



2017

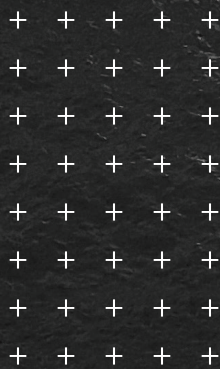


ERP[®]

Candidate Guide

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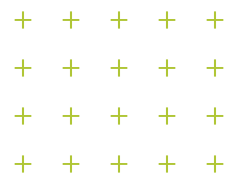






The Energy Risk
Professional (ERP®) is the
only globally-recognized
certification for those who
manage energy risk.

Introduction



Since 2009, the ERP designation has earned the respect of global energy market professionals around the world. Developed in response to the growing need for professionals who understand the complexity of energy markets and their related risks, the ERP objectively benchmarks a candidate's skills and knowledge of the tools and techniques used to measure and manage energy risk.

Currently, more than 1,300 Certified ERPs are employed internationally, working in a wide range of energy risk-related functions. Whether you currently work in the energy industry or are interested in transitioning to a career in the field, earning the ERP designation can help differentiate you from your peers.

Candidates for the ERP designation are employed by global energy companies (including oil, power, natural gas and LNG, renewables), financial institutions (including commercial and investment banks, asset management firms, hedge funds), consulting firms, technology firms, and government agencies.

The ERP challenges candidates to understand and apply a range of topics that link practical knowledge about physical energy commodity markets with fundamental concepts on energy price formation, financially-traded energy products, and techniques for assessing and managing energy market risk. Its curriculum covers the following topics:

- ▶ Crude oil and refined product markets
- ▶ Natural gas and coal markets
- ▶ Electricity markets and renewable generation
- ▶ Risk assessment and energy price modeling
- ▶ Financial energy product application and valuation
- ▶ Market risk measurement and management
- ▶ Credit and counterparty risk assessment and valuation
- ▶ Operational and enterprise risk management

Earning your ERP Certification

The first step to becoming an ERP is passing a rigorous, two-part ERP Exam. Enrolling in the ERP Program is straightforward; candidates register for the ERP Exam online via the GARP website. Both parts of the ERP Exam are offered twice a year, in May and November. Once you pass the ERP Exam Part I, you have four years to pass Part II.

After achieving a passing score on both parts of the Exam, candidates must demonstrate a minimum of two years of full-time work experience in the area of energy risk management or a related field to complete their certification. Related work experience may include: trading, portfolio management, faculty academic, industry research, economics, auditing, risk consulting, and/or risk technology. If you have questions about your professional certifications or if your job title qualifies, please contact memberservices@garp.com.

Once certified, ERPs are required to keep pace with the numerous forces impacting the global energy markets by participating in GARP's Continuing Professional Development (CPD) program. The program offers ERPs a framework to keep their skills and knowledge up to date through ongoing education, and requires participants to earn 40 credit hours every two years to maintain their certification.

Who should consider the ERP certification?

All Energy Professionals

The ERP helps those in the energy space broaden their knowledge of the complex energy value chain. It sharpens their ability to identify, analyze and manage risk, and helps them to stay ahead of emerging industry trends, particularly in areas where they lack direct professional experience.

The ERP is also an excellent way for young energy professionals at the start of their careers to demonstrate that they possess the knowledge and skills necessary to take on additional challenges and responsibilities in the energy space, and to differentiate themselves from their peers.

Career Changers

For those who are interested in transitioning to a career in energy, becoming an ERP can help advance your career. Professionals from non-finance, non-risk, or non-energy roles become ERPs in order to develop specialized, practical knowledge that can be applied in the global energy market. Undertaking the rigorous course of study to become an ERP signals to potential employers your commitment to the energy sector.

Students

Students interested in a career in the energy sector may elect to sit for the ERP Exam during or immediately after completing their studies. The ERP Program can complement their prior coursework or help them develop a foundation of specialized knowledge that goes beyond their university curriculum. Students recognize the benefit of signaling to prospective employers their dedication to learning about the energy marketplace through engagement in the ERP Program.

Earn your ERP Certification



ERP Exam Part I
4 hours/80 questions



Demonstrate 2 years'
related Work Experience



ERP Exam Part II
4 hours/60 questions



Mandatory continuing
education 40 hours/2 years



Using the ERP to Power Your Career

As an ERP, you'll have a competitive advantage that can help you stand out to employers. By passing the Exam and carrying your certification, you'll demonstrate that you possess the knowledge and tools necessary to assess and manage the challenges associated with the rapidly changing energy markets. Hiring managers consider ERPs to be leaders in the industry, and will know that you are dedicated to the energy markets and the risk management profession.

Benefits of the ERP

Becoming an ERP illustrates your commitment to the energy markets, and certifies that you possess an in-depth knowledge of the many risk-related problems across the energy value chain, giving you the confidence to pursue assignments with increasing levels of responsibility.

▶ **Demonstrate your knowledge**

Earning your certification confirms that you have the necessary skills to effectively assess and manage energy risk.

▶ **Join an elite group**

You'll be part of a network of like-minded professionals, allowing you to expand your career opportunities.

▶ **Enhance your reputation**

All ERPs are expected to adhere to the highest levels of ethical conduct and disclosure, letting employers know that you will help safeguard the firms' reputation.



Exam Development, Structure, and Content

Exam Development

Development of the ERP Exam and its underlying curriculum is guided by GARP's Energy Oversight Committee (EOC), a panel of senior practitioners and academics with practical market experience. Readings and topics covered in the curriculum are updated annually in conjunction with the EOC to ensure the ERP remains a timely and accurate assessment of the knowledge and skills required of an energy risk practitioner. To further align with industry needs, the ERP Exam is created in close consultation and collaboration with practicing ERPs active across a variety of disciplines and geographies. Exam questions combine theory and "real-world" work experience drawn from market insights shared by EOC members and practicing ERPs.

Exam Structure

Completion of the self-study curriculum culminates with candidates sitting for the ERP Exam, a two-part, multiple choice exam. The ERP Exam Part I and the ERP Exam Part II are comprised of 80 and 60 questions, respectively. Candidates are allotted four hours to complete each Exam and have the option to complete both parts in one or two exam cycles. The Exams are offered in English twice a year, in May and November, at approximately 90 exam sites around the world.



Exam Content

The ERP Exam is a comprehensive, practice-oriented assessment that spans both the physical and financial energy markets. As such, candidates are expected to demonstrate an understanding of important concepts across several broad areas of study. The 2017 ERP Exam topics are weighted as follows:

Topics and Weights

ERP Exam Part I

Introduction to Energy Commodities and Risk Management | 10%

- Characteristics of Physical Energy Commodity Markets
- Physically vs. Financially Settled Transactions
- Basic Risk Types, Measurements, and Management
- Business Ethics and the GARP Code of Conduct

Crude Oil Markets and Refined Products | 35%

- Physical Properties of Crude Oil
- Exploration, Production, and Project Development
- Petroleum Refining
- Global Benchmarks and Price Formation
- Crude Oil Transportation and Storage

ERP Exam Part II

Financial Energy Products | 30%

- Structure and Operation of OTC and Exchange Markets
- Energy Derivative Contracts
- Global Regulation of Financially Traded Energy Products

Risk Assessment and Energy Price Modeling | 20%

- Quantitative Tools for Risk Analysis
- Energy Commodity Price Formation
- Modeling Energy Prices

Natural Gas and Coal Markets | 25%

- Physical Properties of Gas and Coal
- Transportation and Storage
- Global Natural Gas Markets and Price Dynamics
- Global Coal Markets and Price Formation

Electricity Markets and Renewable Generation | 30%

- Electricity Market Economics
- Wholesale Power Market Design
- Transmission and Distribution
- Electric Energy Markets and Trading
- Renewable Generation and Integration
- Emission Reduction Programs and Regulation

Risk Management Tools | 50%

- Market Risk Measurement and Modeling
- Credit and Counterparty Risk Assessment
- Country and Sovereign Risk Metrics and Management
- Operational Risk
- Enterprise Risk Management

Registration

In 2017, the ERP Exam will be offered on May 20 and November 18. The cost to register for the Exam varies based on the registration period, and you can register on our website.

Fees

First-time registrants for the ERP Exam are required to pay an enrollment fee (the cost associated with developing and administering the Exam) and an exam fee (the cost to sit for each Exam). Returning registrants need only pay the exam fee for subsequent registrations.

Registration fees include a complimentary one-year GARP Individual Membership (a US \$195 value), but do not include the cost of study materials. Fees can be paid via secure online payment, by check (if drawn on a U.S. bank and payable in U.S. dollars), or by wire transfer.

Earning your ERP Certification

	New Candidate	Returning Candidate
Early Registration	\$750	\$350
May 2017 Exam: Dec. 1-Jan. 31	Enrollment Fee: \$400	Enrollment Fee: \$0
Nov 2017 Exam: May 1-July 31	Exam Fee: \$350	Exam Fee: \$350
Standard Registration	\$875	\$475
May 2017 Exam: Feb. 1-Feb. 29	Enrollment Fee: \$400	Enrollment Fee: \$0
Nov 2017 Exam: Aug. 8-Aug. 31	Exam Fee: \$475	Exam Fee: \$475
Late Registration	\$1050	\$650
May 2017 Exam: Mar. 1-Apr. 15	Enrollment Fee: \$400	Enrollment Fee: \$0
Nov 2017 Exam: Sept. 1-Oct. 15	Exam Fee: \$650	Exam Fee: \$650

Scholarships

GARP offers a scholarship program, open to full-time graduate-level students and university faculty taking the ERP Exam Part I. All scholarship candidates must register and pay the enrollment fee and exam registration fees prior to submitting their application. Candidates who are awarded a scholarship will be refunded the cost of the exam registration fee only. More information on eligibility and the application process can be found on GARP's website.



Exam Locations

The ERP Exam Part I and Part II are offered in person at approximately 90 exam sites around the world. While the cities generally remain the same, locations within each city may change from year to year. A complete list of exam sites is available on the GARP website.

Deferrals

An ERP candidate may only defer each exam registration once.

- ▶ A deferral to the next examination date must be submitted by the last day of registration. For example, the last day of registration for the May Exam is April 15, and for the November Exam, the last day of registration is October 15.
- ▶ There is an administrative processing fee of US \$150 that accompanies each exam deferral. This fee is payable by credit card only at the time of your deferral request.
- ▶ Required readings change from year to year.

More information on deferring the ERP Exam can be found on our website.

Important Steps



Identification

Make sure you have a current (non-expired), original, valid, government-issued passport or driver's license with a photograph (other types of identification cards will not be accepted) that will not expire by the exam date.



Guidelines

Familiarize yourself with the ERP Exam deadlines and policies listed online.



Location

View the list of examination sites online.



Accommodations

If needed, you may request necessary accommodations per the Americans with Disabilities Act (ADA) or an alternative exam date for religious reasons through Religious Alternate Date (RAD).



The ERP Exam is a comprehensive, practice-oriented assessment that spans both the physical and financial energy markets.

Preparation



GARP provides study resources, practice exams, and information on approved, third-party Exam Preparation Providers to help ERP candidates get ready for the Exam. Due to the sizeable amount of material covered in the Exam, we suggest that you create a weekly study schedule to spread out study hours over an extended period. Preparing for the Exam at the last minute is strongly discouraged.

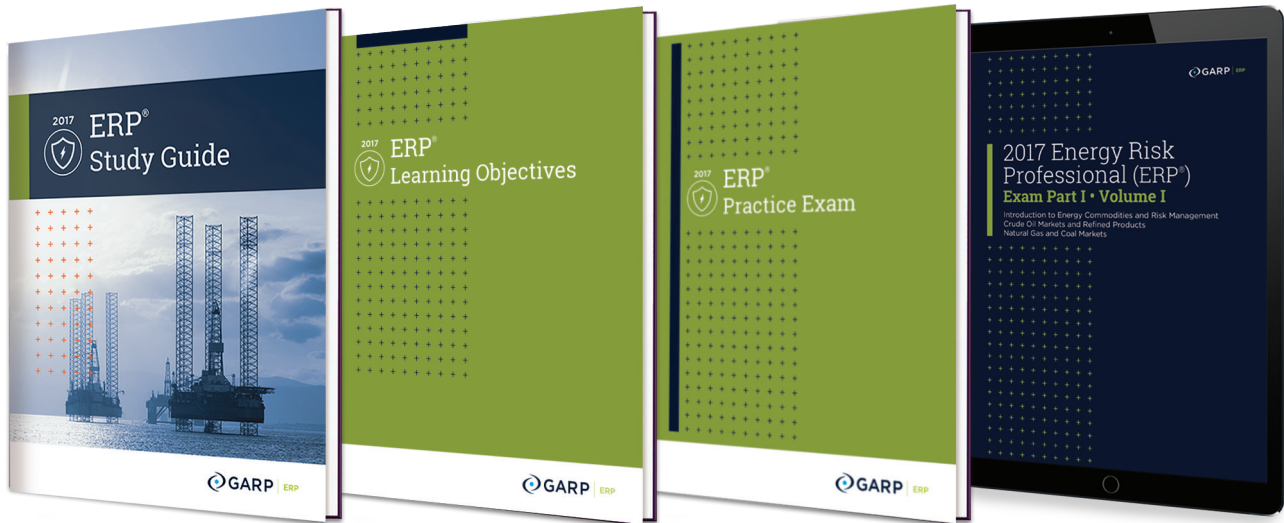
The time needed for exam preparation will vary based on your professional experience, general level of knowledge of the energy markets, reading comprehension aptitude, and other factors. For past Exams, a majority of candidates report spending anywhere between 150 to 400 hours studying.



GARP offers a number of free study resources, including: the Study Guide, Learning Objectives, and Practice Exams

Study Materials

- The free **ERP Study Guide** outlines the weightings, key concepts, and required readings for each section of the ERP Exam. In addition to published works, the ERP Study Guide includes a number of readings from online sources. Links to all required online readings are available for download directly from our website.
- The free **ERP Learning Objectives** provides a comprehensive framework to guide candidates in their preparation for the ERP Exam. It summarizes the weightings for each of the broad knowledge domains covered by the Exam along with individual learning objectives associated with each reading in the curriculum. All ERP Exam questions are developed from and directly reference a specific reading and learning objective. The ERP Learning Objectives are a vital study resource that should be referenced regularly during exam preparation.
- The free **ERP Practice Exams** are available for Part I and Part II free of charge on the GARP website. They provide a good sense of the question types to expect when sitting for the actual ERP Exam, and will allow candidates to estimate how much time they can expect to spend answering individual questions. Each Practice Exam contains questions, answer keys, and detailed explanations for all answers. It is strongly recommended that candidates mimic exam day conditions and allocate four hours for each Practice Exam.



- The **ERP Books** cover topics related to the physical and financial global energy markets. The ERP Exam Part I Books include an introduction to energy commodities and risk management and readings on: crude oil markets and refined products, natural gas and coal markets, and electricity markets and renewable generation. The ERP Exam Part II Books include readings on: price formation in energy markets, financial energy products, and risk management tools. Exam questions are based solely on the material in the current year’s ERP curriculum and Learning Objectives, making the books essential for Exam preparation.
- The **free Online Readings** provide additional information on a series of topics found in both the Part I and Part II Exams.
- The **free Weekly Study Plan** is available on the GARP website and offers a customizable framework. We encourage you to use this study plan as a foundation and modify based on your study schedule and areas of strength or weakness.

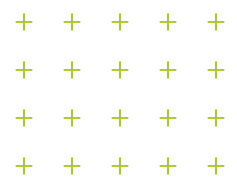
Exam Preparation Providers

You may wish to study with the assistance of an ERP Exam Preparation Provider, which are officially recognized centers that may offer courses online or in person. GARP provides a list of approved ERP Exam Preparation Providers on our website as a service to ERP candidates. Please note that GARP does not endorse, promote, review, or warrant the accuracy of the products or services offered by providers of ERP related information, nor does it endorse any pass rates claimed by the Exam Preparation Provider. Further, GARP is not responsible for any fees or costs paid by the user to an ERP Exam Preparation Provider.

Study Groups

While the ERP curriculum is designed to be a self-study program, many find that studying with a group of peers positively impacts their exam preparation. You can connect with other ERP candidates to form study groups by joining our Facebook or LinkedIn groups.

Sitting for the ERP Exam



The ERP Exam is a pencil-and-paper multiple choice exam offered exclusively in English to ensure fairness and consistency for all candidates globally.

What to Bring on Exam Day:

- ▶ Printed Exam Admission Ticket
- ▶ Current (non-expired), original, valid, government-issued photo identification as described below
- ▶ GARP-approved calculator

Optional:

The following items may be carried in your pockets or in transparent plastic bags. Plastic bags must be placed under your chair and may be accessed during the Exam.

- ▶ Wallet (or money purse)
- ▶ Eyeglasses
- ▶ Tissues
- ▶ Calculator batteries
- ▶ Earplugs
- ▶ Other medically necessary items
- ▶ Pencil sharpeners
- ▶ Medicine

What GARP Provides:

- ▶ Two wooden pencils

Food and drink containers may not be opened in the testing room. All food and drinks must be consumed outside the testing room.

Identification

Only a current, valid, government-issued passport or driver's license, which must include your photograph, will be accepted for identification purposes on exam day. The name on your passport or driver's license must be exactly the same as the name on your exam registration. For more information, visit our website.

Calculators

Only GARP-approved calculators can be used during the Exam. Use of a non-authorized calculator during the Exam will result in the candidate's answer sheet not being graded, and the candidate will receive no score for the Exam. Candidates may not consult the operator's manual for their calculator during the Exam. Your calculator's memory must be cleared prior to the start of the Exam.

The only calculators approved for use during the ERP Exam are:

- ▶ Hewlett Packard 12C (including the HP 12C Platinum and the Anniversary Edition)
- ▶ Hewlett Packard 10B II
- ▶ Hewlett Packard 10B II+
- ▶ Hewlett Packard 20B
- ▶ Texas Instruments BA II Plus (including the BA II Plus Professional)

Please review GARP's calculator policy on the website in advance of Exam day.

Prohibited Items

In order to maintain the integrity of the testing process, no electronics, including wearable technology, are permitted. Additionally, baggage of any kind, writing instruments, and pencil cases may not be brought into the testing room. A test administrator will provide all necessary testing items, including pencils and erasers. There will be a designated area away from the testing room that can be accessed during the examination. A full list of permitted and prohibited items can be found on the GARP website.

Duration of the Exam

The ERP Exam Part I and the ERP Exam Part II are each four hours long. The ERP Exam Part I consists of 80 multiple choice questions and the ERP Exam Part II consists of 60 multiple choice questions. Part I is offered in the morning session and Part II in the afternoon session of each exam administration.

Scoring the Exam

There are no penalties for incorrect answers. Candidates sitting for both parts of the ERP Exam in the same exam administration must pass the ERP Exam Part I in order to have Part II graded. The passing score is determined by the Energy Oversight Committee.

Exam Violations

GARP seriously reviews each and every Exam Violation Report. We have listed some of the violations that have resulted in a Violation Report being filed and, subsequently, a candidate's exam not graded:

- ▶ Candidate began the Exam early
- ▶ Candidate opened the exam booklet early
- ▶ Candidate continued to write after the session ended
- ▶ Candidate brought a cellular telephone or smartphone into the exam room
- ▶ Candidate caught cheating
- ▶ Candidate violated GARP's calculator policy

Exam Results

Exam results are pass/fail and are available approximately six weeks after the Exam is administered. Candidates are provided with quartile results for each section of the Exam, enabling them to assess their performance in specific areas relative to other candidates.



The ERP Exam
comprehensively assesses
your ability to measure and
manage risk across the
entire energy value chain.

Frequently Asked Questions

Q. How much time is needed to prepare for the ERP Exam?

A. Your preparation time will vary based on your experience and background, but on average, candidates spend about 240 hours studying. In a 2015 poll, individual reports varied from less than 100 (10%) to more than 400 hours (14%).

Q. How much work experience do I need to sit for the ERP Exam?

A. No work experience is required to sit for the Exam; however, you must have at least two years of work experience to complete your certification.

Q. How quantitative is the ERP Exam?

A. The ERP Exam is not meant to be a rigorous quantitative exercise that requires memorization of highly complex formulas, but you are expected to understand the fundamental concepts covered in the core readings and solve calculations based on them. We do not provide a list of formulas for the Exam, but we may provide information about more complex or obscure terms or values within an equation.

Q. What are my career prospects after becoming an ERP?

A. As the world's most highly recognized designation for energy risk professionals, the ERP certifies that you have the skills needed to successfully measure and manage energy risk in an ever-changing market, highlighting your value to employers in a growing field. ERPs are currently employed globally in a wide range of energy companies, financial institutions, consulting firms, technology firms, and government agencies.

Q. What is the difference between the Financial Risk Manager (FRM) and the ERP?

A. The FRM was designed for risk professionals in traditional financial markets, while the ERP is specific to energy risk. The FRM focuses on the techniques used to evaluate and manage market, credit, and operational risk in financial markets, and the ERP covers the factors that drive price formation, volatility, and risk in physical energy commodity markets. The ERP also emphasizes forwards, futures, and swaps, with an eye toward energy production, generation, distribution, and storage.



Q. In what languages can I take the Exam?

A. The Exam is administered in American English only. We work hard to ensure all questions and instructions are written clearly and concisely, and to avoid the use of colloquialisms that might be unfamiliar to non-native American English speakers.

Q. Do I have to be a GARP Member to sit for the Exam?

A. No, you do not have to be a Member to register. As part of your enrollment in the ERP Program, you will receive a complimentary Individual Membership and all its privileges.

Q. Is continuing education mandatory for Certified ERPs?

A. Yes. In order to use your ERP designation, you must participate in our Continuing Professional Development (CPD) program, which requires you to earn 40 credits every two years. In general, one credit is awarded for every hour spent on a relevant educational activity.





About GARP

The Global Association of Risk Professionals (GARP) is a non-profit organization that promotes best practices in risk management through education, training, media, and events. Our programs and services address the critical need for risk education that keeps pace with a rapidly evolving industry, and provide expert knowledge and global networking opportunities to risk professionals in more than 190 countries and territories worldwide. Our certifications are the most highly respected designations in risk around the world, and our courses provide professionals with the essential knowledge they need to identify, assess, and manage risk.

2017 Energy Oversight Committee Members

- Richard Apostolik**.....Global Association of Risk Professionals
- Dr. Lawrence Austen**.....Trafigura
- Ben Baglin, ERP**.....EDF Trading
- Gordon E. Goodman**.....NRG Energy
- Dr. Vince Kaminski**.....Rice University
- Glenn Labhart, EOC Chair**.....Labhart Risk Advisors
- Alessandro Mauro**.....MKS (Switzerland) SA
- Peter O’Neill**.....Uniper Global Commodities
- Dr. John Parsons**.....Massachusetts Institute of Technology
- Michael Sell**.....Global Association of Risk Professionals
- Jonathan C. Stein**.....Hess Corporation
- Andrew Sunderman**.....Direct Energy
- Dr. Chris Strickland**.....Lacima Group
- Dr. Glen Swindle**.....Scoville Risk Partners
- Gary Taylor**.....British Petroleum

Creating a culture of risk awareness®

About GARP | The Global Association of Risk Professionals (GARP) is the leading globally recognized association dedicated to the education and certification of risk professionals, connecting members in more than 190 countries and territories. GARP's mission is to elevate the practice of risk management at all levels, setting the industry standard through education, training, media, and events.



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