ICHVAC-6

The 6th International Conference on

Heating, Ventilating and Air Conditioning

26 -28 May 2015

RIPI Conventions Center, Tehran-Iran

Conference Brochure

www.hvac-conference.ir

Organized by:

Building and Housing Research Center

Iranian Construction Engineering Organization

Tehran Polytechnic

The Iranian e-Community of Mechanical Engineers

In partnership with:

UNEP

TTMD Turkish Society of HVAC & Sanitary Engineers 1992 Turkey

GÜNDER

International Solar Energy Society Turkey Section

Supporters:

Institute of Standard and Industrial Research of Iran

Iranian Society of Consulting Engineers

Iranian Syndicate of M&E and Industrial Contractors

Iranian Combustion Institute

Event manager:

Aria Group
Conference & Exhibition Development

The 6th International Conferece on Heating, Ventilating and Air Conditioning

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Tel: (+98 21) 8871 5908-10 Fax: (+98 21) 8872 6478

Introduction

The International Conference on Heating, Ventilating and Air Conditioning is one of the premier events in Iran and neighboring countries in the field of HVAC&R industry which is being held annually in Tehran with collaboration of national and international research centers, universities, NGOs and HVAC industries.

This conference is a worthy forum for the experts from both academia and industry to exchange ideas and present the latest achievements in HVAC&R and related topics.

The organizers of the ICHVAC-6 including Building and Housing Research Center, The Iranian Construction Engineering Organization, Tehran Polytechnic University and the Iranian e-Community of Mechanical Engineers are honored to invite university researchers, industrial experts including consulting engineers, contractors and manufacturers, representatives from policy making bodies to present their scientific achievements and industrial experiences.

Conference program:

- Plenary sessions
- Keynote speeches
- Workshops
- Technical panels
- Industrial seminars
- HVAC&R exhibition

The Venue

ICHVAC-6 will take place in Research Institute of Petroleum Industries Convention Center, which is very newly built facility benefiting from modern audio/video equipment in world class halls and classrooms.

This facility encompasses 2 halls with the capacity of 750 and 280 and 4 luxurious classrooms with capacity of 80.

An exhibition area of net 600sqm, VIP lounge, parking area for over 600 cars, very easy access to domestic and international airports, hotels and bus terminals are amongst other advantages of this convention center.

The 6th International Conferece on Heating, Ventilating and Air Conditioning

Message from Chairman

Dear Colleagues:

On behalf of the Sixth International Conference on Heating, Ventilating and Air Conditioning Organizing Committee, it is my great pleasure to extend a warm invitation to you to participate in the ICHVAC-6 scheduled to be held in Tehran, Iran from 26-28 May 2015, at the Research Institute of Petroleum Industries conventions center.

The Sixth International Conference on Heating, Ventilating and Air Conditioning Organizing Committee will provide a rich platform to exchange ideas and experiences on the state of art HVAC issues by bringing plenary sessions, keynote speeches, industrial workshops and panel discussions.

This event that will be organized in close cooperation with national associations and partnership with UNEP (United Nations Environment Program) and other international bodies, will provide you a suitable climate to talk and discuss on the latest topics of HVAC&R industry.

The main programs of the conference will include but not limited to:

- Plenary sessions
- Workshops
- Technical panels
- Keynote speeches
- Recognition of achievements
- and ...

We believe that besides attending the conference, you will be able to benefit visiting and enjoying Tehran, as one of the oldest cities of the conference.

Tehran, as Iran's showcase and capital city, has a wealth of cultural attractions. The Peacock Throne can be found in Tehran's Golestan Palace. Some of the well-known museums are National Museum of Iran, Sa'dabad Palaces Complex, Glassware and Ceramics Museum of Iran, The Carpet Museum of Iran, Tehran's Underglass painting Museum, and Niavaran Palace Complex. The Tehran Museum of Contemporary Art features the works of great artists such as Van Gogh, Pablo Picasso and Andy Warhol

Tehran is also home to the Iranian Imperial Crown Jewels, also called the Imperial Crown Jewels of Persia, it is claimed to be the largest, most dazzling and valuable jewel collection in the world.

On behalf of the Organizing Committee, I would like to welcome you to the ICHVAC-6. Please join us in May 2015 and we assure you will have a wonderful time in Tehran!

With best wishes,

A. Abbassi, (Ph.D)
Professor and Conference Chairman
Amirkabir University of Technology
Mechanical Engineering Department
abbassi@aut.ac.ir

The 6th International Conferece on Heating, Ventilating and Air Conditioning

Conference Topics:

The topics to be covered in the conference technical sessions will include but not exclusively:

- New design criteria in HVAC&R
- National codes and standards in HVAC&R
- Industrial HVAC&R
- New emerging technologies in HVAC&R
- Environmentally friendly air-conditioning, cooling and refrigeration techniques
- Indoor air quality and comfort conditions
- Energy optimization
- Sustainable zero and low-energy buildings
- Application of renewable energies in HVAC&R
- Professional experiences

You are invited to submit your unpublished original papers as soon as possible but no later than full paper submission date. All papers will be peer reviewed and accepted papers would be published in conference CD-ROM. Please consult conference website for paper preparation guidelines and templates.

Important information

1- Key dates:

Full paper:

- Full paper submission deadline: 20 January 2015
- Notification of acceptance: 19 February 2015
- Final paper submission deadline: 16 March 2015

2- The language of oral presentation should be the same as that of full paper.

3- Full paper must be in the standard format of conference which is available in the conference website.

The 6th International Conferece on Heating, Ventilating and Air Conditioning

Keynote Speaker

Dr. S.A. Sherif
Professor of Mechanical and Aerospace Engineering
Founding Director, Wayne K. and Lyla L. Masur HVAC Laboratory
Director, Industrial Assessment Center
Department of Mechanical and Aerospace Engineering University of Florida

Speech topic:

Ice Fog and Frost Formation in Industrial Freezers and Ways of Combating the Problem

Field observations of the operation of industrial freezers indicate that many are improperly designed as evidenced by large amounts of snow-like formations on the freezer coil and on the walls and ceiling of the freezer itself. These formations result from the presence of ice fog inside the freezer, which is tied to the presence of supersaturated air in the freezer. This condition is more likely to exist at lower air temperatures since the moisture carrying capacity of the air is significantly reduced at those temperatures. As the moisture level rises beyond the saturation amount, the excess moisture can only exist in the form of suspended liquid droplets or suspended ice crystals, depending on whether the temperature is above or below the freezing point of water, respectively. The significance of the presence of air-borne ice crystals in the vicinity of cold surfaces is that they tend to deposit on those surfaces in a predominantly convection-driven process and at a pace commensurate with the amount and speed of the suspended particles. This mechanism is usually coupled with a diffusion-driven mechanism due to the humidity ratio difference between the bulk air and the air in the vicinity of the cold surface. Formations resulting from the convection-driven mechanism have been observed to cause degradation in the coil heat transfer performance at significantly faster rates than those formations associated with the diffusion-driven mechanism. Experimental evidence also suggests a larger defrost energy penalty in the case of accumulations associated with suspended ice crystals. This lecture reports on results of a multiyear investigation at the Wayne K. and Lyla L. Masur HVAC Laboratory at the University of Florida of industrial freezer performance under ice foggy conditions. We wanted to determine the relationship between those formations and the prevailing freezer conditions. We also wanted to search for a demarcation line between snow-like formations and the more traditional formations and to correlate the findings with those predicted using psychrometric theory. We have developed new psychrometric charts that can be used for supersaturated moist air at freezer temperatures. The new body of data generated from this study should help the refrigeration engineer and the industrial freezer operator to avoid ice foggy freezer operation and thus reduce the frequency, duration, and energy penalty of the defrost cycle.

Biography

Dr. S.A. Sherif is a tenured Professor of Mechanical and Aerospace Engineering. He is a Fellow of ASME, a Fellow of ASHRAE, an Associate Fellow of AIAA, a Member of Commission B-1 on Thermodynamics and Transfer Processes of the International Institute of Refrigeration, and a Member of the Advisory Board of Directors of the International Association for Hydrogen Energy. He is a past chair for the ASME Advanced Energy Systems Division, the Fluid Applications and Systems Technical Committee (2008-2010) of the ASME Fluids Engineering Division. He is also a past chair of ASHRAE's TC1.1 Committee on Thermodynamics and Psychrometrics (2012-2013). He was the Head of the Refrigeration Section of ASHRAE (2004-2008). He is Technical Editor of the ASME Journal of Thermal Science and Engineering Applications (2014-2019), a Subject Editor of Solar Energy (2004-present), and a Subject Editor Emeritus of the International Journal of Hydrogen Energy (2011-present). He is a member of the Editorial Boards of 18 other archival journals. He is the recipient of the E.K. Campbell Award of Merit from ASHRAE in 1997 for "outstanding service and achievement in teaching" and a "TIP" teaching award from the University of Florida in 1998. He is the recipient of the Heat Transfer Division 75th Anniversary Medal (2013), an ASHRAE Distinguished Service Award (2003), an ASHRAE Exceptional Service Award (2010) and numerous certificates of appreciation from ASME, AIAA, ASHRAE, and NASA. In 2007, he received a Superior Accomplishment Award from the University of Florida and in 2008 was elected as an ASHRAE Distinguished Lecturer. Dr. Sherif has over 400 publications and two US patents.

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General Information

Travel:

Iran Air offers a global network of flights linking Tehran with most of the major cities throughout the world. In case, you are flying from cities that Iran Air does not cover, we recommend you to check your flight schedule with Turkish Airways or Emirates.

Airport transfer:

Conference executive committee provides airport transfer for attendees arriving Imam Khomeini International Airport (IKA). You may send your flight details one week prior to your departure.

Passport and Visa:

Every foreign visitor entering Iran, must possess a valid passport and visa. Participants from countries requiring a visa entry to Iran are strongly advised to make their applications in their home countries at least one month before the intended date of travel.

However, conference executive committee will issue a formal invitation letter. The requesting party must either:

- Be an author of an accepted paper
- Have paid the advanced registration fee for the conference
- Be an exhibitor in HVAC&R exhibition

Stay accommodation

Conference organizing committee is offering special rates for Tehran's 5 and 4 star hotels. Please contact conference secretariat for more details.

Banks and currency exchange:

The currency is the Iranian Rials. Foreign currency (normally EURO and US Dollar) can be exchanged at the airport or the front desk of your hotel. There are also private foreign exchange offices throughout the city that operate between 09.00 to 17.00 hrs.

Climate:

Normally in May and June, temperature in Tehran is between 20 to 30 degrees of Celsius. More accurate weather predicts will be available on conference website, one week prior to conference.

Electricity:

The current in Iran is 220 volts and 50 Hz.

Time Zone:

Time zone of Tehran is [GMT +3.5] in Iran. Please note that weekend days are Thursdays and Fridays

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Registration Information

Registration

The conference registration fee for all THREE days includes:

- Admission to all plenary sessions and panel discussions
- Admission to workshops
- One CD-ROM of conference proceedings
- Book of abstracts
- Networking coffee breaks and lunch
- Conference exhibition entrance
- Conference welcome package
- VISA arrangement
- Travel accommodation arrangement

❶ Registration fees:

Level	Before May, 1st, 2015	After May ,1 st, 2015
3-day full delegate	Euro 300	Euro 350
Corporate delegates Min. 5 employees/guests)	Euro 250	Euro 300

You are kindly requested to fill out the following form and send it either by fax or email to the conference organizing committee. (This form can also be downloaded from conference website)

Conference Registration Form

Title	
First Name	
Family Name	
Nationality	
Passport No.	
Company	
Type of Business	
Position	
Postal Address	
City / Country	
Email	
Phone	
Cell Phone	
Fax	
I need the followings:	
Hotel reservation. Please specify the details:	
Invitation letter for visa:	
Airport transfer: (Please specify the flight details)	

Based on the decision made by conference steering committee, all registered international authors will be benefited of 2-night free accommodation at Parsian Evin 4 star hotel.

The 6th International Conferece on Heating, Ventilating and Air Conditioning

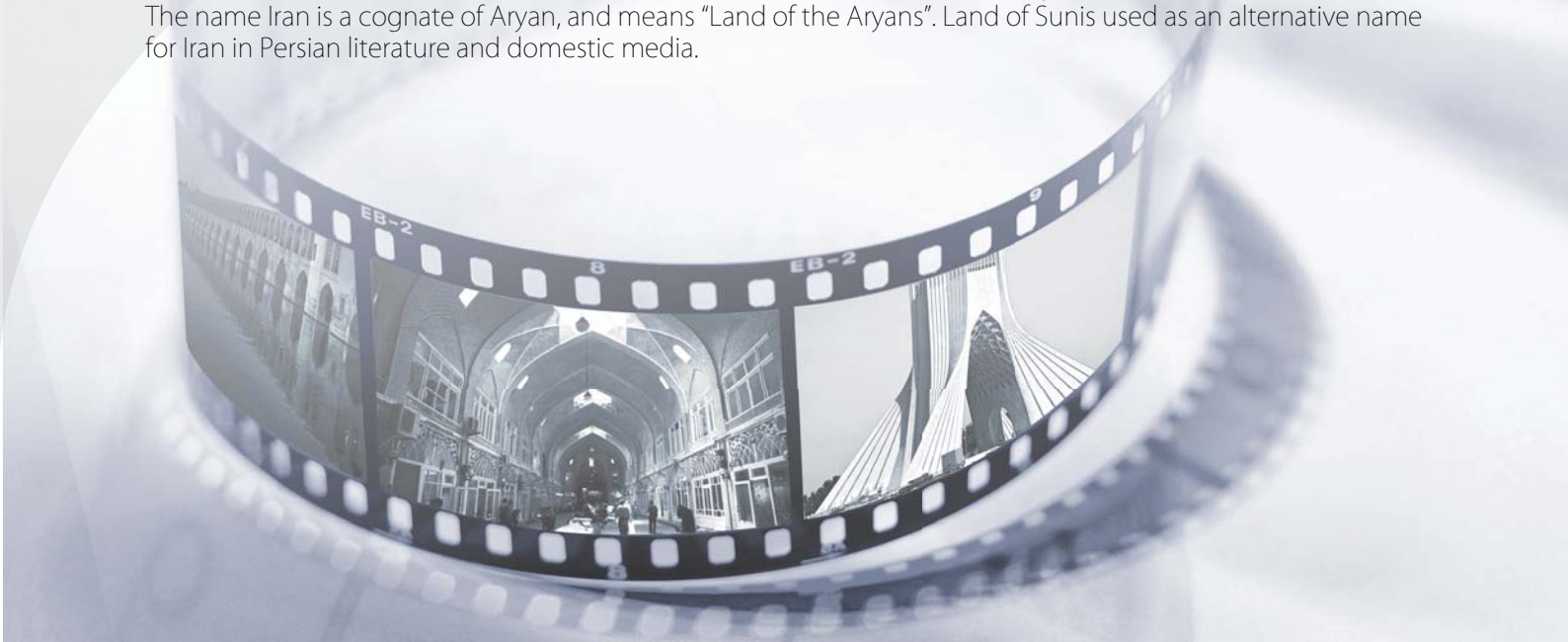
IRAN

About Iran

Persia
VISIT IRAN

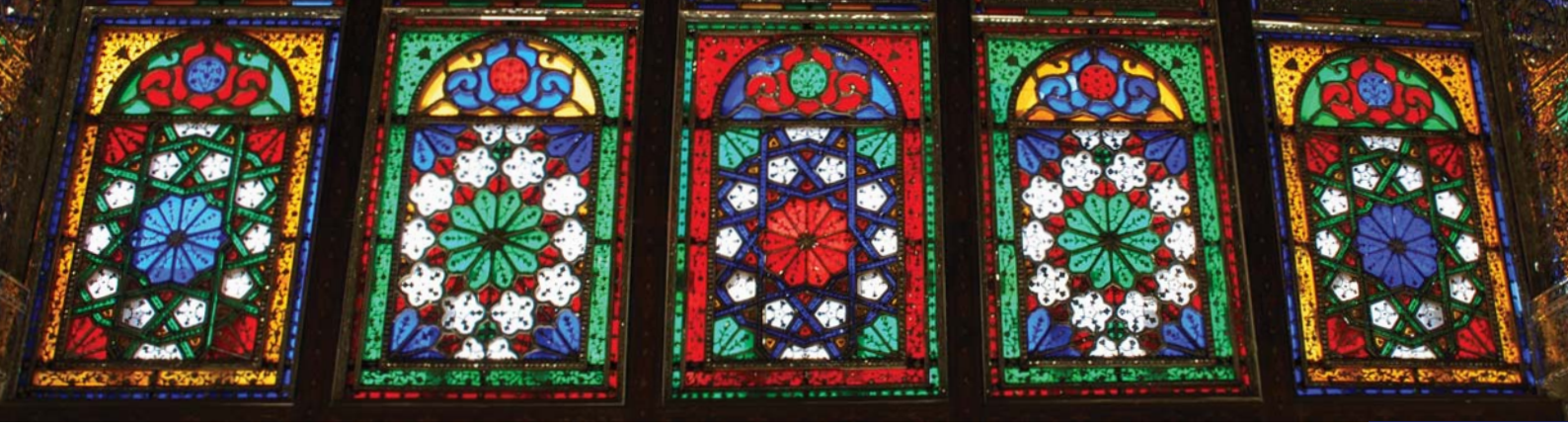
Iran also known as Persia, officially the Islamic Republic of Iran is a country in Western Asia. It is bordered on the north by Armenia, Azerbaijan and Turkmenistan, with Kazakhstan and Russia across the Caspian Sea; on the east by Afghanistan and Pakistan; on the south by the Persian Gulf and the Gulf of Oman; on the west by Iraq; and on the northwest by Turkey.

Comprising a land area of 1,648,195 km2(636,372 sq mi), Iran is the second-largest nation in the Middle East and the 18th-largest in the world; with over 77 million inhabitants, Iran is the world's 17thmost populous nation. It is the only country that has both a Caspian Sea and Indian Ocean coastline.Its area roughly equals that of the United Kingdom, France, Spain, and Germany combined, or somewhat more than the US state of Alaska.
Iran is home to one of the world's oldest civilizations, beginning with the formation of the Proto-Elamite and Elamite kingdoms between 3200 and 2800 BCE. The Iranian Medes unified the country into its first empire in 625 BCE, after which it became the dominant cultural and political power in the region
The name Iran is a cognate of Aryan, and means "Land of the Aryans". Land of Sunis used as an alternative name for Iran in Persian literature and domestic media.



Arts and literature

Iran is home to one of the richest artistic traditions in world history and encompasses many disciplines, including architecture, painting, weaving, pottery, calligraphy, metalworking and stonemasonry. Carpet-weaving is one of the most distinguished manifestations of Persian culture and art, and dates back to ancient Persia.
Persians were among the first to use mathematics, geometry, and astronomyin architecture and also have extraordinary skills in making massive domes which can be seen frequently in the structure of bazaars and mosques. This greatly inspired the architecture of Iran's neighbors as well. The main building types of classical Iranian architecture are the mosque and the palace. Besides being home to a large number of art houses and galleries, the country also holds one of the largest and most valuable jewel collections in the world.
Iran ranks seventh among countries in the world with the most archeological architectural ruins and attractions from antiquity as recognized by UNESCO. Fifteen of UNESCO's World Heritage Sites are creations of Iranian architecture.
Poetry is used in many Persian classical works, whether from literature, science, or metaphysics. Persian literature has been considered by such thinkers as Goethe as one of the four main bodies of world literature. The Persian language has produced a number of famous poets; however, only a few poets as Rumi and Omar Khayyám have surfaced among western popular readership, even though the likes of Hafiz, Saadi, Nizami, Attar, Sanai, NasirKhusraw and Jami are considered by many Iranians to be just as influential.



Education and science

Education in Iran is highly centralized. K-12 education is supervised by the Ministry of Education and higher education is under supervision of Ministry of Science and Technology. The adult literacy rate in 2008 was 85.0%, up from 36.5% in 1976.

Iran has increased its publication output nearly tenfold from 1996 through 2004, and has been ranked first in terms of output growth rate followed by China. According to SCImago, Iran could rank fourth in the world in terms of research output by 2018.

In 2009, a SUSE Linux-based HPC system made by the Aerospace Research Institute of Iran (ARI) was launched with 32 cores and now runs 96 cores. Its performance was pegged at 192 GFLOPS. Sorena 2 Robot, which was designed by engineers at University of Tehran, was unveiled in 2010. The Institute of Electrical and Electronics Engineers (IEEE) has placed the name of Surena among the five prominent robots of the world after analyzing its performance.

Iran is the 9th country to put a domestically-built satellite into orbit and the sixth to send animals in space.

In the biomedical sciences, Iran's Institute of Biochemistry and Biophysics is a UNESCO chair in biology. In late 2006, Iranian scientists successfully cloned a sheep by somatic cell nuclear transfer, at the Rouyan research Centre in Tehran. According to a study by David Morrison and Ali Khademhosseini (Harvard-MIT and Cambridge), stem cell research in Iran is amongst the top 10 in the world. Iran ranks 15thin the world in nanotechnologies.

Iran placed its domestically built satellite Omid into orbit on 2 February 2009,through Safir rocket, becoming the ninth country in the world capable of both producing a satellite and sending it into space from a domestically made launcher.

Energy

Iran has the third largest oil reserves and the world's largest natural gas reserves in the world. Iran is one of the leading members of OPEC (Organization of Petroleum Exporting Countries) and the Organization of Gas Exporting Countries (GECF). Natural gas and oil consumption both account for about half of Iran's domestic energy consumption. With its heavy dependence on oil and gas revenues Iran continues to explore for new sources of natural gas and oil.

Iran has become self-sufficient in designing, building and operating dams and power plants and it has won a good number of international bids in competition with foreign firms.

Power generation capacity of Iranian thermal power plants reached 173 terawatt hours in 2007, accounting for 17.9 percent of power production in the Middle East and African region. As a further drive toward diversification of energy sources, Iran has established wind farms in several areas.

In 2010, the Iranian government announced plans to build 2,000MW of renewable energy capacity between 2010-2015. As oat 2010, Iran had 8,500MW of hydroelectric capacity and 130MW of wind energy capacity. As at 2010, private companies had signed contracts to build more than 600MW of biomass systems and 500MW of new wind energy projects.

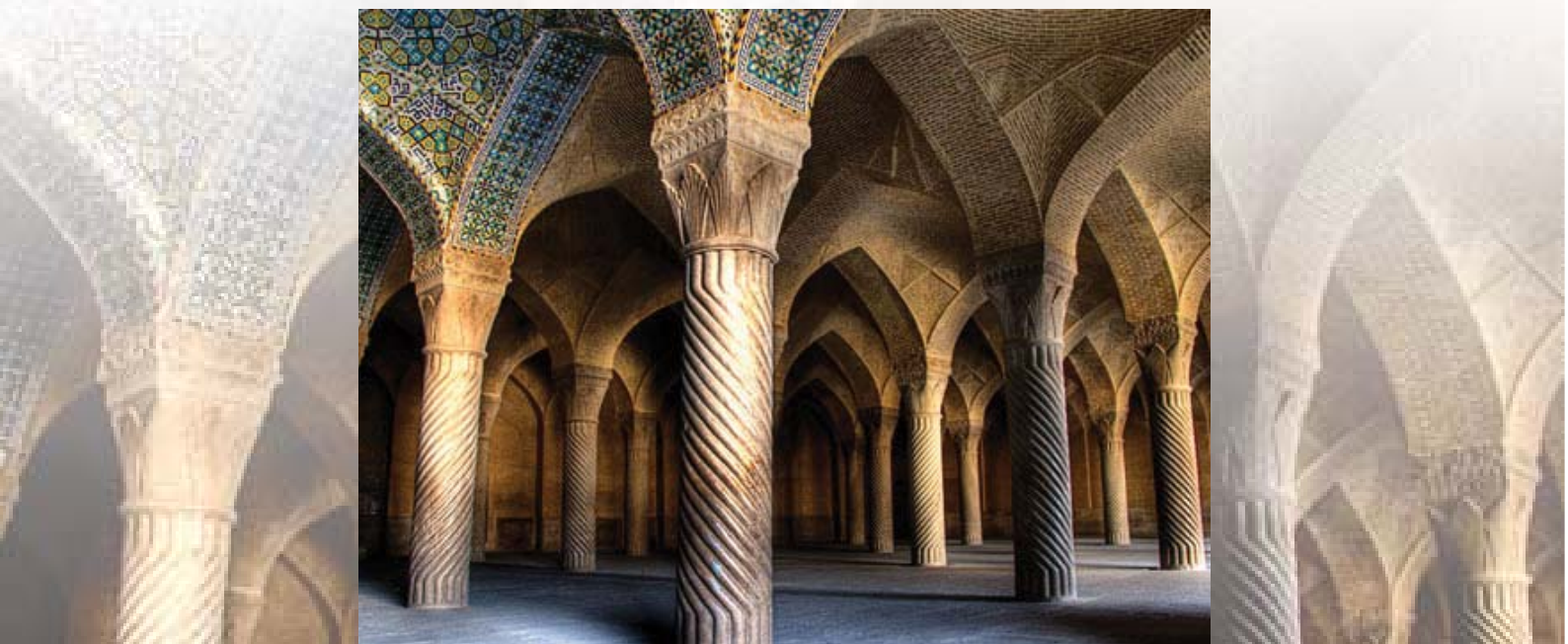
Iran's unique geographical position means 90% of the country has enough sun to generate solar power 300 days a year. Iran has 520 watts per hour per square meter of solar radiation every day. Other sources give an average of 2,200 kilowatt-hour solar radiation per square meter. Energy generated by solar power reached 53 MW in 2005 and 67 MW in 2011.

Iran has the potential to generate 20 to 30 GW of wind energy. That is half of the total energy consumption needs of the country. As at 2012 Iran had 163 wind turbines with an installed capacity of 92470 kWh.

Iran has the potential to become the 9th largest geothermal energy producer.

International rankings of Iran

Name	Rank	Out of	Source
Oldest countries on earth	1	World	Wikipedia
Science & Technology Growth Rate	1	World	Science-Metrix Report
Sovereign jewels collection	1	World	Iranian Crown Jewels
Hottest Places on Planet Earth	1	World	NASA
Number of Natural Gas Vehicles by Country	1	World	Worldwide NGV Statistics
Total hydrocarbon reserves	2	World	Oil & Gas Journal
Proven natural gas reserves	2	209	World Factbook
Proven oil reserves	3	97	World Factbook
World's largest universities by enrollment	3	World	Wikipedia
of female employment in industry	5	130	World Bank
% Primary Energy Production	6	World	International Energy Agency
Book titles published per year	7	World	United Nations
Iron production	8	World	US Geological Survey
Number of Internet Users	11	195	Internet World Stats
Telephone Lines in Use	12	100	World Factbook
World heritage sites	12	239	United Nations
Number of daily newspapers & periodicals	14	124	United Nations
Number of book titles published in applied sciences	16	99	United Nations
Steel production	16	World	World Steel Association
Aluminum production	17	World	Wikipedia
GDP (PPP)	18	193	World Bank



ICHVAC at a Glance













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ICHVAC at a Glance











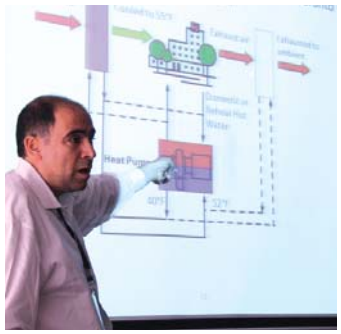

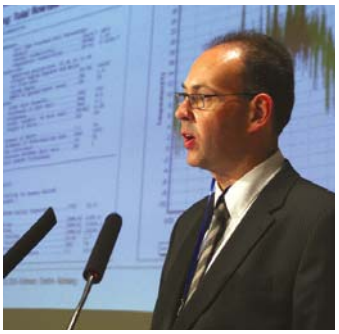

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