

# Inheriting the Geological Spirit and Practicing the "Three Earnests and Four Stricts": The Mission, Responsibility and Practical Path of Youth in the New Era for Serving the Country Through Energy

## -- An Exploration and Reflection from the Perspective of Youth at Southwest Petroleum University

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### ABSTRACT

Against the backdrop of the new era, the realization of energy security and the "dual carbon" goals urgently requires the youth generation to take "serving the country through energy" as their mission and responsibility, and deeply integrate the geological spirit with the concept of the "Three Earnests and Four Stricts". Based on the school history of Southwest Petroleum University and combined with typical cases in the energy industry, this paper systematically expounds the internal logic and contemporary value of the geological spirit (hard work, seeking truth from facts, pioneering and innovating, and selfless dedication) and the "Three Earnests and Four Stricts" (to be an honest person, speak the truth, do practical things; strict requirements, strict organization, serious attitude, and strict discipline). It puts forward the practical paths for the youth in energy technology innovation, green transformation, and international cooperation. Through theoretical analysis and practical cases, it demonstrates the feasibility of the youth taking the "Three Earnests and Four Stricts" as the code of conduct and the geological spirit as the spiritual core, providing a reference for the cultivation of energy talents in colleges and universities in the new era.

### KEYWORDS

Geological Spirit; Three Earnests and Four Stricts; Serving the Country Through Energy; Youth Mission; Southwest Petroleum University.

## 1. INTRODUCTION

### Serving the Country Through Energy - The Historical Mission of Youth in the New Era

Energy is the lifeblood of a country and the strategic cornerstone of national security and development. Currently, the global energy pattern is undergoing accelerated restructuring, and China's energy security is facing multiple challenges such as increasing resource constraints, pressure for green transformation, and complicated international competition. The report of the 20th National Congress of the Communist Party of China clearly states that "we will further advance the energy revolution" and "ensure the security of energy resources", which endows the youth generation with a new historical mission. As a cradle for cultivating talents in the energy field, Southwest Petroleum University has always integrated the geological spirit of "refueling for the motherland and striving for the nation's honor" into its talent cultivation practice. From the birth of the "Three Earnests and

Four Stricts" spirit in Daqing Oilfield to the breakthroughs made by students of Southwest Petroleum University in shale gas development and deep-sea exploration, serving the country through energy has always been the core proposition for the youth to keep in step with the times.

## **2. CONNOTATIVE COUPLING AND CONTEMPORARY VALUE OF THE GEOLOGICAL SPIRIT AND THE "THREE EARNESTS AND FOUR STRICTS"**

### **2.1. Geological Spirit: The Spiritual Core of Serving the Country Through Energy**

**Hard Work: The Dedicative Character of Taking Root at the Frontline**

The core of the geological spirit is "taking the earth as a book and mountains and rivers as classrooms". From the Sichuan Oil Campaign in the 1950s to the development of shale gas in Sichuan and Chongqing, generations of people from Southwest Petroleum University have taken the "Iron Man Spirit" as a model and written energy legends in the vast wilderness and Gobi deserts. For example, Wang [1], an alumnus, led his team to overcome the difficulties in ultra-deep well drilling in the Tarim Oilfield and set a record for the deepest onshore oil and gas well in Asia.

**Seeking Truth from Facts: The Rigorous Attitude in Scientific Exploration**

Geological work takes data as its lifeline and emphasizes that "there is no right to speak without investigation". The "Complex Oil and Gas Reservoir Exploration and Development" team of Southwest Petroleum University has accumulated data for decades and established the world's first seepage theory model for tight oil and gas reservoirs, supporting China's unconventional oil and gas development technology to rank among the world's leading levels.

**Pioneering and Innovating: The Breakthrough Spirit in Technological Tackling**

From traditional oil and gas to new energy, the geological spirit has always been accompanied by innovation. In 2022, the team led by Professor Li [2], a young professor of the university, developed an "intelligent drilling robot" that broke through the technical bottleneck of deep-sea exploration and won the second prize of the National Technology Invention Award.

**Selfless Dedication: The Value Choice of Serving the Country**

In the winter natural gas supply guarantee project in Sichuan and Chongqing, the youth commando of Southwest Petroleum University has been stationed at the frontline for three consecutive years to ensure that tens of millions of residents live through the winter warmly, interpreting the responsibility of "where the motherland needs, there is my hometown".

### **2.2. "Three Earnests and Four Stricts": The Code of Conduct for Serving the Country Through Energy**

**"Three Earnests" Shaping Character: The Moral Bottom Line of Energy Workers**

**To Be an Honest Person**

Adhere to the bottom line of integrity. For example, the Experimental Center of Southwest Petroleum University strictly implements the "zero tampering" system for data to provide a true basis for scientific research.

**To Speak the Truth**

In putting forward suggestions on energy policies, young scholars have the courage to expose the drawbacks of the "output-only theory" and promote the transformation of the industry towards high-quality development.

## To Do Practical Things

Zhang [3], an alumnus, has taken root in the Xinjiang Oilfield for 20 years and led his team to increase the oil recovery rate from 35% to 52%, practicing the belief of "success does not have to be achieved by me" through actions.

### "Four Stricts" Strengthening Style: The Institutional Guarantee for Energy Security

#### Strict Requirements

Benchmarking against international advanced technical standards, such as the "millimeter-level" fracturing precision control in shale gas development.

#### Strict Organization

In the trial production project of combustible ice in the South China Sea, multi-disciplinary youth teams collaborated to achieve the leap from the "laboratory" to "industrialization".

#### Serious Attitude

A young technician in an oilfield insisted on stopping work for inspection after discovering abnormal data, avoiding a major safety accident and demonstrating the professional ethics of respecting life.

#### Strict Discipline

Southwest Petroleum University has jointly built a "Safety Production Training Base" with enterprises, incorporated safety standards into compulsory courses, and strengthened the awareness of the red line.

## 2.3. Unity of Spirit and Action

The geological spirit provides value guidance for the youth, and the "Three Earnests and Four Stricts" provides methodological support for practice. Together, they form a closed loop of "knowledge" and "action". For example, in the Western Sichuan Photovoltaic Poverty Alleviation Project, the youth team not only overcame the high-altitude construction difficulties with the geological spirit but also ensured zero accidents in the project with the "Four Stricts" standards, achieving a win-win situation of ecological benefits and people's livelihood improvement.

## 3. PRACTICAL PATHS FOR YOUTH IN THE NEW ERA TO PRACTICE SERVING THE COUNTRY THROUGH ENERGY

### 3.1. Taking Root at the Frontline: Tempering the Character of the "Energy Iron Army" Through Hard Work

#### From Classroom to Oilfield: Innovation in Practical Talent Cultivation Mechanism

Southwest Petroleum University has implemented the "oilfield on-site teaching" model, moving courses such as drilling engineering and oil and gas storage and transportation to the operation site. In the past three years, more than 1,000 students have completed their graduation designs in the Tarim and Changqing Oilfields, and 80% of them have chosen to take root in the western energy frontline.

#### Safeguarding Safety Production with the "Four Stricts" Standards

Young technicians need to pass the "VR accident simulation training" assessment to enhance their risk prediction ability. In 2023, an intern in the Northeast Sichuan Gas Field timely discovered the hidden danger of pipeline corrosion and was awarded the "Safety Guardian" by the enterprise.

### **3.2. Technological Innovation: Driving the Energy Technology Revolution with the "Three Earnests and Four Stricts"**

#### Overcoming "Chokepoint" Technologies

Youth teams focus on cutting-edge fields such as CCUS (Carbon Capture, Utilization and Storage) and geothermal energy development. For example, the doctoral team of the university developed the "supercritical CO<sub>2</sub> oil displacement technology", which was applied in the Shengli Oilfield, increasing the oil recovery rate by 15% and reducing carbon dioxide emissions by 200,000 tons per year.

#### Rigorous Academic Research to Ensure Scientific Research Integrity

Southwest Petroleum University has established a "Scientific Research Original Data Verification Committee", requiring young scholars to make their experimental records public and eliminating academic misconduct. A young teacher took the initiative to withdraw a paper with errors and was regarded as a "model of academic integrity".

### **3.3. Green Transformation: Building a Low-Carbon Future under the Guidance of the Geological Spirit**

#### Cleaner Utilization of Traditional Energy

The "Central Sichuan Oil and Gas Field", an enterprise founded by alumni, has built China's first "zero-emission" drilling platform. Young engineers have innovated the "drilling fluid recycling system", saving 40% of water.

#### Development and Promotion of New Energy

The student association "Green Energy Association" has promoted the "photovoltaic + agriculture" model in Liangshan Prefecture, helping farmers increase their annual income by 10,000 yuan. The project won the national gold award in the "Internet +" Competition.

### **3.4. Global Vision: Demonstrating the Responsibility of Chinese Youth in International Cooperation**

#### Participating in the "the Belt and Road" Energy Cooperation

Southwest Petroleum University has jointly established the "Central Asian Oil and Gas Research Center" with Nazarbayev University in Kazakhstan. Young scholars have helped tackle technical problems in the China-Kazakhstan natural gas pipeline project, reducing gas transmission losses by 12%.

#### Telling the Story of China's Energy Well

Dr. Wang [4] refuted the "China's resource plunder theory" at an international energy forum, proved with data that the proportion of local employees in China's overseas oil and gas cooperation exceeds 90%, and his paper was published in Nature Energy.

## **4. EDUCATION EMPOWERMENT: EXPLORATION OF SOUTHWEST PETROLEUM UNIVERSITY IN CULTIVATING NEW YOUTH FOR SERVING THE COUNTRY THROUGH ENERGY**

#### Integration of Curriculum and Ideological and Political Education

The compulsory course "History of the Petroleum Industry" has been set up, with cases such as "Iron Man Wang Jinxi" and "Pioneers of Shale Gas in the New Era" throughout the teaching to strengthen the sense of mission and identity.

#### School-Enterprise Cooperative Talent Cultivation

It has jointly built the "Energy Innovation Experimental Class" with PetroChina and State Grid. The enterprise tutor system covers 100% of postgraduates, realizing "graduation and employment at the same time".

#### Role Model Leading Action

The "Annual Person of Serving the Country Through Energy" selection has been established. Huang [5], an alumnus and winner of the National May 1st Labor Medal, returned to the university to share his "18 years in the Gobi" experience, inspiring the youth's enthusiasm for serving the country.

## **5. CONCLUSION: LIGHTING UP THE ROAD OF SERVING THE COUNTRY THROUGH ENERGY WITH THE FIRE OF YOUTH**

The geological spirit and the "Three Earnests and Four Stricts" are the spiritual torches and action guides for the youth in the new era to serve the country through energy. The youth of Southwest Petroleum University should base themselves on the "Three Earnests", build their careers with the "Four Stricts", climb the peaks bravely in energy technology innovation, take the lead in green transformation, and speak confidently on the international stage. Only by integrating personal ideals into the national energy strategy can we write a youth chapter of "devoting energy to the motherland" and contribute the wisdom and strength of Chinese youth to building a community with a shared future for mankind.

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