERFORMANCE MEASUREMENT AND VERIFICATION ANALYST - PMVA OVERVIEW

The PMVA Overview training program aims to equip individuals with the necessary knowledge, skills, and tools to effectively manage measurement and verification processes.

Learning Objectives

- Introduction
- Knowing the Process of PMVA Credentialing
- Basic Concepts of Measurement & Verification
- Organizational Fundamentals
- Measurement and Verification Process
- Specialist Certification in Performance Measurement and Verification
- Protocols and Advantages of M&V
- Summary and Resources
- Performance Measurement and Verification Analyst - PMVA Practice Test V4.1

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INTRODUCTION

- Aims to equip individuals with knowledge, skills, and tools for accurate measurement and verification.
- M&V involves organizing, assessing, gathering, and evaluating data to confirm energy savings in a facility.
- Strategies include measuring usage, data collection and monitoring, energy data estimation and measurement, and report validation.
- Performance measurement and verification analysts can help businesses implement cost-saving measures economically.

PERFORMANCE MEASUREMENT AND VERIFICATION ANALYST (PMVA) OVERVIEW

- M&V is an accountability mechanism tracking and validating energy savings over time.
- The program was developed by Krishnaji Pawar, an energy modeling expert, to support certification in the energy industry.
- The Efficiency Valuation Organization (EVO) established the PMVA program to elevate professional standards in measurement and verification.



PERFORMANCE MEASUREMENT AND VERIFICATION ANALYST (PMVA) OVERVIEW +

- Establishes standard for applying performance, measurement, and verification concepts to energy efficiency projects.
- Typically works in analyst roles for ESCOs, public administration, utilities, and financial institutions.
- Involves designing and implementing energy efficiency programs and financing projects.
- Demonstrates M&V capabilities, including understanding IPMVP to determine savings.
- Can be held by building technologists, HVAC specialists, engineers, architects, economists, and financial analysts.



DEFINITION AND PURPOSES OF M&V

"Measurement and Verification" (M&V) is the process of planning, measuring, collecting, and analyzing data to verify and report energy savings within a facility or facilities resulting from the implementation of EEMs or ECMs.

- Define key terms: M&V, ECM, baseline, adjusted baseline model, avoided energy use, statistical model, physical model, and ESCO.



- M&V: measurement and verification A process that includes a wide range of measurement, verification, and analysis techniques for quantifying the results of resource efficiency and resource management activities
- Statistical models are probability models, and physical models are causal, deterministic, or mixed causal-deterministic-probability models applied to observable propositions. It is observations that turn probability into statistics. Statistical and physical models are thus verifiable, and all use statistics in their verification. All models should be verified, but most aren’t.



- ECM:Energy Conservation Measure
- Baseline: A characterization of the energy use and operating conditions during a specified period of time prior to implementation
- Adjusted baseline model: A model developed using data from the baseline period and incorporating routine and non-routine adjustments against which an energy conservation measure's actual performance is compared.



- Avoided energy use: Avoided energy use means the reduction in electricity use that occurred in the performance period, relative to what would have occurred if the facility had been equipped and operated as it was in the baseline period but under performance period conditions.
- A statistical model is a model that attempts to identify correlations and other patterns in actual measured data.



- Physical model: Energy systems models are the mathematical models that are developed in order to represent as reliably as possible various energy-related problems. Lately, these models have become a common means to identify and solve such problems.
- ESCO: Energy savings performance contracting



WHAT IS THE ROLE OF A PERFORMANCE MEASUREMENT AND VERIFICATION ANALYST (PMVA)?

- Manages internationally recognized methods for quantifying energy usage impacts.
- Applys performance and savings verification concepts in various contexts.
- Assists companies in implementing cost-saving activities through clear communication with project partners.





PERFORMANCE MEASUREMENT AND VERIFICATION ANALYST (PMVA) CERTIFICATION OVERVIEW



- Establishes standard for applying performance, measurement, and verification concepts to energy efficiency projects.
- Typically works in Analyst roles for ESCOs, public administration, utilities, and financial institutions.
- Involved in designing and implementing energy efficiency programs and financing projects.
- Demonstrates M&V capabilities, including understanding IPMVP to determine savings.
- Can include building technologists, HVAC specialists, engineers, architects, economists, and financial analysts.

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MEASUREMENT AND VERIFICATION OVERVIEW



- Process of planning, measuring, collecting, and analyzing data for verifying and reporting energy savings.
- Similar principles apply to water savings and Water Conservation Measures.
- Savings are determined by comparing measured use before and after ECM implementation, with adjustments made for changes in conditions.

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WELCOME TO BEYOND SMART CITIES

Beyond Smart Cities is the world's 1st Green Technology Marketplace, connecting millions of Sustainability Specialists, Green Building Specialists, Energy Specialists, Commissioning Specialists, Environment Specialists, Health & Safety Specialists, Fire Safety Specialists, Climate Change Specialists & Green Products/Technology Manufacturers with independent talent around the globe.

Our mission is to build and support a global community of experts with the highest professional standards in sustainability, green building, energy, commissioning, environment, health & safety, fire safety, climate change, GHG accounting, carbon auditing, and GHG emissions management.

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THANK YOU

