

# ***College Students' Opinions in the City of Hiroshima for/against Restarting Nuclear Power Plants in Japan***

***1 Overview***

***2 Methods***

***3 Results***

***4 Conclusions & Implications***

***Dr. Masao TSUJIMOTO***

***Associate Professor, Faculty of Economics***

***Osaka University of Economics and Law***

***Session E-1***

***42nd Int. Conference of IAEE***

***Montreal, June 1st, 2019***

# 1 Overview (1) Main 3 Points

## 1 Results (%) - Findings:

*Favor / Oppose / No idea and Who?*

## 2 Background Factors:

*Why for / against?*

## 3 Implications:

*Freedom of Expression in classrooms*

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*The speaker does not have any intention to favor or oppose the use of nuclear energy.*

# 1 Overview (2) Purposes

**This presentation examines opinions of college students from Hiroshima regarding restarting nuclear power plants in Japan, based on their term-end essays.**

**(1) *Clarifies* the worldwide misunderstanding;**

**a majority of the Japanese have preferred the shutdown of nuclear power plants since the 2011 Earthquake.**

**(2) *Addresses* the gaps in limited prior research.**

**(3) *Attempts* to emphasize the importance of freedom of**

**expression, *which is not always assured*, in classrooms**

**for development of students' personality and electoral democracy,**

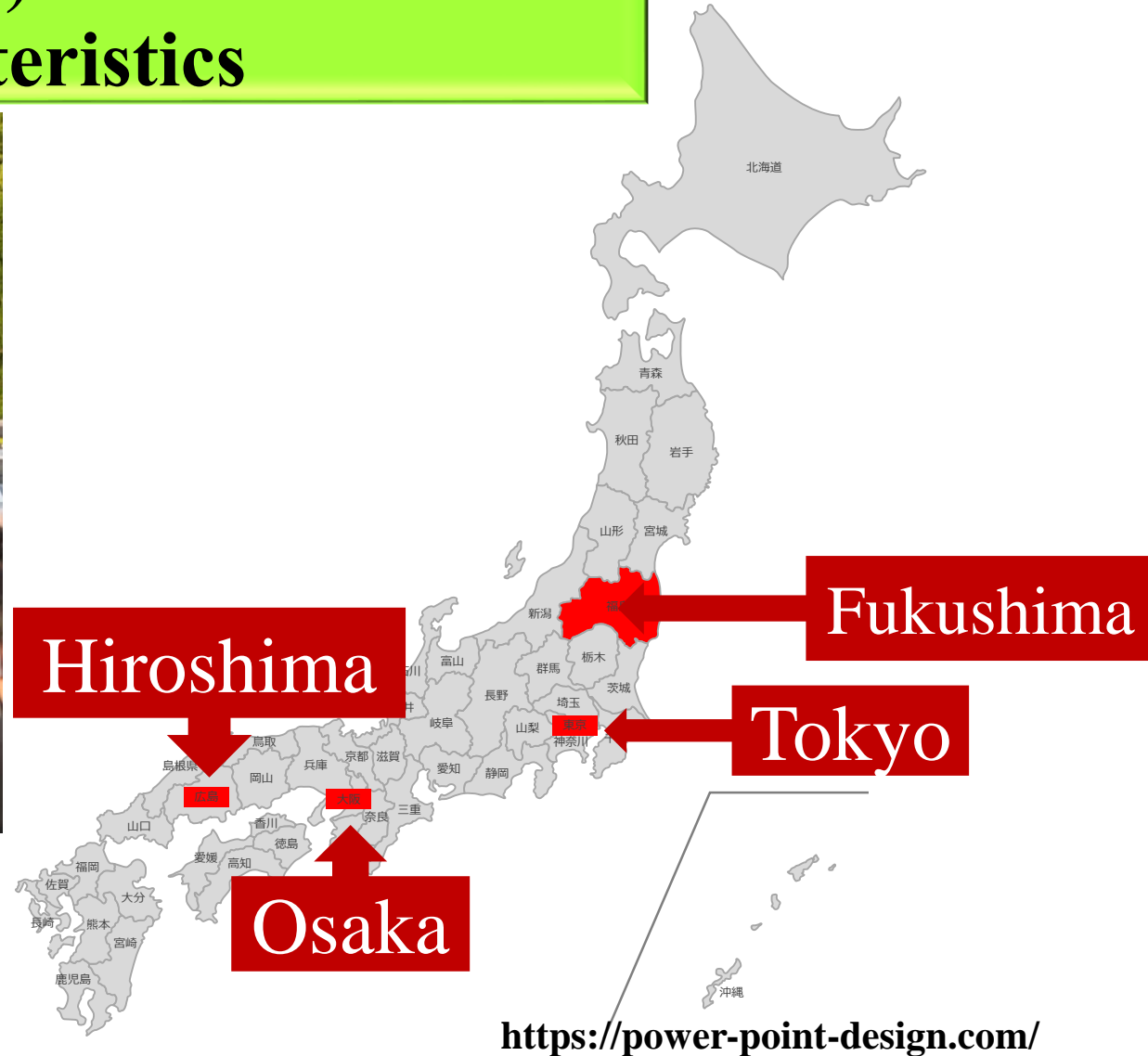
**toward establishing a sustainable society.**

# 1 Overview (3)

## Hiroshima's characteristics



**President Obama's visits to the Hiroshima Peace Memorial with PM Abe (2016/05/27)**  
(<https://www.nytimes.com>)



<https://power-point-design.com/>

## 2 Methods (1) Samples, Theme, Courses Titles

- **Samples:** 557 undergraduate students (18-24 years old) at *Hiroshima Shudo University* in the 2017 spring & fall terms
- **Essay theme:** “*Express your opinion on restarting nuclear power plants in Japan with the reasons regarding why you favor or oppose the idea*” by descriptive answers.
- **Total 4 courses - 90 minutes of each class during 15 weeks**
  - (1) **Basic:** “*Natural resources and energy issues*” and “*Introduction to environmental issues*”
  - (2) **Advanced:** “*Policy studies of natural resources and energy*” and “*Policy studies for recycling society*”

## 2 Methods (2-1) Explanation

**1 Repeatedly ensures the followings in the syllabus and classes:**

*(1) to welcome any opinion as long as it is clear and constructive,  
(2) to decide the scores based on logicity, expertise, legality, and creativity.*

**2 Explains at least twice in each class:**

*advantages, disadvantages, and worldwide trends of nuclear energy and CO<sub>2</sub> emissions, using statistical data, reports, press releases, news articles, and campaign promises of political parties as well as pictures and videos taken by the speaker himself.*

## **2 Methods (2-2) Data and Sources (summary)**

### **1 Statistical data:**

**(1) Economy: unit cost (JPY / per KWh) in each power source, cost of maintaining or decommissioning nuclear reactors, radioactive contamination damages, impacts of demand boosting on economies through employment opportunities & government subsidies,**

**(2) Environment: development of the Paris Agreement, trends of CO<sub>2</sub> emissions in Japan and the world, unit amount of CO<sub>2</sub> emissions per KWh in each power source,**

**(3) Energy security: self-sufficiency ratio of energy in Japan and the OECD countries**

### **2 Sources:**

**(1) International: EU, IAEA, World Nuclear Association;**

**(2) Domestic: government (Ministry of Environment, Agency for Natural Resources and Energy), companies (TEPCO: Tokyo Electric Power Company, Mitsubishi Heavy Industries), news media (NHK: Nippon Hoso Kyokai).**

## 2 Methods (2-3) : Mihama: A seaside town with nuclear power



**Number of staff: 1,300 × Annual Salaries: JPY 4.2 million ≐ JPY 5.5 billions**

**Economic effect: calculated by Input Output Analysis Table  
(published by the Ministry of Internal Affairs and Communications)**

**≐ JPY 9.5 billions ≐ USD 88 millions**

**Dependence rate on National Grant / Municipal Budget ≐ 20%**



## 2 Methods (3) Definition for Judgment

**Main categories: (1) *Favor*, (2) *Oppose*, and (3) *No idea***

**(1) *Favor*: Japan should maintain its dependence on nuclear energy.**

**(A) Expand: the rate should be expanded to more than 25%. **

**(B) Maintain: the rate should be maintained at around 25%. **

**(C) Decrease: the rate should be decreased to less than 25%, **

**( $\alpha$ ) and the dependence should be kept within the range of 1–24% at the maximum in the future.**

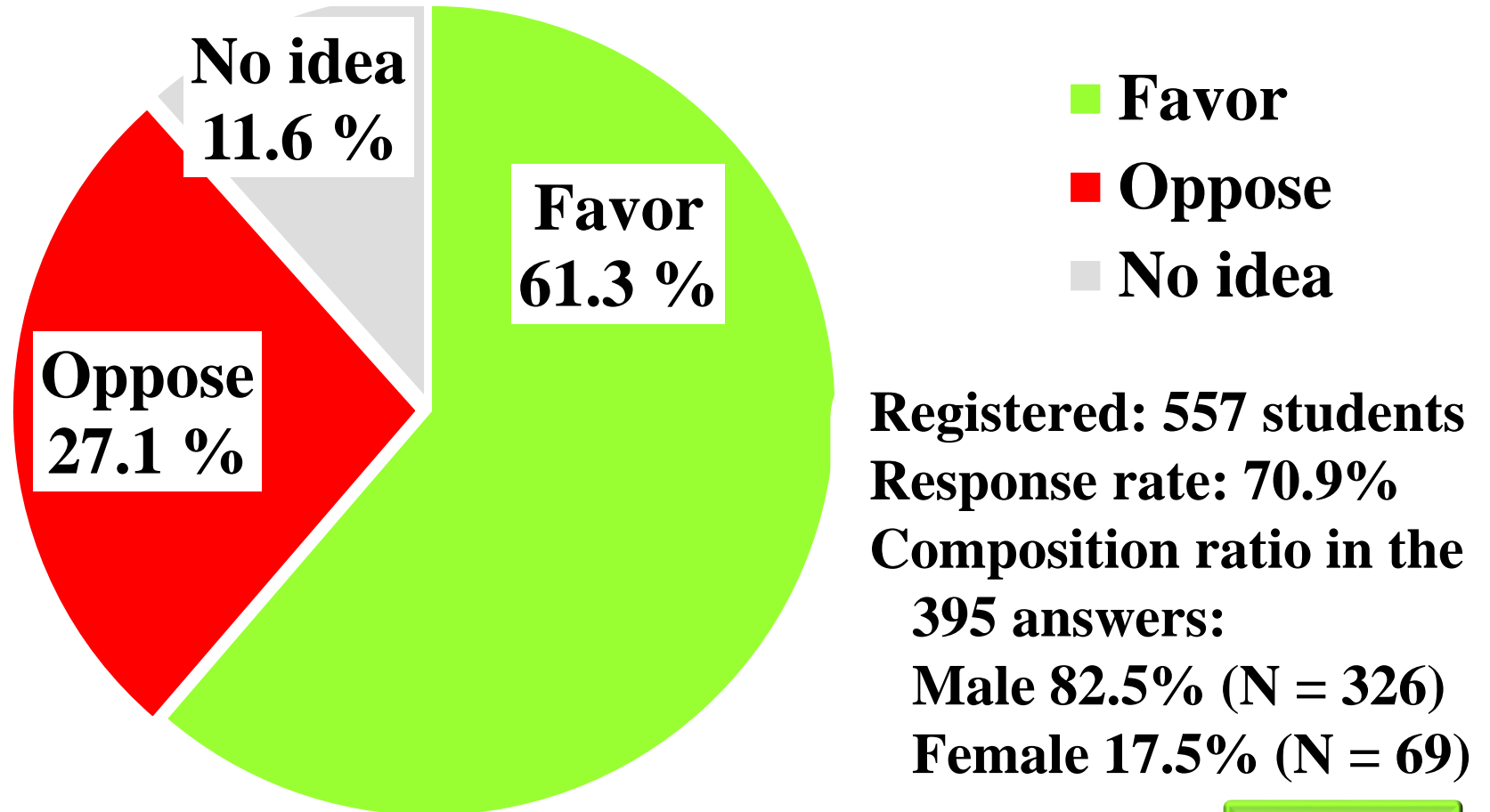
**( $\beta$ ) and the dependence should be 0% in the future when alternative energy sources are guaranteed.**

**(2) *Oppose*: Japan should immediately and completely stop the dependence by shutting down nuclear power plants in operation and totally abolishing the plants forever.**

**(3) *No idea*: “I have no idea. I cannot decide it.”**

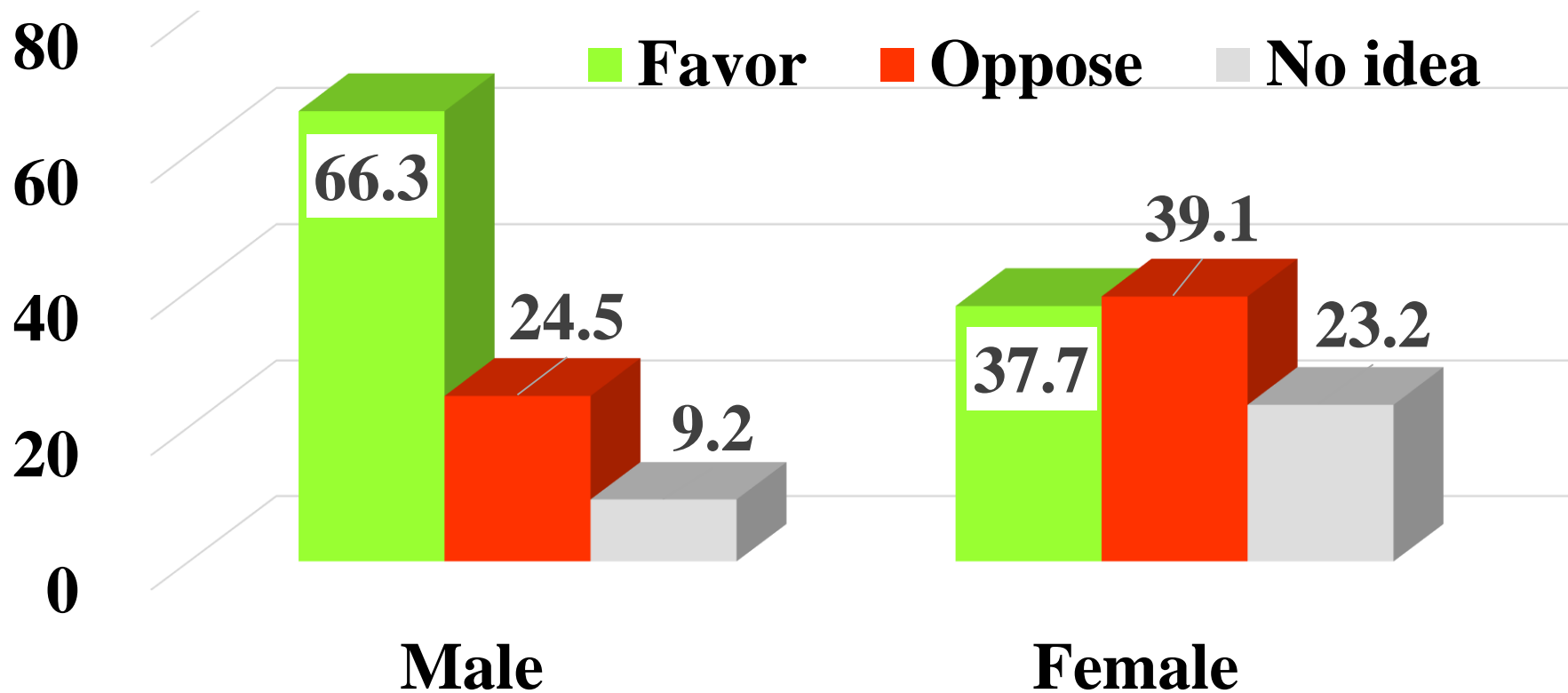
### 3 Results (1-1) Finding (1)

**Fig. 1 Breakdown (%) : Students' opinions on restarting nuclear power plants (N = 395)**



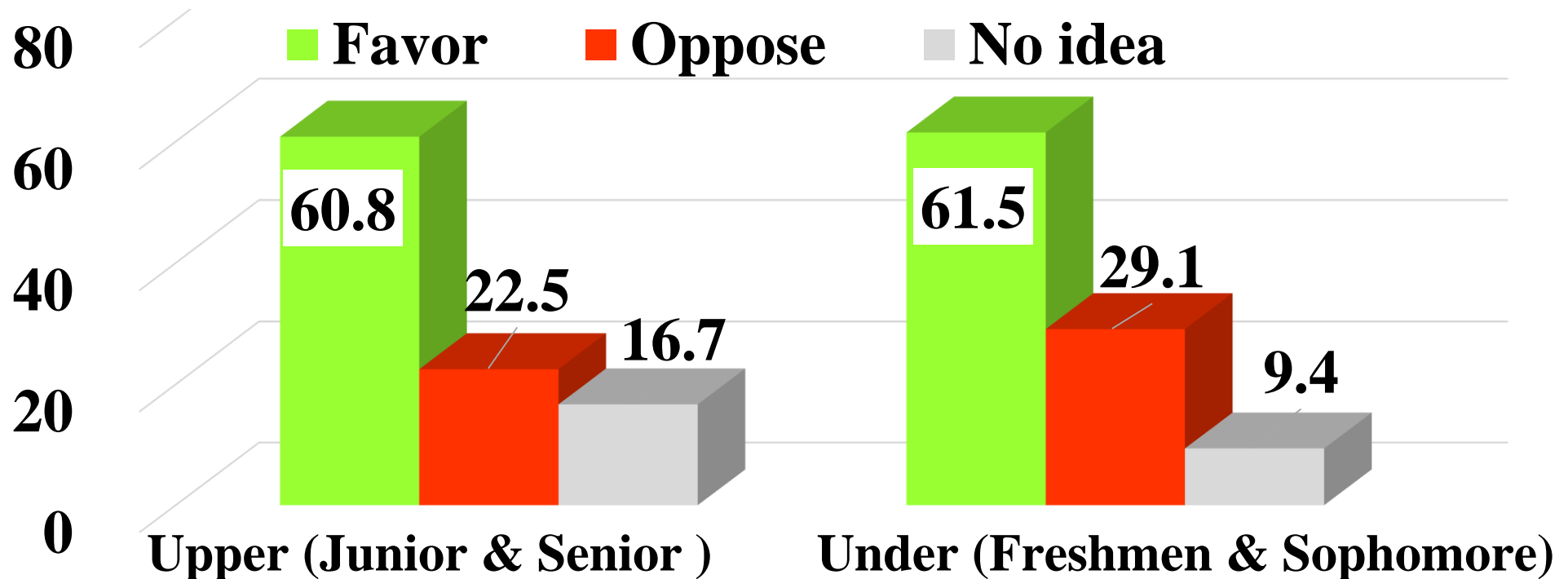
## 3 Results (1-2) Finding (2)

**Fig. 2 Breakdown (%) of Male/Female Students  
(N=395, Male: 326, Female: 69)**



### 3 Results (1-3) Finding (3)

**Fig. 3 Breakdown (%) according to Upper and Underclass Students (N=395, Upper-120, Under- 275)**



### 3 Results (2) Summary of 3 Findings

- (1) Majority (61.3%) of the students *in favor of* restarting while 27.1% “*Oppose*” and 11.6% have “*No idea.*”
- (2) **Students who “*Oppose*” are predominantly *female*.**
- (3) Rates of “*Oppose*” decrease and “*No idea*” increase among upper-grade (i.e., junior and senior) students.

\* Even though the result was adjusted to eliminate the gender-based differences in the composition ratio as if the number of both genders is 50:50, then “*Favor*” would be 51.9%, “*Oppose*” 31.9%, and “*No idea*” 16.2%.

## 3 Results (3) Background Factors

Students who

- ***“Favor”*** (61.3%) emphasize importance of economic & employment impacts
- ***“Oppose”*** (27.1%) are mainly concerned about risks and damages of radioactive contamination
- ***“No idea”*** (11.6%) tend to confess their difficulty in deciding.

### 3 Results (4-1): Students' Opinions - Favor

#### 試験用紙

2017年度前期試験

2017年07月31日 (月曜26時限) 施行

| 科目       | 科目担当者 | 履修者数 | 時間  |
|----------|-------|------|-----|
| 資源とエネルギー | 辻本 政雄 | 117人 | 60分 |

|     |    |
|-----|----|
| 参照物 | 不可 |
|-----|----|

以下より1問を選択し、解答せよ。

1 電力改革と私の大学生生活 2 原発再稼働と私の大学生生活

「原発再稼働と私の大学生生活」について述べていく。  
 まず、結論から述べてみると、私は原子力発電所の再稼働に「再生可能エネルギーが安定的に供給できるようになり、量産可能な体制になる」までの期間限定で賛成である。理由は二つある。  
 よって、原子力発電を再稼働すべきだと考える。  
 二つ目の理由は、原子力発電所を建設する際に、建設されることは不可能である。近年では太陽光発電や風力発電、地熱発電といった再生可能エネルギーが注目され、力を付けてきてはいるが、未だに「安定的に電力を供給できるか」という点や(裏面に続く)

| 学部   | 学科   | 学籍番号 | 氏名 | 備考 |
|------|------|------|----|----|
| 人間環境 | 人間環境 | 1165 |    |    |

\*この欄はペンまたはボールペンで記入のこと

**A sophomore female student: “We, college students, think highly of employment opportunities. The stopping of nuclear power stations may have disadvantages to the local economy. We are hoping for restarting.”**

**Another sophomore male student : “We have to admit restarting until we have enough renewable energy sources that can replace nuclear power.”**

**A junior female student: “We have to depend on nuclear energy because the electricity production cost of nuclear energy is cheaper than those of renewable energies.”**





### 3 Results (4-3): Students' Opinions - No idea

#### 試験用紙

2017年度前期試験

2017年07月31日 (月曜2b時限)施行

| 科目       | 科目担当者 | 履修者数 | 時間  |
|----------|-------|------|-----|
| 資源とエネルギー | 辻本 政雄 | 117人 | 60分 |

参照物 不可

以下より1問を選択し、解答せよ。

1 電力改革と私の大学生活 2 原発再稼働と私の大学生活

2. 原発再稼働と私の大学生活

私は原発再稼働の是非とそれによる私の大学生活への影響について原子力発電の現状をふまえて述べる。

私は原発の再稼働について賛成でも反対でもない。理由は、原発のメリット、デメリットについて授業で学んだが、リスクを負ってまでメリットを優先するべきか判断し兼ねるからである。

私は山口県に住んでおり、山口県では上関原発の建設について賛否が分かれている。

私は大学に入って環境のことや原発について学ぶ機会が増え、上関原発についても関心をもちた。上関原発は1988年に上関町が中国電力に誘致を正式に申し込んで以降建設計画や調査が行われてきた。東日本大震災で一時工事が中断したが、2016年延期の申請が行われ、今後工事が行われていると思う。

やはり、上関原発建設は町内原発の推進派と反対派が対立を見ている。

B → A

|                       |      |      |      |    |    |
|-----------------------|------|------|------|----|----|
| *この欄はペンまたはボールペンで記入のこと | 学部   | 学科   | 学籍番号 | 氏名 | 備考 |
|                       | 人間環境 | 人間環境 | 155  |    |    |

A freshman: *“I cannot make up my mind because I am convinced by both opinions of “Favor” and “Oppose.” However, I have to decide before my graduation since I have joined the faculty of the Environment Studies by my own decision.”*

A junior female student: *“I had been taught in Hiroshima City that nuclear energy should be banned totally and I had no chance to learn the advantages of nuclear energy. But once I have come to know that advantages, we should think it over whether or not to admit restarting.”*

## 4 Conclusions and Implications

*Freedom of expression should be assured in classrooms;  
Let the students decide the important challenges  
in the energy and environment sectors*

*In order to develop  
Students' personality and electoral democracy,  
Toward establishing a sustainable society.*

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