

# 25<sup>th.</sup> PSC 2010

International Power  
System Conference

Call for Paper



8 - 10 Nov 2010/ Tehran-Iran

IN THE NAME OF ALMIGHTY GOD



**25<sup>th</sup>** PSC 2010  
International Power  
System Conference

8-10 Nov. 2010  
Tehran- Iran

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## **Introduction**

The 25<sup>th</sup> International Power System Conference (PSC2010) has been arranged to take place on the 8-10 Nov. 2010 in Tehran. In this conference 2010 by using the experiences gained during the last two decades we will be able to cover many aspects and problems of the electric power industry in Iran. It is expected that by utilizing the established research of university researchers and experts of the electric power industry and by presenting their latest Technical and scientific findings, the conference reaches its aims.

## **Sponsors:**

PSC 2010 is sponsored by the Tavanir Co. and more than 250 other organizations including :

Scientific organizations: CIGRE IRAN, National Electric Study Committee, Electricity Research Council, Niroom Research Institute , Iranian Association of Electrical & Electronics Engineers, and Water & Power Applied Science

Universities : Amir-Kabir, Isfahan, K.N.T, Mashhad, Mazandaran, Sharif, Science & Technology, Shiraz, Semnan, Tabriz, Tarbiat-e-Modares, Tehran, Water& Power Institute of Technology, Ferdowsi, Gilan, Monash, Sistan & Baluchestan, Shahid Beheshti, Shahid Chamran, Shahid Rajaei, Yazd and Zanjan

Regional Electric Companies: Azerbaijan, Bakhtar, Isfahan, Fars, Gilan, Gharb, Hormozgan, Khorasan, Mazandaran, Tehran, Khoozestan Water & Power Authority

Consulting Engineerings: Moshanir, Ghods Niroom, Moshaver Niroom, Monenco Iran, Mahab Ghods, Mona, Tadbir Niroom

## **Conference Aims**

- i) To exchange ideas and research findings among university researchers and industry experts'
- ii) To present the latest findings of researchers and experts to the science and technology society



- iii) To establish a suitable and necessary environment for communication between universities and industry
- iv) To introduce private producers of electrical and related equipment to conference participants, with the aim of creating a healthy competition, as well as reaching higher quality products to be demonstrated in the exhibition
- v) To emphasize the role of research in improving the industry and to encourage the companies and different sectors of the electric power industry to participate in research and development Projects
- vi) To introduce the experts of the electric power industry to the managers and decision makers of the industry
- vii) To encourage suitable planning for the development of the electric power industry to create a balance between generation and consumption in economical ways
- viii) To highlight the needs for the power electric industry to comply with the needs of society, economy and the environment
- ix) To introduce the latest advanced technology of the world
- x) To coordinate researchers and experts in the field of electric power industry
- xi) To draw the attention of the electric power establishment to the necessity of the environmental protection
- xii) To establish the use of optimized energy
- xiii) To discover unknown individuals having useful potential knowledge to be used for technology improvements

### **Main subjects of the conference**

Due to the versatility of the electric power industry, the main activities of the International Power System Conference (PSC2010) will include nineteen subjects. For each subject there will be a technical committee, consisting of university professors, as well as high ranking managers from this Industry. The titles of the technical committees for the 25<sup>th</sup> International Power System Conference (PSC2010) are :



Automation and control and Instrumentation (ACI)	Environment Safety and Industrial Hygiene(ENV)	Power Quality & FACTS(PQA)
Chemistry& Metallurgy(CAM)	High Voltage Substation(HVS)	Power Transmission Lines(PTL)
Control & Protection(CAP)	Information Technology(ITP)	Renewable Energies(REN)
Dispatching & Tele-Communication(DTC)	Load & Energy Management(LEM)	Socio-Economic Studies(SEA)
Electric Machines(ELM)	Management(MNG)	Transformers(TRN)
Electric Power Generation(EPG)	Planning & System Study(PSS)	
Electric Power Market (EPM)	Power Distribution System(PDS)	

### **Intended Outcomes of Committees:**

- 1-To find experts in the relevant subject
- 2-To encourage organizations and individuals with a common object to take part in the conference
- 3-To nominate competent key note speakers , both from Iran and abroad to be introduced to the conference organizers
- 4-To find suitable Iranian and non-Iranians experts based abroad to collaborate with the technical committee of the conference in evaluating technical papers presented to the conference
- 5-To set a sound uniform standard methodology in selecting submitted papers
- 6-Selecting suitable referees from universities and industry to comment on the received papers
- 7-To select the suitable papers, judged by referees for presentation
- 8-To introduce subjects that are related to the main subjects of the conference
- 9-Planning for the presentation of high quality papers and arrangements regarding the session of the conference



- 10-Introducing of individuals and organization, as well as sending out brochures to them
- 11-Co-operation in establishing an information bank from the relevant experts
- 12-Co-operation and coordination with the conference organizers and other committees

### **Topics of each technical committee:**

#### **Automation and Control and Instrumentation**

- Automation
  - Automation in power plants
  - Substation automation
  - Application of robotics in power industry
- Instruments & Actuators
  - Sensors and instruments
  - New technologies in actuators (wireless- integrated actuators )
  - Control valves
  - New technologies in Instrumentation
- Control
  - PLC & DCS
  - Field based control systems
  - AI(Artificial Intelligence)
  - HMI(Human- Machine Interface)
  - Ergonomic and control centers
  - Control software and controllers basic software
  - Real time operating systems
  - Renovation of control systems

#### **Chemistry & Metallurgy**

- Improvement of water treatment and condense water systems
- Chemical control of water and vapor cycle and related equipment
- Industrial fuel & oil
- Painting and protecting coverage



- Corrosion in power electric industry equipment
- Life span of power electric industry equipment
- Manufacturing of material parts and equipment needed for electric power industries
- Durability improvement of electric power industry equipment
- Failure analysis of damaged equipment
- Durability control, maintenance operation & quality improvement
- Application of new technologies such as nanotechnology and biotechnology in electric power industry

### **Control & Protection**

- *Relay design and protection principles:*
  - communication in protection
  - New algorithms and software solution
  - Wide area and network protection
  - Impact of artificial intelligence
  - Wide area and network protection
  - Software quality management
  - Design and type testing
  - Impact of new sensors
  - Special protection schemes (SPS)
  - Design and application of fault locators
- *Impact of utility changes on protection:*
  - Effect of decentralized generation
  - Protection refurbishment strategies
  - Asset management of protection systems
  - Application and commissioning of relays
  - Maintenance testing strategies
  - Solution for Iran and other development countries
  - Utility experience and future requirements
  - Design and application of disturbance recorders
- *Functional integration of protection and control:*
  - Design and application of integrated systems
  - Effect of integration on reliability
  - Communication with integrated devices



- Compatibility with existing systems
- Asset management of secondary systems
- Impact advances in technology
- Effect of intranet, process Bus, LANs and WANs, etc...

### **Dispatching & Tele-Communications:**

- Data transmission in power network
- Standard protocol for data transmission
- Reliable techniques for data transmission
- Distribution Management Systems
- New generations of SCADA software
- Fault allocation in distribution and sub-transmission networks
- Substation automation
- Power application software(PAS) functions in power dispatching centers
- Tele-control system for various voltage level in power networks
- Load Dispatching Center (LDC) function
- Regional Dispatch Center (RDC) function
- Area Operating Center (AOC) function
- System Control Center(SCC) function
- Dispatching hierarchy in power network
- Power control central function in deregulated power networks

### **Electric Machines**

- Design, analysis and modeling of rotating machines
- Steady state, transient and dynamic modeling of rotating machines
- Design and optimization of turbo and hydro turbine generators and related construction technologies
- Design and optimization of low and high voltage three phase motors and related construction technologies
- Design and optimization of high speed generators (Micro-Generators) and related construction technologies
- Design and optimization of power former and related construction technologies



- Design and optimization of new electric machines applicable in power network and related construction technologies
- Operation & maintenance
- Condition/ risk based maintenance
- Condition monitoring and fault diagnostic techniques
- Life-cycle assessment
- Correction techniques of corrigible defects
- Power generator upgrading & rehabilitation
- New techniques on routine & type tests
- Effects of system demands and conditions on electric machines (for example load cycling, network, faults, harmonics, stability...)

### **Electric Power Generation**

- Power Generation and efficiency improvement
- Optimal Selection of wet cooling system of power plant aiming at reduction of water consumption.
- The effect of type of fuel on power plants performance with due consideration on techno-economical and environmental aspects of electric power generation
- Reduction of energy consumption in power plant auxiliaries
- New approaches (or advanced methods) in power plant fault diagnosis
- Theoretical and experimental analysis of events and remarkable case studies on specific power plant
- Case studies about modeling and simulation of power plant systems and equipment, performance analysis and the interaction of systems on each other
- Optimum design, manufacturing and operation & maintenance of power plant systems and equipment
- Determination of optimum type of power plants
- Advanced methods of data acquisition in power plants and data analysis for maintenance improvement
- Cogeneration in power plants
- Technical assessment of various methods of electric energy storage
- Feasibility study of small power generators usage in power network
- Environmental aspects of power plants



- Investigation about the quality of maintenance in electric power generation units
- Dispersed power generation
- Other relevant topics

### **Electric Power Market(EPM)**

- Electricity Market Regulations
- Electricity Market Monitoring
- Technical issues in Electricity Market
- Electricity Market and software
- Electricity Market participants interactions
- Electricity Market structure
- Electricity Market process modifications
- Electricity Market and distributed generation
- Educational requirements of Electricity Market participants

### **Environment, Safety & Industrial Hygiene**

- To investigate environmental problems and difficulties that the electric industry may face
- Introduction of all research done to improve the situation of proliferate the knowledge of reducing pollutants
- Motivate the electric industry management to be more concerned about safety and health of their personnel
- Air pollution and its control
- Waste management, its control and reuse
- Prevention of soil pollution
- Control of adverse effects of electric power generation on marine environment
- Prevention of thermal pollutions
- Controlling noise pollution
- Mitigation of non ionizing radiation
- Effects of electromagnetic fields on human health
- Environmental Impact Assessments of power plants(EIA)
- Safety and health of man power in electric industry



- How to prevent accidents and make a safe environment in this industry
- Electric shocks and ways of prevention
- Recycling in power industry
- Technologies for environmental protection in power industry
- Other topics related to environmental issues in electric industry

### **High Voltage Substation**

- Development, retrofit and lifetime extension of high voltage equipment
- New methods of insulation degradation assessment
- High voltage transient phenomenon and its effects on electrical equipment
- On- line assessment and selection of lightning arresters
- Insulation coordination and protection of equipment from high voltage transient
- Effect of opening and closing of circuit breakers on measuring and protection systems
- Electromagnetic field analysis on performance of high voltage equipment
- Development of Ferro-resonance phenomenon and its effect on electrical equipment
- Design of compact high voltage substation
- Earthing system of high voltage substation and development of related software
- Noise and audio pollution assessment in high voltage substation
- New trends in instrument transformers technology
- System of internal power supply in high voltage substation
- Application and fault current limiting technologies
- Life cycle assessment of electrical insulation

### **Information technology**

- IT role in giving optimized services to electricity subscribers and satisfying their needs
- Industrial automation in power industry
- ICT role in various sectors of power industry



- The role and position of IT in decentralization, deregulation, and privatization
- E-commerce application in power industry
- Key factors in providing structure for optimal utilization of IT (infra-structural-cultural-educational)
- The role of IT in employee's training (E-learning)
- Application of " Smart-card" systems in the electricity industry
- Communication networks, internet and intranet
- The role of IT in strategic planning for various "Line" and "Staff" organizations of power industry
- The role of IT in improving efficiency and reorganization
- Customer care and billing
- Enhanced operation via information system
- Network based control and operation at power system
- Service level agreement

### **Load & Energy Management**

- Fuel Management in electrical energy generation through efficiency improvement of the power plant and co-generation
- The bulk storage of electrical energy, the latest technological development in pump storage
- Ways of reducing self-consumption in power plants
- Advanced methods of load and energy forecast
- Optimal power plant mix in respect to the electrical energy consumption pattern of the country
- Loss reduction in transmission networks
- Loss reduction in distribution network
- Ways of controlling electrical energy consumption
- Load and energy management in large industries
- The latest technological development toward increasing the efficiency of electrical appliance
- The most effective ways of public education for optimal use of electrical energy
- Tariff structuring and its effects on electrical energy consumption



## **Management**

- Strategic management : l, g Strategic planning & policy making
- Project management in electric power industry
- Human resources management including top manager's performance evaluation as well as the evaluation of personnel's performance , training and development effectiveness, career path, manpower planning, etc...
- Organizational behavior management( Factors affecting on personnel motivation, job satisfaction, improvement, organization culture and its effect on performance, quality of work life).
- Operational and productivity management(Effective factors on energy downfall and water and power consumption, optimizing maintenance process, maintenance planning).
- Quality and productivity management and the evaluation of organizational performance (Practical solutions for total quality, suggestion systems, quality assurance, evaluation patterns, organizational performance, factors affecting on personnel productivity and costumer satisfaction) .
- Information systems management (Evaluation information needs, information technology and information era).
- Technology management in electric power industry

## **Planning & System Studies**

- Improving power system stability & reliability
- Energy consumption forecast regarding economic crisis
- Advanced methods for selecting type and capacity of new power plants
- Reducing electrical transmission and sub-transmission short circuit levels and anticipating their saturation level
- Reliability of electrical equipment
- Rural and remote area electrification
- Criteria for electrical network and power plant planning
- Reducing power losses in electrical networks
- Optimal power factor determination by considering various parameters
- Merits & demerits for utilizing series and shunt capacitors in electrical networks for increasing transmission capacity



- Aging of electrical installations and equipments
- Replacing electrical energy with renewable energies in heating and cooling systems

### **Power Distribution System**

- Distribution system designing and development
- Distribution system operation and maintenance
- Distribution system for supplying subways
- Distribution systems equipment
- Electricity tariffs in distribution systems
- Distribution system philosophies
- Computer application in distribution system operation and design
- Distribution system automation
- Protection and measurement in distribution systems
- Application of "DFACTS" in distribution systems
- Power Quality in distribution systems
- Energy and power losses in distribution systems
- load modeling and load forecasting in distribution systems
- Standardization of distribution substations and networks
- Restructuring in distribution systems
- Inspection and quality control in distribution systems
- Customer services in distribution systems
- Other related subjects

### **Power Quality & FACTS**

- Power quality standards, definitions and regulations
- Power quality monitoring
- Analysis of voltage and current distortion in utilities:*
  - Harmonics
  - Inter harmonics
  - Flicker,...
  - Case studies in industries and utilities
- Effects of poor power quality on:*
  - Linear & non-linear loads
  - Power system equipment
  - Industrial products



- Medical & sensitive loads
- Reactive power compensators in non-sinusoidal situations
- Power quality improvement techniques*
  - Filtering(AF,HF)
  - A pLC
  - UPQC...
  - Power electronics applications in power systems
  - UPFC
  - SVC
  - Static phase shifter
  - FACTS & custom power
- *Customer satisfaction*
  - Power quality service level agreement
  - Power quality dispute(customer & utilities)

### **Power Transmission Lines**

- Application of modern system in transmission networks
- Application of advanced equipment for improvement of transmission systems
- New design of transmission systems for loss reduction, current capacity increase, reduction of right of way and environmental impacts
- Application of compensators in quality of transmission systems and the latest innovations for supply of these equipment
- Methods of pricing for Iran-countries energy exchanges
- Suitable interconnection between neighboring countries
- Comparison of HVAC for interconnection systems
- Prolongation of construction of the transmission system and related subordinate payments and its comparison with the international standards
- Up-rating the existing transmission systems
- Performance of new equipment for transmission lines
- Optimum operation of power transmission lines
- Emergency tower and it's application
- Optimum design of transmission lines for reducing the costs and easy constructed



- Innovation and development of modern software to design and operate power transmission networks
- Installation coordination and design on insulators
- Determination of risk of failure for transmission lines
- National standards for safety during maintenance
- Principles and instruction for construction of OPGW in overhead transmission lines
- Calculation of reliability for transmission lines
- National codes for electrical and mechanical loading in transmission lines

### **Renewable Energies**

- Policy issues and strategies for application of renewable energies
- Rural application of renewable energies
- Photovoltaic systems
- Solar thermal power plant
- Wind energy
- Wave and ocean energy
- Geothermal energy
- Fuel cell systems
- Biomass energy / biogas energy
- Energy storage
- Hydrogen technology
- Small hydropower
- Solar Pond

### **Socio- Economic Studies**

- Electric power economy and environment
- Investment and financing
- Restructuring(property pattern, privatization, deregulation)
- Productivity and economic efficiency
- Electricity pricing and tariff
- Planning
- Export, import & transit of electricity
- The socio-economical costs of electric power cuts and illegal utilization of electricity.



- Electric power market and power exchanges
- The socio-economic & legal aspects of electrification
- Globalization and electric power industry
- Justice and electric power industry
- A purposeful subsidization

### **Transformers**

- Transformer design methods and optimization problems
- Manufacturing process and difficulties encountered in this respect
- Problems associated with operation and optimal rating
- Transportation, installation and commissioning
- Monitoring and diagnostic
- Maintenance and repair techniques
- Audible noise and vibration
- Bushings
- Insulation and dielectric problems relating to transformers
- Dry-type transformers
- FACT and HVDC converter transformers
- Smoothing and conventional reactors
- Insulation life assessment
- Current and voltage transformers
- Performance Characteristic
- Standards
- Grounding transformers
- Phase Shifting transformers
- Underground transformers
- Other relevant aspects

### **Exhibition, Seminars & Technical Forums:**

Along with the 25<sup>th</sup> International Power System Conference, an exhibition, which is one of the largest power industry displays ever held in Iran, will highlight the latest technologies offered by approximately 200 plus companies from throughout the world.



The PSC2010 workshop has served clients in consulting, publishing, communications, manufacturing, public relations, as well as a range of other industries. This workshop provides clients with a wide range of products and services designed to integrate with a cohesive branding and marketing effort. The project involves working with the electric workshop management team develop, a business plan to identify the thematic content of the electric power industry.

Combining the International Power System Conference , the exhibition and the workshops, the conference will offer seminars that will present and discuss new technologies.

Many organizations and industrial groups will be holding technical forum, seminars, membership meeting and individual companies will use this opportunity to hold internal meetings for the power plant managers, energy traders, and present environmental executives.

### **General Information:**

Final date for submitting full papers is Sep.15,2010

Final notification of acceptance/ rejection : Oct. 1,2010

Papers will be evaluated in relevant technical committees according to their subjects area.

### **Registration:**

- Registration fee for PSC2010 is \$ 500 U.S
- Students of M.S. and Ph.D programs will receive a discount of %70
- Authors of accepted papers are exempt from registration fee
- Foreign participants require entry visa to I.R of Iran
- Visa application shall be submitted before 5,Oct. 2010

### **Accommodation:**

Hotel reservation can be made through PSC secretariat upon written



request . Hotel rates vary from \$50 to \$200 U.S. per night.

**Tours:**

Several tours are available during the conference for delegates and their spouses upon request. Detailed information will be sent to registered participants.

**Latitude:**

Tehran is the capital and largest city of Iran, and the administrative center of Tehran Province. Tehran is a sprawling city at the foot of the Alborz mountain range with an immense network of highways unparalleled in Western Asia. Tehran is famous for its numerous ski resorts on the Alborz slopes, large museums, art centers, and palace complexes. Tehran is the second largest city in the Middle East and is the second most populated city in South Western Asia with a population of 7,404,515 and approximately 15 million in Greater Tehran.

Most Iranian industries are headquartered in Tehran. The industries include the manufacturing of automobiles, electrical equipment, military weaponry, textiles, sugar, cement, and chemical products. It is also a leading center for the sale of carpets and furniture. There is also an oil refinery located in south of the city.

In the 20th century, Tehran faced a large migration of people from all around Iran. Today, the city contains various religious minorities, and has many historic mosques, churches, synagogues and Zoroastrian fire temples.

For more information please refer to the following sites:  
<http://en.wikipedia.org/wiki/Tehran> & [www.itto.org](http://www.itto.org)

**Instruction for paper submission:**

1-Papers must contain new scientific issues or at least present some



useful solutions to current problems in the fields of design, operation & maintenance.

2-Papers should not contain any commercial & company advertisements.

3-Full papers should be typed on A4 size 21\*29.7 cm. form sheets and maximum 12 pages, including diagrams, photos, etc...

4-All tables, formulas, etc... should be clearly typed and should be of good quality for clear reproduction

5-Papers are expected to contain: the title, the name(s) of author(s), the organization name(s) , name of the country(s), 5 keywords, abstract, introduction, conclusion & references.

6-Papers should be presented either in English or Persian

7-For more information about typing form please refer to our website :

[www.psc-ir.com](http://www.psc-ir.com)

<b>Font Direction</b>	<b>Font</b>	<b>Size</b>
Title(heading of the article)	Times New Roman	15 Bold
Author's name, organization, country	Times New Roman	12
Keywords	Times New Roman	12
subtitles	Times New Roman	12 Bold
Footnotes of tables, diagram & illustrations	Times New Roman	10 Bold
Table's texts	Times New Roman	10
Formulas	Times New Roman	12
Main texts	Times New Roman	12



Figure 1- First Page

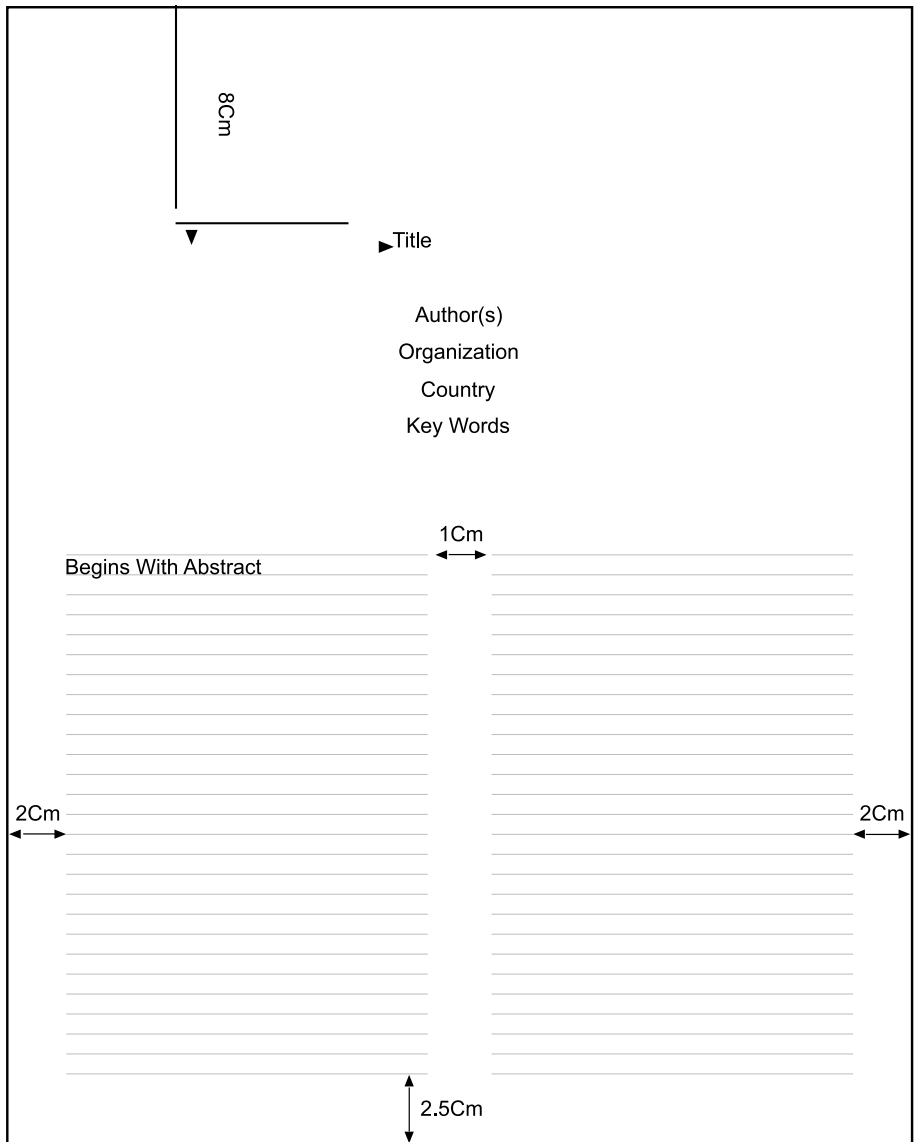




Figure 2- OtherPages

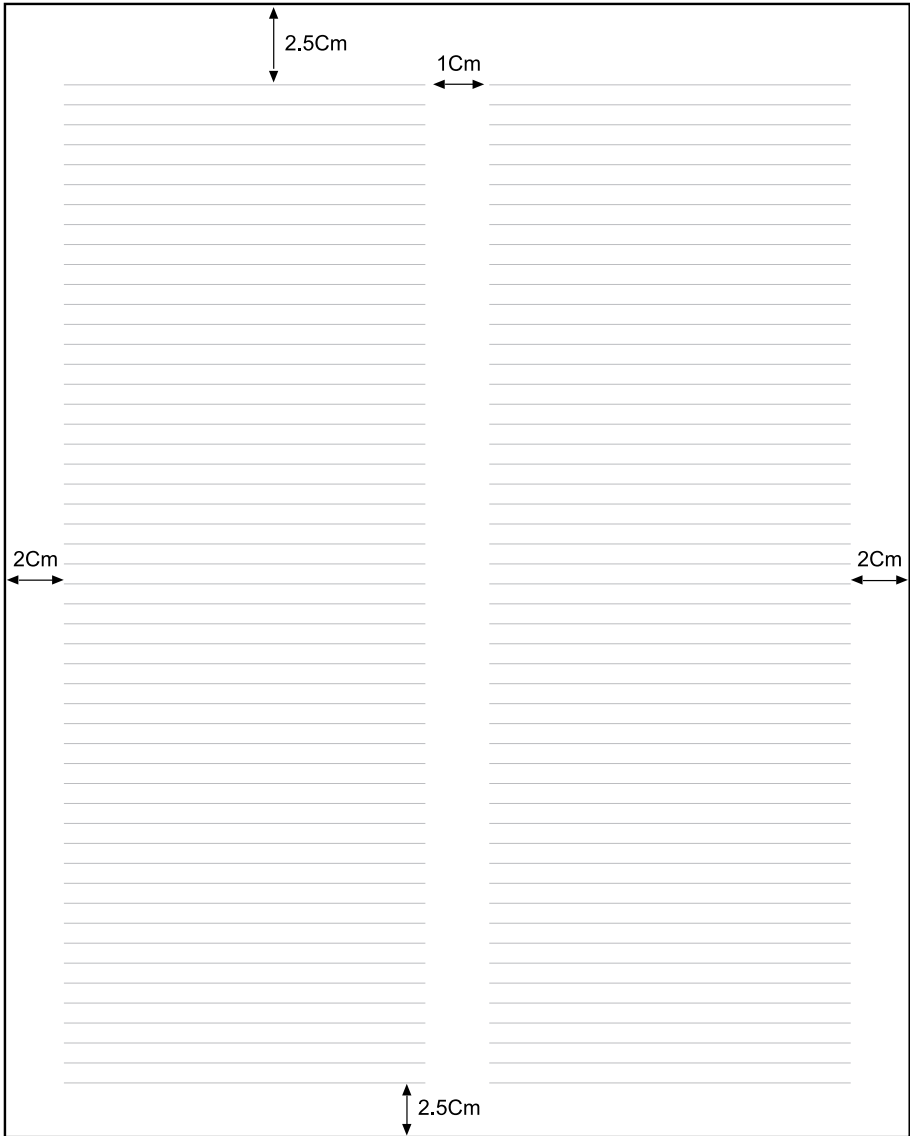




Figure 3- Abstract

The diagram shows a rectangular form for an abstract. At the top left, a vertical line is labeled "8Cm". Below it, a horizontal line is labeled "Title" with a right-pointing arrowhead. Below the "Title" line, the following text is centered: "Author(s)", "Organization", "Country", and "Key Words". Below this text is a series of horizontal lines for writing. On the left side, a double-headed arrow indicates a width of "2Cm". On the right side, a double-headed arrow indicates a width of "2Cm". At the bottom center, a vertical double-headed arrow indicates a height of "2.5Cm".