

2016 ANNUAL REPORT

MESSAGE FROM THE CHAIRMAN

EVO is a non-profit organization whose products and services help people implement and invest in energy efficiency projects on a global basis. EVO's vision is "to create a world that has confidence in energy efficiency as a reliable and sustainable energy resource", which we are pursuing through our mission, which is "to ensure that the savings and impact of energy efficiency and sustainability projects are accurately measured and verified". I am happy to say that 2016 was a very good year for EVO in pursuing this very aggressive vision.

I would first like to recognize and thank all of our volunteers for their phenomenal contributions, with a special emphasis to members of our IPMVP, Training and Extended Training committees. They have devoted a lot of time and efforts to improving our M&V protocols, technical guides and training materials. In the same vein, I also wish to recognize and thank our organizational supporters for their critical financial contributions, without which we could not maintain our same level of services to the M&V community.

A brief overview of EVO's major accomplishments in 2016 is as follows:

- New IPMVP Core Concepts document was released in English, reflecting a restructure of the 2012 IPMVP document by separating IPMPV's long-standing core concepts from the subsequently-added applications of IPMPV. These applications are being released in separate documents, and three (3) of them are now virtually complete and ready for release in 2017. They are: IPMVP Statistics and Uncertainty; IPMVP M&V Issues and Examples, and IPMVP Renewables. We have also begun the design work on a new M&V for Energy Performance Contracting applications guide. Our many teams of volunteers and training partners are now translating these documents into multiple languages and updating our training material accordingly. This was a huge undertaking but an essential demonstration of EVO's and its partners' commitment to remain relevant and proactive in the global M&V market.
- » The following record-setting M&V training levels were achieved in 2016:
 - a. total number of trainees, at 1,275 (versus 966 in 2015),
 - b. total number of M&V training sessions at 66, coupled with the highest-ever average number of trainees for each event at 19.3 (versus 16.9 in 2015), and the
 - c. total number of active registered CMVPs (Certified Measurement and Verification Professional®) of 4,376 in 64 countries; a joint program established many years ago between the Association of Energy Engineers (AEE) and EVO.
- » These impressive numbers could not have been achieved without the 40+ instructors engaged by EVO's national, international and organizational training partners who deliver our M&V trainings in 8 languages in 24 countries.
- » The new Using ISO 50015 with IPMVP, course was rolled out, which analyzes the ISO 50015 M&V guidance standard and shows how to use it in conjunction with IPMVP.
- » A new basic statistics course was created that is now available on-line for CMVP candidates who think they need a succinct refresher review in statistics. The course is also accessible to anyone wishing to test their knowledge of basis statistical concepts and terminology.

2016 was also a year of several strategic changes at EVO emanating from a third-party Board self-assessment process on how to best build on EVO's past successes and make the decision-making process more efficient. This exercise provided insights regarding the organization, needed board changes and clarity on roles and responsibilities of EVO's board members, staff and committees. One major outcome was the creation of a Strategic Advisory Board (SAB), composed of advisors who are active in the global energy savings and M&V market. The SAB's purpose is to provide strategic advice to Board on a full range of activities to be undertaken by EVO to achieve its vision and mission. This includes providing the Board with policy, market outreach and development advice. The SAB members bring a broad range of expertise and perspective from across the world.

2016 also included EVO's hiring of Denis Tanguay as its new Executive Director. With close to 30 years of experience in government, industry and association management, Denis was tasked to lead EVO through a new strategic initiative intended to make the organization and its services more relevant in the growing global M&V market. Denis undertook a deep analysis of EVO's operations and prepared a strategic plan which was presented and adopted by the Board of Directors at its September 2016 meeting in Washington DC.

2017 promises to be another productive year for EVO, as we continue to improve our global outreach and M&V training with an expanded partner network, needed to establish a stronger presence in the marketplace.

If you are interested in contributing to our vision and mission, please do not hesitate to contact me or our staff to discuss how best this can translate into actions.

Sincerely,

Thomas K. Queenen

Thomas K. Dreessen Chairman

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This document reports to the period starting on January 1, 2016 and ending on December 31, 2016. Graphic design: Joanie Frigon / Pictures: Pixabay

ABOUT EVO

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ABOUT EVO



MISSION

EVO's mission is to ensure that the savings and impact of energy efficiency and sustainability projects are accurately measured and verified.

EVO is a non-profit organization whose products and services help people engineer and invest in energy efficiency projects worldwide.

EVO is organized under the laws of the District of Columbia and is a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code of 1986.



VISION

EVO's vision is to create a world that has confidence in energy efficiency as a reliable and sustainable energy resource.



CORE VALUES

- » Not a consulting or implementation organization.
- » Not-for-profit and virtual to the extent possible.
- » Politically, geographically, commercially and technologically neutral.
- » Centered in an ever expanding global community of volunteers and practitioners.
- » Encourages and recognizes the value of contributions made by EVO volunteers.
- » Governed by an international Board of Directors supported by a small core staff.
- » Maintains fiscal responsibility.

EVO WEBSITE VISITORS (BY REGION)



OUR ORGANIZATIONAL SUPPORTERS

The knowledge that energy savings can be transparently reported is vital to the acceptance of energy efficiency proposals. EVO is the only organization dedicated to provision of tools for this purpose. Over the years, the IPMVP, now in its seventh editions, defines transparency in savings reports, while assembling best practice from around the world.

By their contribution to our protocol development activities, our organizational supporters are shaping the future of M&V and helping governments, utilities, regulators and other stakeholders adopt sound policies and regulations. They also help the financial community and contracting parties to manage the risks associated with the financing of energy efficiency and water saving projects.

Becoming an EVO organizational supporter allows EVO to do its important work in the field of measurement and verification (M&V). Through their support, EVO can continue to provide its publications free of charge to industry M&V professionals worldwide, ensuring that the information is available to all. Thanks to this support we are in a position to continue developing and improving M&V protocols and other related products and technical guides.

IPMVP's flexible framework of M&V Options allows practitioners to craft the right M&V Plan for their building or industrial facility, inspiring confidence in those who wish to harvest their financial and/or environmental benefits. Clear definition of terms, and heavy emphasis on consistent and transparent methods are the core precepts of the IPMVP. Though application details are unique to each project, IPMVP's flexible framework has been successfully applied to all types of energy efficiency techniques, for thousands of projects and programs, large and small, around the world.

EVO's protocols have historically been provided for free to the

M&V community thanks to support received from various organizations. However, as a non-member based, not-for-profit organization, EVO has limited financial resources to fulfill its widely recognized mission.

EVO receives royalties from its training programs as well as a portion of the CMVP certification renewals. Together, these are the two main sources of revenues. EVO web subscribers also help maintaining EVO's on-line resources and library through their annual contributions. But an important a major source of funding comes from our institutional and organizational supporters.

Organizational supporters' contributions go towards maintaining the actual portfolio of protocols and educational material. But most importantly, these contributions help design and deploy the next generation of M&V protocols that will continue to be offered for free to the international M&V community.





GOVERNANCE

» BOARD OF DIRECTORS
» STRATEGIC ADVISORY BOARD
» STAFF

BOARD OF DIRECTORS (As of December 31, 2016)

EVO's Directors are selected to reflect diversity and geographic representation, with the objective of securing Directors representing a geographic and demographic cross-section of users of EVO Protocols. The property, affairs, activities and business of the Corporation are be vested in its Board of Directors and the corporation has no members.



Thomas K. Dreessen Chairman Chief Executive Officer **EPS** Capital Indonesia



Bob Dixon Secretary V.-P. of Industry Affairs, Siemens Infrastructure and Cities, USA



Member Head Copenhagen Centre for Energy Efficiency, Denmark

Mark Lister





Chief Operating Officer Fconoler Canada Anees labal

Pierre Langlois

Vice-Chair

Member Founder and Head Maicon Associates Ltd. United Kingdom



President, Center for Industrial Energy Efficiency (CIEE), China



Neil Salisbury Treasurer Managing Director Point Advisory

Patrick Jullian Member

Australia





Stephane le Gentil Member Chief Executive Officer Wattaga Dubai

STAFF



Executive Director



Desislava Borisova Training Director

EVO

Bulgaria



Monica Perez Ortiz

Website and Subscriptions Director, EVO Mexico

STRATEGIC ADVISORY BOARD

In late 2016, the Board of Directors approved the creation of a Strategic Advisory Board (SAB). Nominations to the SAB will be confirmed in early 2017. The purpose of the EVO Strategic Advisory Board is to provide strategic advice to the Board of Directors of EVO on a full range of EVO activities undertaken to achieve its vision and mission. The EVO SAB, composed of strategic advisors, is a core component of the EVO governance structure whose purpose is to advise EVO Board of Directors with respect to policy, outreach, market development and strategic direction. The SAB members bring a broad range of expertise and perspective from across the World.

COMMITTEES

» TRAINING COMMITTEE

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- » EXTENDED TRAINING COMMITTEE
- » IPMVP COMMITTEE
- » IPMVP SUBCOMMITTEES

TRAINING COMMITTEE

The Training Committee (TC) oversees a broad portfolio of responsibilities including development of training strategies for all levels of training as well as instructor recruitment, mentoring and certification. The TC relies heavily on the Extended Training Committee (ETC), a group of instructors from every region of the world, that help to localize our training as needed.

In 2016, the Training Committee (TC) continued to oversee the approval of new instructors and initiated a review of the training material based upon the new 2016 IPMVP Core Concepts. The TC also discussed and reviewed the description of duties for mentor and L4 instructor in relation to L2 and L3 instructor approval and renewal criteria. The TC also approved changes to the L3 training module on statistics. Most importantly, the TC approved the creation of a TC-IPMVP discussion group to better coordinate and address, among other things, concordance issues between the IPMVP, the training materials and the CMVP exam.



Daniel Magnet Committee Chair M&V Expert and Facilitator EPC and DSM projects France



Antonio Miranda Vice Chair M&V Expert, Commercial and Industrial Sectors Spain



Steve Kromer

Energy Efficiency Consultant, Chairman of CMVP Board, USA

EXTENDED TRAINING COMMITTEE (As of December 31, 2016)

The Extended Training Committee (ETC) is composed of M&V professionals who make recommendations to and assist the Training Committee to improve EVO's training procedures and materials. They are selected based upon their expertise as well as from a geographic perspective so that EVO's trainings can be adapted for different local environments.

In 2016, the ETC formulated recommendations on standards for units used in different countries. They also made recommendations for changes to the EVO L3 training module on statistics to add more practical and tailored examples. They also approved the adoption of a basic statistics course to help those attending the EVO L3 training familiarize themselves with basic statistics concepts. The ETC also developed Master Class Guidelines and oversaw the delivery of its first Master Class in November on Using ISO 50015 with the IPMVP: An Introduction.



Antonio Miranda Committee Chair M&V Expert, Commercial

and Industrial Sectors

Spain



Bruces Rowse Member Consultant M&V Training Services Australia



Rajvant Nijihar Member Principal iVEES United Kingdom





Daniele Forni

Member

Member V.-P. of Research and Development, Performance Systems Development, USA



Michael Porter Member Manager, Energy Management Center

Australia



Stephanie Nour Member

Director Latin Am. & Caribbean/Project Director, Econoler, Canada



Paul Calberg-Elen Member Energy Engineer Biomasse Normandie France

IPMVP COMMITTEE

(As of December 31, 2016)

The IPMVP Committee, a voluntary effort originally formed in 1995, serves to help promote and maintain the IPMVP Core Concepts and supporting reference materials on an ongoing basis.

These volunteers from around the world devote their time and exchange ideas to further the development of the IPMVP, and continuously update the library of standardized protocols, references and tools to represent Measurement & Verification best-practices.



IPMVP SUBCOMMITTEES

STATISTICS AND UNCERTAINTY

This subcommittee investigates means of assessing uncertainty of estimating savings at individual sites applying Options A, B, C, or D. The committee is developing a stand-alone uncertainty guide due for publication in the 3rd quarter of 2017.



Sami Khawaja Committee Chair Cadmus Group Inc. USA

RENEWABLES

In 2016, this subcommittee worked at finalizing the IPMVP Renewables Applications Guide with a target publication date in the first quarter of 2017. The document includes M&V options for renewable energy systems within the IPMVP framework, and includes examples and recommendations for specific applications. Renewable energy technologies include solar, wind, biomass, geothermal, small hydroelectric, ocean thermal, wave and tidal energy.



Shawn Shaw Committee Chair Cadmus Group Inc. USA

EM&V

"EM&V" is the process of determining savings for programs or portfolios of programs. "M&V" is the process of determining savings for specific sites or measures. M&V is one of several ways savings are estimated within EM&V. Many EM&V guidance documents make reference to IPMVP. We are developing an Application Guide to bridge gap between EM&V protocols and IPMVP. Topics under consideration are:

- » Lack of baseline data
- » Baseline often not the existing conditions (dual baselines, Code baselines)
- » Lifetime savings determination
- » Option D calibration requirements
- » Extrapolation



Kevin Warren Committee Chair Warren Energy Engineering USA

CMVP EXAM AND TRAINING

This subcommittee is responsible for the continuous maintenance and updating of the AEE CMVP exam, and coordination of the Core Concepts updates with the AEE CMVP Exam training committee.

M&V FOR ENERGY PERFORMANCE CONTRACTING

This application guide is aiming to provide an additional piece of information to the building owner or industrial facility manager that would like to implement an energy efficiency project through an energy performance contract (EPC) involving guaranteed savings by an energy services company (ESCO).

Several problems or interrogations rise during the normal process of preparing an energy efficiency project in ESCO mode. The most important of them were selected and will be addressed in this application guide. These topics will be explained and recommendations will be formulated to building owners and project's stakeholders, to improve their understanding of the EPC environment, avoiding contract management mistakes.



Christian Lemieux Committee Chair Econoler Canada

Luis Castanheira Committee Chair

Energaia Portugal

M&V 2.0

Ellen Franconi Committee Chair Rocky Mountain Institute USA

The M&V 2.0 subcommittee aims to generate awareness and foster new advanced M&V methods. These methods utilize interval data and include new forms of models that can incorporate time indicator variables to project baseline energy use into the postinstallation period. Their application has the potential to evaluate efficiency savings in near-real time, which provides benefits to building owners, energy-efficiency service providers, utilities and the smart grid. Subcommittee focus areas include: defining new use cases, specifying data requirements, establishing statistical criteria, standardized handling of non-routine adjustments, and aligning new methods with IPMVP and ASHRAE documents, including Guideline 14 and RP 1404.

M&V PLANS

This subcommittee is developing standard M&V plans templates for two of the different M&V options that can be used by broader M&V community in order to help ensure quality IPMVP M&V plans. This will help M&V community develop clear, concise and quality M&V plans that will not only help improve the transparency of the M&V activities but also can help gain confidence in the overall performance of the energy efficiency measure/project.

The subcommittee is also developing M&V plan templates for two of the four IPMVP options:

- » Option B: Retrofit Isolation with all parameter measurement
- » Option C: Whole building level analysis

Deliverables for this subcommittee include:

- » Collection of IPMVP adherent M&V plans
- » M&V plan review guidelines for adherence
- » Document defining the IPMVP adherence requirements for M&V plans



Shankar Earni Committee Chair Lawrence Berkeley National

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TRAINING & CERTIFICATIONS

» TRAINING PARTNERS & ORGANIZERS

» STATISTICS

» CMVP[®] PROGRAM

TRAINING PARTNERS & ORGANIZERS

TRAINING PARTNERS



INTERNATIONAL TRAINING PARTNERS

International Insitute for Energy Training



The Association of Energy Engineers



Brazil Canada Chile Croatia Tunisia United Arab Emirates Uruguay Etc. Angola Botswana Gabon Ireland Kenya Lesotho Malawi Mozambique Namibia Republic of Congo Saudi Arabia South Africa Swaziland Tanzania Uganda United States Zimbabwe Zambia Energy Lab



Spain Other Spanish speaking countries

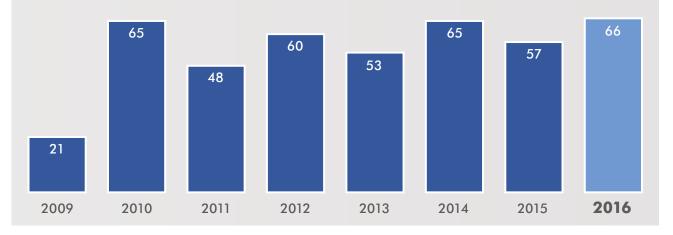
TRAINING ORGANIZERS

Energy Efficiency Verification Specialists	Independent Verifiers of Energy Efficiency Savings	Sinergeia BGH & Ergon Energy Solutions	Zhongguancun National Standardization	Suzhou Institute
ee√s	Street Independent Verifiers	Sinerceia	Institute of Energy Saving and Low Carbon Technology (ZSE)	of Energy Management (SIEM)
United Kingdom	United Kingdom	Argentina	China	China

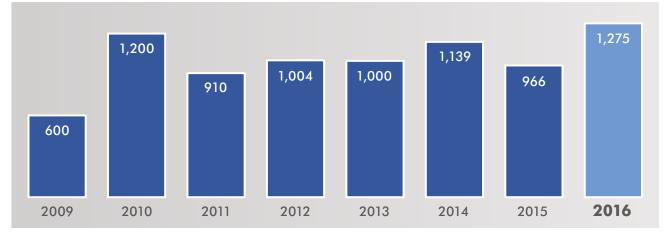
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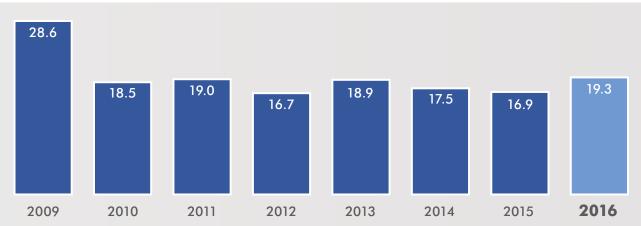
TRAINING SESSIONS



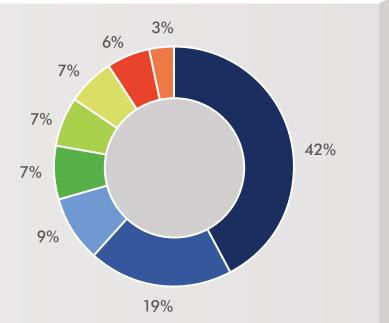
NUMBER OF PARTICIPANTS



PARTICIPANTS PER SESSIONS

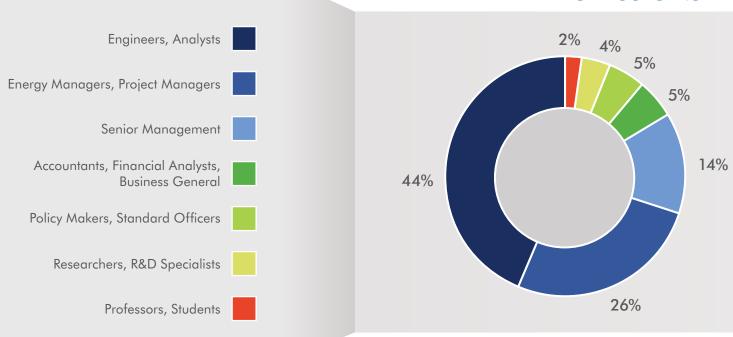




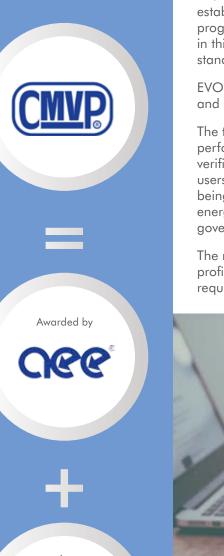




EVO M&V TRAINEES IN 2016: PROFESSIONS



CERTIFIED MEASUREMENT & VERIFICATION PROFESSIONAL (CMVP®) PROGRAM



In conjunction with



The Association of Energy Engineers (AEE), in cooperation with EVO, has established the Certified Measurement and Verification Professional (CMVP®) program with the dual purpose of recognizing the most qualified professionals in this growing area of the energy industry, and raising the overall professional standards within the measurement and verification field.

EVO is the exclusive global training body for the CMVP program. EVO developed and owns the IPMVP and training material used with the CMVP examination.

The training is geared toward the needs of a variety of professionals including performance contractors; energy auditors wanting to expand their expertise into verification roles; large energy users using performance contracting; large energy users interested in getting a better understanding of their energy budgets and being able to explain significant variations and fluctuations in energy use; and energy efficiency program designers, policy makers and managers working for government or utilities.

The right to use the CMVP title is granted by the AEE to those who demonstrate proficiency in the M&V field by passing a four-hour written exam and meeting the required academic and professional qualifications.



NUMBER OF CMVPs PER CAPITA IN 2016

Top 25 Countries	CMVPs/ Million Population	
Uruguay	22.1	
Canada	16.1	
Ireland	13.3	
United Arab Emirates	12.5	
Switzerland	12.3	
Spain	10.6	
Australia	10.2	
New Zealand	9.9	
Portugal	8.7	
Austria	6.5	
Croatia	6.0	
Taiwan	5.5	
Chile	4.9	
Belgium	4.8	
Jordan	4.4	
France	3.3	
United Kingdom	3.2	
Singapore	3.2	
South Africa	3.0	
United States	3.0	
Israel	1.8	
Italy	1.4	
Argentina	0.9	
Malaysia	0.6	
Brazil	0.5	

COUNTRIES WITH AT LEAST 1 CMVP

- » Albania
- » Andorra
- » Argentina
- » Armenia
- » Australia
- » Austria
- » Belgium
- » Brazil
- » Bulgaria
- » Canada
- » Chile
- » China
- » Colombia
- » Costa Rica
- » Croatia
- » Cyprus
- » Czech Republic
- » France
- » FYR Macedonia
- » Georgia
- » Germany
- » Greece
- » Guam
- » Guatemala
- » Guyana
- » Hong Kong
- » India
- » Indonesia
- » Iran
- » Ireland
- » Israel
- » Italy
- » Jamaica
- » Jordan
- » Kenya

- » Lebanon
- » Luxembourg
- » Macao
- » Malaysia
- » Mexico
- » Netherlands
- » New Zealand
- » Philippines
- » Poland
- » Portugal
- » Qatar
- » Republic of Korea
- » Republic of Moldova
- » Russian Federation
- » Saudi Arabia
- » Singapore
- » South Africa
- » Spain
- » Sweden
- » Switzerland
- » Taiwan
- » Thailand
- » Tunisia
- » Turkey
- » Ukraine
- » United Arab Emirates
- » United Kingdom
- » United States
- » Uruguay



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