



Efficiency
Valuation
Organization

2018 ANNUAL REPORT

Vision

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

Mission

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

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.

CONTENTS

3	MESSAGE FROM THE CHAIRMAN
5	GOVERNANCE
7	COMMITTEES
12	HIGHLIGHTS
18	TRAINING & EDUCATION
22	CMVP PROGRAM

© Efficiency Valuation Organization 2019

This document reports to the period starting on January 1, 2018 and ending on December 31, 2018.

Graphic design: Turbine graphique

Pictures: Unsplash & Shutterstock

Message from the Chairman



A few decades ago, the founders of EVO had the vision that measurement and verification (M&V) was the key to create confidence that energy efficiency is a reliable and sustainable energy resource. Researching, developing, publishing and deploying M&V protocols has been at the core of EVO's mission which is to ensure that the savings and impact of energy efficiency and sustainability projects are accurately measured and verified.

As shown in this report, EVO's outreach to the international M&V community has been a success. We have trained and certified industry professionals in all continents in close cooperation with a solid network of national and international training partners and organizers. Approximately 11,000 individuals have been trained to our M&V Fundamentals and IPMVP for Energy Managers training course – 1320 in 2018.

At the 2015 United Nations Climate Conference, parties agreed to a legally binding and universal agreement on climate, to keep global warming below 2°C. Most concerned stakeholders also realized that the world must engage in an energy transition, gradually moving away from fossil fuels towards renewables, if we want to achieve tangible results. A fundamental tool in the climate change arsenal is, of course, energy efficiency. In this context, EVO engaged into the Energy Efficiency First initiative as promoted by the International Energy Agency and other leading organizations.

Accounting of energy efficiency performances implies reliance on commonly accepted M&V methods and principles as defined in EVO's International Performance Measurement and Verification Protocol (IPMVP). The IPMVP is a framework that allows the flexible implementation and articulation of M&V methods and principles into specific M&V plans. Without such a framework, it is impossible to report energy efficiency savings credibly. The flexibility of the IPMVP is the key to success as no standardized and rigid approach can meet this goal.

In 2018, the newly elected board agreed to accelerate the pace and take important additional steps to better articulate and share our M&V message worldwide. Furthermore, EVO decided to dismantle its international Strategic Advisory Board (SAB) in favor of the creation of regional task groups. While environmental and energy efficiency concerns are global, we realized that solutions are better articulated regionally. We initiated this process with outreach to stakeholders in Europe and the United States. Initial meetings were held in both regions in 2018, and the pace will increase in 2019 and subsequent years. Other task groups will be set as needed.

Initiated in 2015, EVO staff and volunteers continued, throughout 2018, working on the completion of the Certified Energy Savings Verifier (CESV) program. This new program is a response to the needs of the changing energy efficiency market place and will aim, starting in 2019, at recognizing the competencies of energy savings verifiers. It will build on our successful knowledge-based training program which leads to the CMVP certification. This program is very successful for global capacity building, and we intend to accelerate its deployment worldwide.

One key accomplishment in 2018 has been the development of many complementary documents that add to the value of the IPMVP. These documents, as well as upcoming ones scheduled for release in 2019 and subsequent years, contribute to EVO's education objectives. They also facilitate the articulation of a sound understanding of the role of M&V in energy performance contracting, program evaluation, programme monitoring and not the least, energy efficiency financing.

On this last topic, EVO is stepping up to redevelop its International Energy Efficiency Financing Protocol (IEEFP) published in 2009. The IEEFP is a framework on how to use best practices such as M&V to support the deployment of energy

efficiency financing programs and the scaling up of energy efficiency projects. Similarly to the IPMVP, its framework is flexible and adaptable to reflect market-specific needs and situations. Other rigid approaches have proven to be impractical with limited application in real life situation.

Thanks to initial support from the Office of Energy Efficiency at Natural Resources Canada, we will be issuing a revised and improved IEEFP core document in 2019 as well as a country-specific Canadian annex presenting the specificity of the Canadian financial market structure and regulation. We invite stakeholders interested in developing other country-specific annexes to reach out.

In closing, I would like to thank all members who have served on our board in the past year with a special mention to Tom Dreessen for his leadership as our chairman from 2015 to 2017. I would also like to recognize the contribution offered by SAB members and count on them to continue the dialogue with staff and board members through a less formal structure.

And finally, but not the least, a million "thank you" to our international group of volunteers who contribute their time and knowledge while serving on our IPMVP Committee, our Training Committee and on our Extended Training Committee. Collectively, they keep the IPMVP actual, and they disseminate sound M&V knowledge and principles throughout the World.



Pierre Langlois
Chairman

Governance

Board of Directors

EVO's Directors are selected to reflect the 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 being vested in its Board of Directors, and the corporation has no members.

5

EFFICIENCY VALUATION ORGANIZATION | 2018 ANNUAL REPORT



PIERRE LANGLOIS

Chair
President, Econoler
Canada



PHIL COLEMAN

Lawrence Berkeley National
Laboratory (LBNL)
United States



NEIL SALISBURY

Vice Chair
Managing Director
Point Advisory
Australia



PATTY FONG

European Climate Foundation
The Netherlands



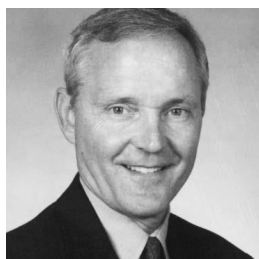
MARK LISTER

Secretary
Asia Clean Energy
Partners Limited
Australia



YAMINA SAHEB

Senior Energy and
Climate Policy Analyst
OPENEXP
France



THOMAS K. DREESSEN

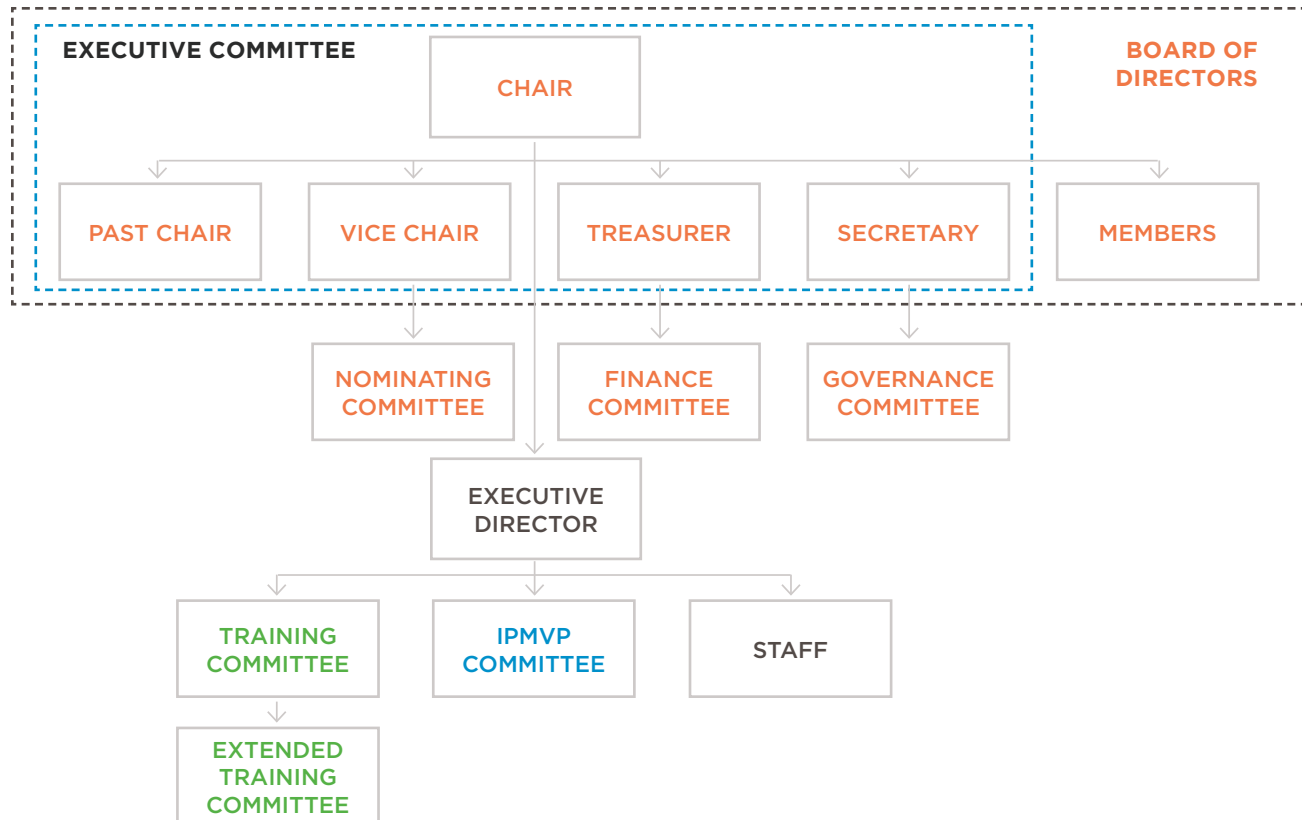
Treasurer
Chief Executive Officer
EPS Capital
Indonesia



LAURA VAN WIE MCGRORY

Vice President
Strategic Initiatives
Alliance to Save Energy
USA

EVO Structures & Responsibilities

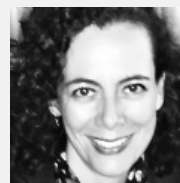


Staff

EVO's day-to-day operations are performed by executive and management staff located in Montréal (Canada), Mexico City (Mexico) and Sofia (Bulgaria) with complementary administrative, legal and accounting resources in Washington DC (United States).



DENIS TANGUAY
Executive Director
Canada



MONICA PEREZ ORTIZ
Director of Programs
Mexico



DEISLAVA BORISOVA
Training Director
Bulgaria

Committees

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. Members help identify or review the need for new M&V training products or services by surveying regional stakeholders and by following market development and regional initiatives.

They review the EVO M&V training material regularly to ensure effective training and permanent consistency with the IPMVP. They also design and maintain qualification criteria for any organization likely to conduct trainings on behalf of EVO and suggest qualifications to maintain instructor certification. The TC relies heavily on the Extended Training Committee (ETC), a group of instructors from every region of the world, that helps to localize our training as needed.

In 2018, the TC completed the revision of the *M&V and the International Performance Measurement and Verification Protocol for Energy Managers* L3 training material and slide-deck. The updated material was released under the new full-color wide-screen format in English, French, Portuguese and Spanish.

The TC also reviewed the newly published application guide entitled *Uncertainty Assessment for IPMVP* to ensure there were no inconsistencies with the training materials. To ensure full consistency, the committee initiated a review with staff and ETC members to fully harmonize the application guide and the training materials.

This exercise led to the proposal to create a joint TC-IPMVP discussion group with the IPMVP Committee to better coordinate content of training material with the Core Concepts and various application guides published by the IPMVP Committee.

A process to accept new ETC members was confirmed and mirrors the process followed for the IPMVP committee. Candidates can be self-nominated

or suggested by any members of the TC, the ETC or the board of directors. Final approval is made by the Executive Committee following recommendations from the TC.

The TC also debated on different approaches for the delivery of the L3 training and follow-up on recommendations formulated by the ETC. Members engaged dialogue with the CMVP exam committee to ensure that the CMVP exam reflects the latest changes in the training material, the Core Concepts, and new application guides.

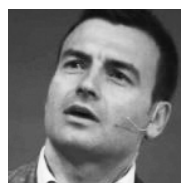
The decision was made to review the criteria for the L2, L3 and L4 instructors' certification and renewals. Instructors' applications were received for instructors in Australia, Colombia, Brazil, Saudi Arabia, and Canada for all three levels. Mentoring for three L3 instructors was completed and the mentoring process for three L4 instructors were initiated.

Finally, the TC worked on an action plan for future training development. This work has been ongoing throughout the year and will feed-in a new 3-year EVO strategic planning exercise to be deployment in 2020.

Daniel Magnet
Chair



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

The Extended Training Committee (ETC) was created in 2015 to assist the Training Committee (TC) to improve EVO's training procedures and materials. Members are selected based upon their expertise as well as from a geographic perspective. More practically, the ETC members help introduce new training materials to local instructors and provide valuable guidance from their home countries on local content for advanced training.

Members help identify or review the need for new M&V training products or services by surveying regional stakeholders and by following market development and regional initiatives. They review the EVO M&V training material regularly to ensure effective training and permanent consistency with the IPMVP. They also design and maintain qualification criteria for any organization likely to conduct trainings on behalf of EVO and suggest qualifications to maintain instructor certification.

The main function of the ETC is to improve the quality of CMVP training. Consistent feedback from those attending the CMVP training is that the course time is too short, that they want more example M&V plans, and that it would be good to have more questions testing CMVP knowledge. These issues were addressed by the ETC during 2018 as follows:

Time too short. The ETC identified several ways of addressing this concern and prepared a note, which was circulated to all training partners and instructors, advising on ways that this could be done. In South America, the course runs for an extra day. In Italy, a pre-course webinar is held. The online introduction to

statistics course is available now to all students before the course, which also frees up more class time.

Example M&V plans. A comprehensive M&V plan, report and associated spreadsheets were developed by the ETC; this initiative was led by Agenor Gomes Pinto Garcia. This is now available to EVO subscribers on the EVO website. It is the first complete example M&V plan to be developed by EVO since 2009. The ETC is still seeking more example M&V plans.

The ETC prepared a comprehensive set of CMVP knowledge questions, which are now available for instructors to use during the training. Members also prepared guidance which presents instructors' shared ideas on how they use specific strategies or tools to go through the CMVP material for in-class sessions.

Other work undertaken by ETC members in 2018 included attending joint meetings with the IPMVP committee, to provide feedback on IPMVP documents from the perspective of instructors. The committee also hosted six webinars for instructors and committee members.

The ETC thanks Antonio Miranda, and Stephanie Nour, for their contribution to the ETC since its inception, and who have now retired from ETC membership. New members to the ETC in 2018 include Sandeep Dahiya and Marco Correia.

In 2019 the ETC will be working to develop new training material, and examples, as well as model M&V plans and M&V, reports. The ETC will also open up technical webinars to all EVO subscribers.

Bruce Rowse
Chair

**BRUCE ROWSE*****Committee Chair****Consultant
8020Green
Australia***CHRIS BALBACH*****VP of R&D****Performance Systems
Development
USA***PAUL CALBERG-ELEN*****Energy Engineer****Biomasse Normandie
France***MARCO CORREIA*****Senior Technician****Agência para a Energia
(Portuguese Energy Agency)
Portugal***SANDEEP DAHIYA*****Freelance Energy Engineer****India***KAR KIT CHU (GARY)*****Energy Consultant****New Vector Engineering Design &
Consultancy Co., Ltd.
Hong Kong***DANIELE FORNI*****Chief technical officer****Federazione Italiana per l'uso
Razionale dell'Energia
Italy***AGENOR GOMEZ
PINTO GARCIA*****Technical Director****CTC Experts
Brazil***RAJVANT NIJJHAR*****Principal****iVEES
United Kingdom*

IPMVP Committee

The IPMVP Committee is EVO's authority on state of the art in M&V. It is responsible for all EVO publication, training, and examination materials in the field. Committee members have technical credentials in energy efficiency and M&V.

The committee's makeup reflects a balance of energy users, energy suppliers, energy efficiency service suppliers, verifiers of energy savings reports, measurement equipment suppliers, and academics. The committee also includes representatives from interested affiliates of EVO around the world.

The IPMVP Committee updates the IPMVP by EVO Board policy and maintains all M&V related EVO publications and EVO technical materials. It recommends M&V related documents for publication as well as appropriate programs and procedures to promote the continued development and dissemination of good M&V practice. Members identify and implement the development of new M&V materials for inclusion in the EVO family of documents and the EVO web site.

In 2018 the IPMVP committee launched two new subcommittees:

- Non-Routine Events and Non-Routine Adjustments in M&V
- M&V and IPMVP for Water Application

The IPMVP committee also continues to work in many other subcommittees:

- M&V Plans
- Statistics and Uncertainty
- Advanced M&V and Related Topics
- M&V for Energy Performance Contracts
- Evaluation M&V
- CMVP Exam and Training

More information on committee work is available on EVO's website at <https://evo-world.org/en/about-en/organization/ipmvp-committee>

Some notable accomplishments in 2018 have included the following:

- The release of the application guide Uncertainty Assessment for IPMVP
- The release of an addendum to the Core Concepts
- Progress toward the publication of the application guide M&V Issues and Examples which was released in February 2019
- Continued coordination between the Training Committee and IPMVP Committee
- Production of a draft version of an M&V Plan: Option A template
- Progress toward other application guides related to Advanced M&V, M&V for EPCs, and EM&V
- Presentations on various Master Class topics
- Continued support/revisions to the EVO website

Also, committee members provided solid technical support to staff in response to various requests for information and IPMVP related clarification questions from the international M&V community.

Tracy Phillips
Chair

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.

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.



TRACY PHILIPS
Chair
7th Gen Energy
Solutions
USA



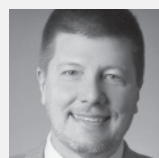
MARGARET SELIG
Vice Chair
Energy Advocates
USA



ELLEN FRANCONI
Pacific Northwest
National
Laboratory (PNNL)
USA



ERIC MAZZI
Mazzi Consulting
Services
Canada



TODD AMUNDSON
Bonneville Power
Administration
USA



DAVID JUMP
kW Engineering
USA



SCOTT NOYES
iEnergy
New Zealand



JIM BRADFORD
Mesa Point Energy
USA



SAMI KHAWAJA
Cadmus Group Inc.
USA



CHRISTOPHE RODRIGUEZ
dalkia smart
building -
Groupe EDF
France



GREGORY BONSER
Independant Electricity
System Operator
(IESO)
Canada



BILL KORAN
SBW Consulting
USA



JESSI SMITH
Demand Side
Analytics
USA



LUIS CASTANHEIRA
ICP Europe
Portugal



DAVID KORN
Ridgeline Energy
Analytics
USA



KEVIN WARREN
Warren Energy
Engineering
USA



SHANKAR EARNI
Lawrence Berkeley
National Laboratory
USA



KEN LAU
BC Hydro
Canada



JIM ZARKSE
Nexant
USA



PHIL COMBS
Trane Energy Services
& Controls
USA



CHRISTIAN LEMIEUX
Econoler
Canada



LIA WEBSTER
Facility Energy
Solutions
USA

Highlights

EVO in action – 2018 Timeline

JANUARY

- Changes to the EVO board of directors are announced. **Pierre Langlois** becomes Chairman; **Neil Salisbury**, Vice Chair; **Mark Lister**, Secretary; and **Tom Dreessen**, Past Chair and Treasurer.
- **The Extended Training Committee presented a master class on *Measurement Boundary***. Master classes are offered to EVO volunteers, instructors, and supporting organizations.
- EVO's Executive Director attended a series of **meetings with stakeholders in Washington** to discuss M&V and EVO projects.

FEBRUARY

- **EVO staff and board members participated in a workshop on energy efficiency financing** in Ottawa and held meetings with local stakeholders.

MARCH

- **An article by EVO's Executive Director on transaction costs associated with the financing of energy efficiency projects is published in the IPEEC** (International Partnership for Energy Efficiency Cooperation) newsletter.
- **The first issue of M&V Focus is released.** This online magazine is the newest communication tool designed by EVO to encourage information sharing within the M&V community and stakeholders.
- **EVO and AEE met in Boston** to discuss the renewal of their training and certification agreements.

APRIL

- Release of a **new application guide *Uncertainty Assessment for IPMVP (EVO 10100: 1:2018)***. This new document is a revised and expanded version of the Statistics and Uncertainty for *IPMVP (EVO 10100 1:2014)* application guide published in 2014.
- **A meeting is held with various organizations in Mexico** to explore potential cooperation.
- Release in many languages of **updated IPMVP training material**.



MAY

- In cooperation with UNIDO, EVO organized an **Intensive Learning Session on:** "Energy Efficiency Performance Measurement and Data Due Diligence in ISO 50001 and IPMVP: The Key to De-Risking Energy Efficiency Investments." The event took place during EE Global in Copenhagen.
- Representatives of **EVO and CONUEE** (Mexico's Comisión Nacional Para El Uso Eficiente De Energía) met in Copenhagen and **signed General Minutes** of their meeting.
- CESV committee members met in Copenhagen to advance the development of the competency framework for the **Certified Energy Savings Verifier (CESV) program**.

JUNE

- **Patty Fong**, Director of the Energy Efficiency Initiative and a member of the European Climate Foundation Strategic Council joins the Board of EVO.
- **AMENEER, the Mexican Association of Energy Efficiency Companies became an EVO national training partner.** AMENEER brings together companies dedicated to installing energy monitoring and control systems in commercial, residential, industrial, and governmental buildings, offering solutions with efficient equipment that reduce energy consumption.
- Publication of the **second issue of M&V Focus**.
- EVO, eu.esco, EFIEES, EU-ASE and Factor 4 organized, in the framework of the **EU Sustainable Energy Week 2018**, a seminar on "Energy Performance Contracts to foster Energy Efficiency in the public sector – how to turn difficulties into success?".
- **Second EVO European Stakeholders Meeting** was held in Brussels to discuss M&V policy issue and to assess the opportunity of establishing an EVO office in Europe.
- EVO Executive Director presented at the **IEPPEC Conference in Vienna** and participated in a panel discussion on how international frameworks, certification schemes and leading energy performance contractors can bridge the gap between finance and projects and accelerate the growth of the energy efficiency market.
- **EVO's Executive Director met with various organizations in Vienna**, including UNIDO, the Austrian Energy Agency (EVO's national training partner in Austria), as well as with local industry stakeholders.



JULY

- EVO staff designed the framework for the creation of an **online training and certification management system** to facilitate the deployment of its training programs and the certification process. **The new portal is expected to be deployed in early 2019.**

SEPTEMBER

- **Philip Coleman** joined the EVO board of directors. Philip is a research analyst and program manager in the Sustainable Federal Operations Group of the Building Technology and Urban Systems Division at Lawrence Berkeley National Laboratory.



OCTOBER

- **EVO released the IPMVP Generally Accepted M&V Principles**, a condensed version of the IPMVP Core Concepts. This document is meant to facilitate the dissemination of the IPMVP principles to a non-technical audience. It comes in response to growing demand from a variety of interested parties.
- A new EVO policy is published: **General Guidelines for Projects Submitted by Partners and Project Subcontracting**. This new EVO policy provides a framework for the development of projects which will contribute directly to the mission of EVO.
- Publication of the **third issue of M&V Focus**.
- EVO solicited the global M&V community with an **extensive survey** with questions on market structure, policy development, training and certification, and industry priorities. The results will be used in future EVO strategic planning.
- The **Extended Training Committee held a master class** on "M&V for Chiller Replacement."
- **EVO joined the ANSI C137 Committee for Lighting Systems** and is represented by Phil Combs, a member of the IPMVP Committee.

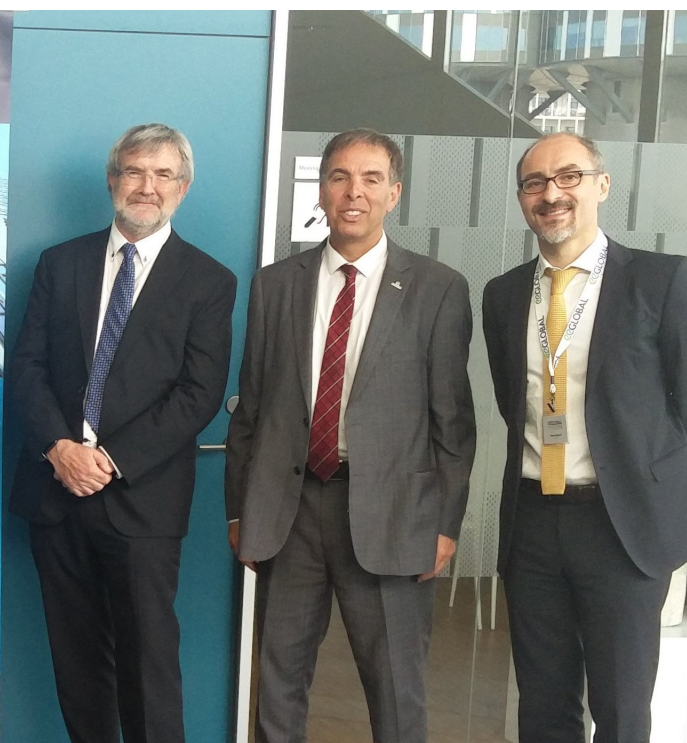


NOVEMBER

- **The inaugural meeting of the EVO U.S. Task Group.** At this first meeting, participants discussed the need for stronger and more consistent measurement and verification (M&V) to support energy efficiency measures and programs in the U.S. and how EVO can increase its market and policy presence.
- EVO's Executive Director participated in the ***Colloque Garantie de performance énergétique in Paris***. The event was co-organized by AFNOR and dalkia smart building — Groupe EDF.
- IPMVP Committee members Kevin Warren and David Korn represented EVO at an **M&V2.0 Workshop** organized in Burlington, Vermont, by the Northeast Energy Efficiency Partnerships.

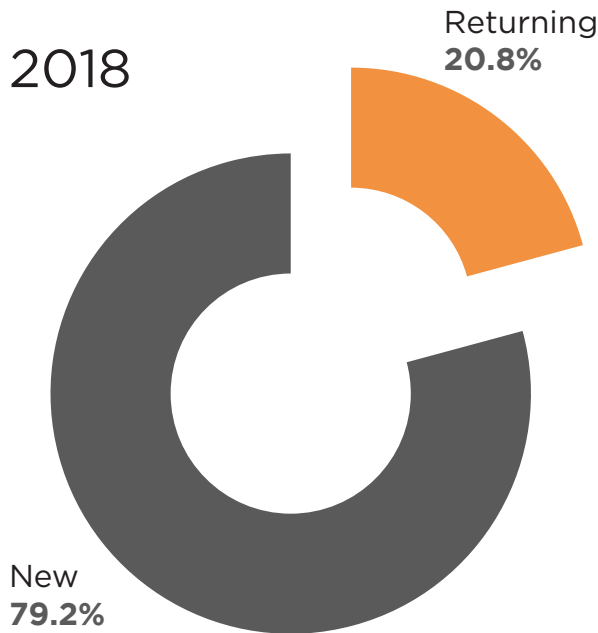
DECEMBER

- **The board of directors approved the 2019 Business Plan.** This plan is the third leg of the three-year strategic plan adopted in September 2016.



EVO Website Visitors

WEBSITE VISITORS BY “NEW” & “RETURNING VISITORS”

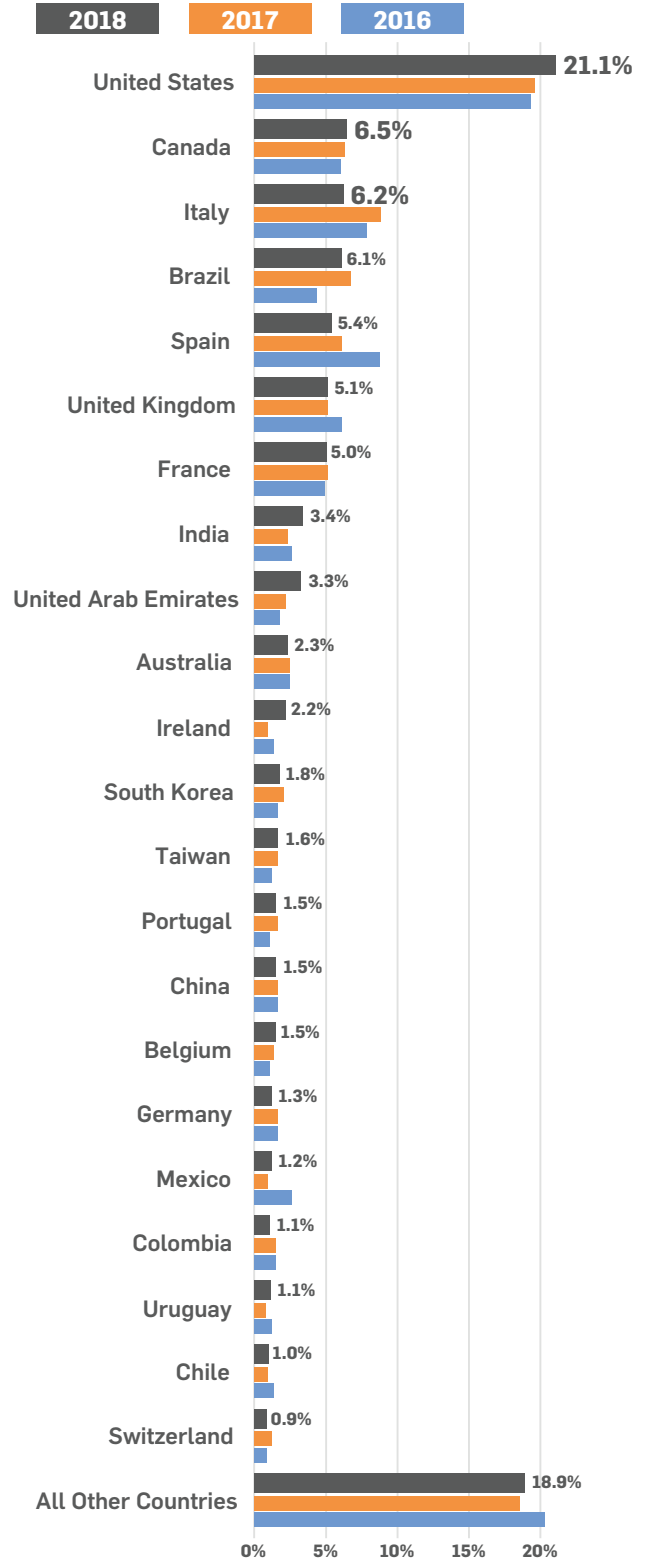


**M&V
FOCUS**

EVO's Measurement & Verification Magazine

**8792 ARTICLE
VIEWS FOR THE
FIRST THREE ISSUES
OF M&V FOCUS**

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 the provision of tools for this purpose. The IPMVP, 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 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.

EVO's protocols have historically been provided for free to the M&V community because of the financial 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 to maintain EVO's online resources and library through their annual contributions. Also, 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. 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.



Agência para a Energia



Training & Education

International Training Partners



INTERNATIONAL INSTITUTE FOR ENERGY TRAINING

*Brazil
Canada
Chile
Croatia
Tunisia
United Arab Emirates
Uruguay*



THE ASSOCIATION OF ENERGY ENGINEERS

*Angola
Botswana
Gabon
Ireland
Kenya
Lesotho
Malawi
Mozambique
Namibia
Republic of Congo
Saudi Arabia
South Africa
Swaziland
Tanzania
Uganda
The United States
Zimbabwe
Zambia*



ENERGY LAB

*Spain
Other Spanish
speaking countries*

Training Organizers



ENERGY EFFICIENCY VERIFICATION SPECIALISTS

United Kingdom



INDEPENDENT VERIFIERS OF ENERGY EFFICIENCY SAVINGS

United Kingdom



SINERGEIA BGH & ERGON ENERGY SOLUTIONS

Argentina



SUZHOU INSTITUTE OF ENERGY MANAGEMENT (SIEM)

China

National Training Partners



**AFNOR COMPÉTENCES
GROUPE AFNOR**
*Belgium, France
& Switzerland*



Agência para a Energia

AGENCIA PARA A ENERGIA
Portugal



**ALLIANCE FOR AN ENERGY
EFFICIENT ECONOMY**
*India
Philippines*



**THE ASSOCIATION OF
ENERGY ENGINEERS**
United States



AUSTRIAN ENERGY AGENCY

**AUSTRIAN ENERGY
AGENCY**
*Austria
Germany*



**CANADIAN INSTITUTE FOR
ENERGY TRAINING**
Canada



**CONSEJO COLOMBIANO DE
EFICIENCIA ENERGÉTICA**
Colombia



**ENERGY EFFICIENCY
COUNCIL**
Australia



ENERGY LAB
Spain



**ENERGY MANAGEMENT
ASS. OF NEW ZEALAND**
New Zealand



**ENERGY SERVICES
AND TECHNOLOGY
ASSOCIATION**
United Kingdom



**FEDERAZIONE ITALIANA
PER L'USO RAZIONALE
DELL' ENERGIA**
Italia



**GREEN PRODUCTIVITY
FOUNDATION**
Taiwan



**KOREA ASSOCIATION OF
ESCO**
Republic of Korea



**NATIONAL INSTITUTE
OF METROLOGY**
China



SGS
China



**ZHONGGUANCUN
NATIONAL**
China



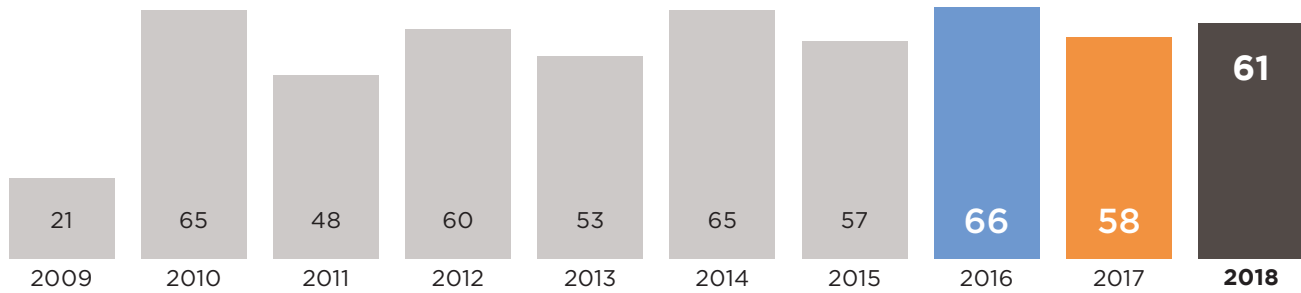
BUREAU VERITAS
China

M&V Fundamentals and the IPMVP for Energy Managers — Training Statistics

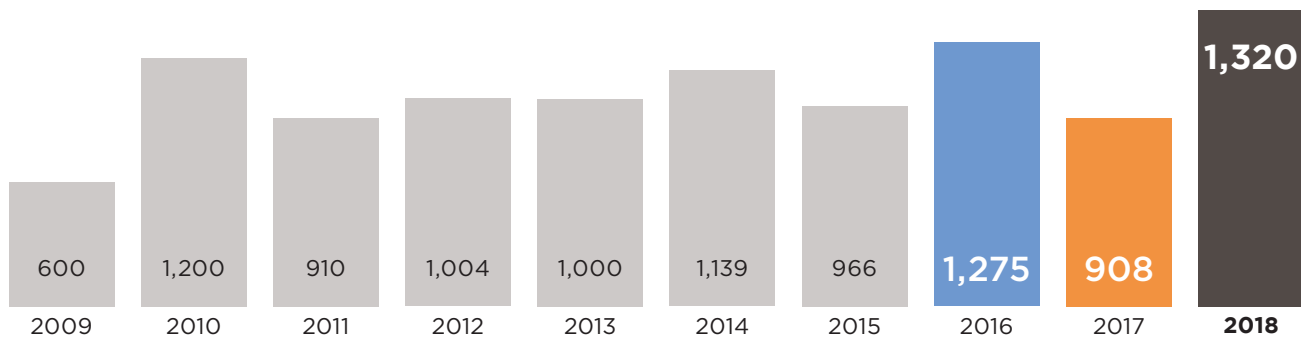
20

EFFICIENCY VALUATION ORGANIZATION | 2018 ANNUAL REPORT

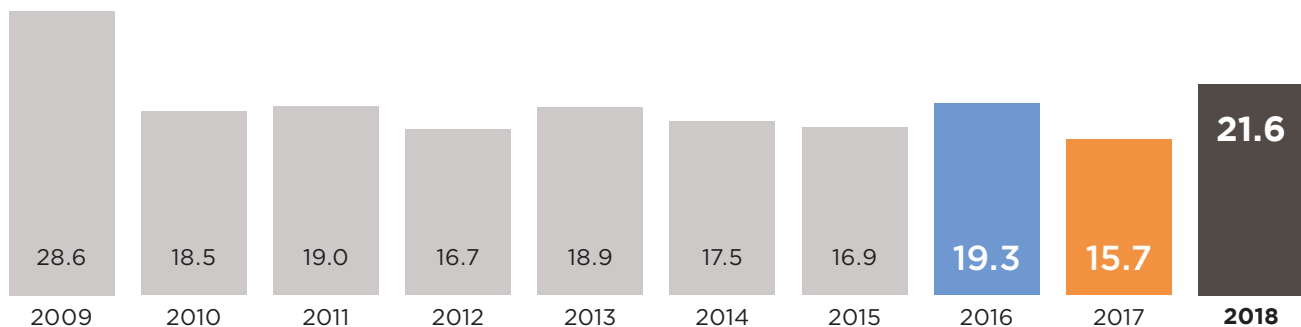
NUMBER OF SESSIONS



NUMBER OF PARTICIPANTS



PARTICIPANTS PER SESSION



EVO Thematic Training

USING ISO 50015 WITH IPMVP

The course covers the ISO 50015 M&V guidance standard and how to use it in conjunction with the world's most widely use protocol, the IPMVP with minimum duplication effort. This course was designed to help specialists:

- Understand the essentials of good M&V to both 50015 and IPMVP with practical application
- Apply the key principles of both standards to energy savings projects
- Understand how to construct and M&V Plan to both standards
- Understand how to implement an M&V Plan and report savings to both standards with minimum duplication

The course was delivered four times via live webinars, and it is now offered through pre-recorded sessions available on the EVO website. There are three modules. At the end of each module, there is a short online test to ensure that the content is understood. Upon completion of all three modules and tests, the registrant receives a CPD certificate of the equivalent of 6 hours of qualifying CPD that can be downloaded and printed automatically.

INTRODUCTION TO STATISTICS FOR M&V

The *Introduction to Statistics for M&V* course was designed for individuals interested in taking the EVO course *M&V Fundamentals and the IPMVP for Energy Managers* and who felt they need a refresher for basic statistics concepts. The course covers basic statistical concepts, such as:

- Definition of statistics and why it is important to Measurement and Verification
- Key statistical terms
- Descriptive stats
- Degrees of freedom
- Errors and statistical terminology associated with errors
- Probability distributions, including normal distributions and the standard normal distribution
- Confidence levels and confidence intervals
- Using the t table

This online course consists of 6 lessons with a quiz that follows each lesson. Students need to pass the quiz before moving onto the next lesson. However, students can attempt the quiz as many times as needed. Typically, 1 to 3 hours is required to complete the online course. Upon completion of the course, a certificate of completion is available for download.

21



Efficiency
Valuation
Organization

M&V FUNDAMENTALS AND THE INTERNATIONAL PERFORMANCE MEASUREMENT AND VERIFICATION PROTOCOL (IPMVP)®

For Energy Managers

CMVP Program

Certified Measurement & Verification Professional (CMVP®) Program

22



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.

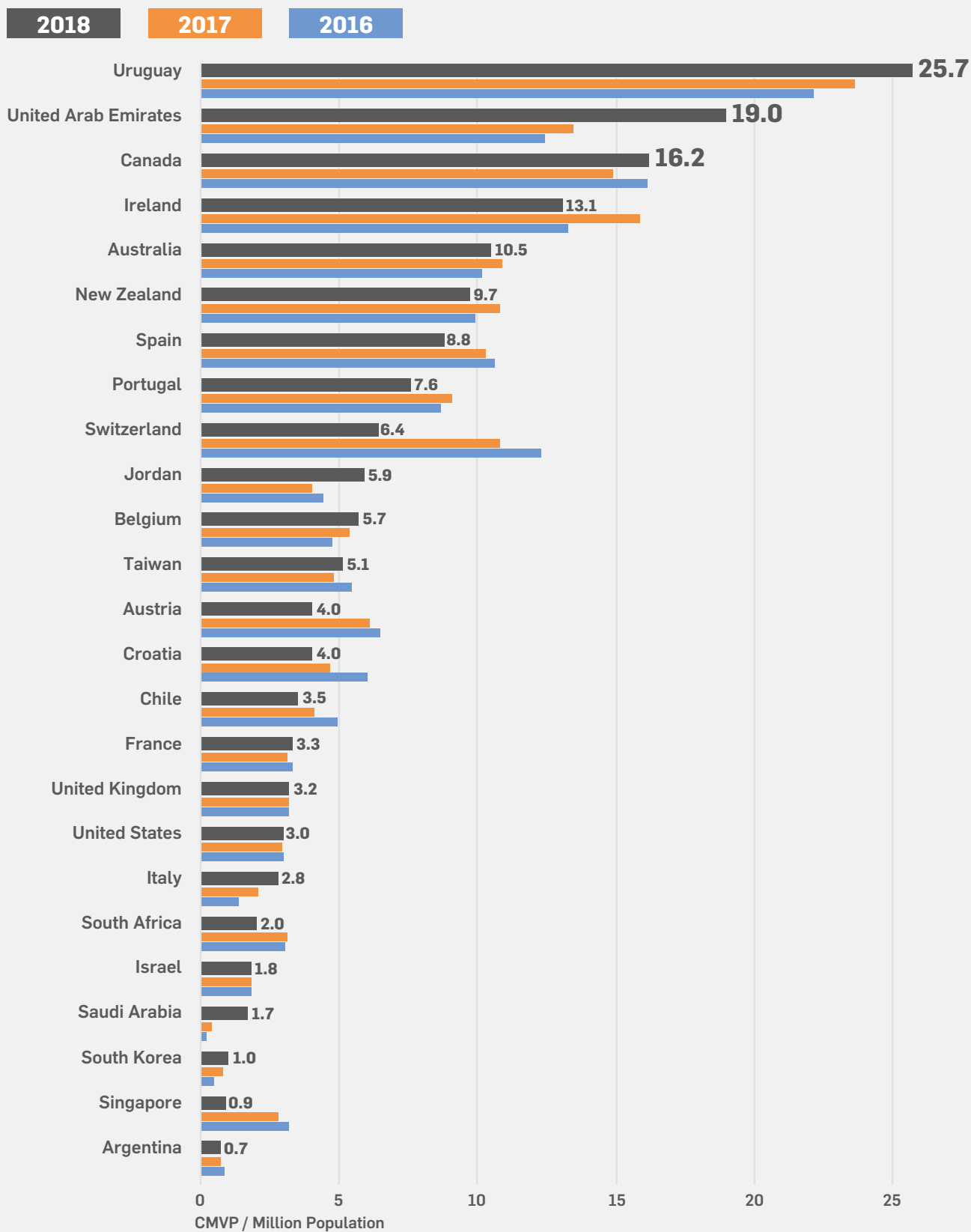
The right to use the CMVP title is granted by the AEE to those who pass a four-hour written exam and meet the required academic and professional qualifications.

COUNTRIES WITH AT LEAST 1 CMVP

Albania	Guam	Portugal
Andorra	Hong Kong	Qatar
Argentina	India	Republic of Korea
Armenia	Indonesia	Republic of Moldova
Australia	Iran	Russian Federation
Austria	Ireland	Saudi Arabia
Belgium	Israel	Singapore
Brazil	Italy	South Africa
Canada	Jamaica	Spain
Chile	Jordan	Sweden
China	Kenya	Switzerland
Colombia	Lebanon	Taiwan
Costa Rica	Luxembourg	Thailand
Croatia	Macao	Tunisia
Cyprus	Malaysia	Turkey
Czech Republic	Mexico	Ukraine
France	Netherlands	United Arab Emirates
FYR Macedonia	New Zealand	United Kingdom
Georgia	Palestinian Territories	United States
Germany	Philippines	Uruguay
Greece	Poland	Vietnam

NUMBER OF CMVPS PER CAPITA IN 2016-2017-2018

(TOP 25 COUNTRIES)





Efficiency
Valuation
Organization



evo-world.org



evo.central@evo-world.org
dtanguay@evo-world.org



+1 202-738-4639



Corporate address
1629 K Street NW, Suite 300
Washington, DC 20006, USA