

2014 Taiwan-UK Energy Workshop

# Representing Alternative/Renewable Energy in Taiwanese Media: News Content Analysis and Its Challenges

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# Global Warming and Risk Communication Research Group (2011-present), College of Communication, NCCU, Taiwan

- Global warming has become a major issue for risk society. What is the state of Taiwan's warming-related risk communication? How does the general public perceive, participate in, and act on such communication? We examine these questions from the perspectives of "mass communication," "the public" and "the public and private sectors," proposing a global-warming risk communication framework with local characteristics. We also use cross-cultural comparisons to understand how global-warming risk narratives are constructed, and explore the public's cognitive responses to global warming.



**Mei-Ling Hsu,  
Coordinator**



**Tsung-Jen Shih**



**Su-Mei Wang**



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**Yie-Jing Yang**

# Mei-Ling Hsu's research interests and research agenda in climate change/renewable energy communication

- **Areas of specialization**

- Environmental Risk Communication; Health Communication; Persuasion and Attitude Change; Communication and Cognition; Communication Theory and Research Method; Public Opinion

- **Related research projects (2008-present)**

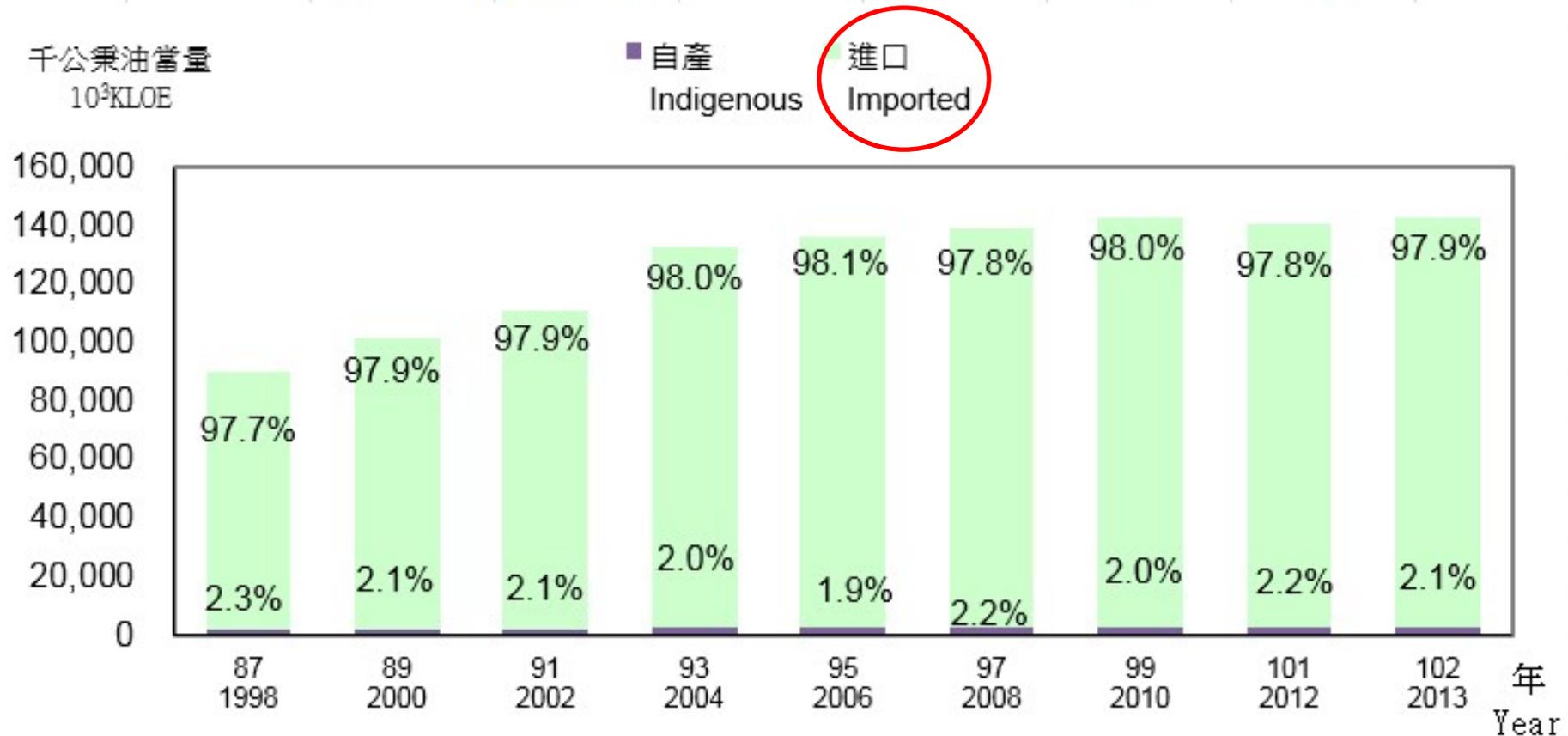
- Principal Investigator (under review). *Perceptions, practices, and risk communication effectiveness of climate change adaptation among future communication professionals*. Ministry of Science and Technology, Taiwan.
- Principal Investigator (2014-2017). *Media message design of and public participation in issues related to renewable energy*. Ministry of Science and Technology, Taiwan.
- Principal Investigator (2012-2013). *Survey on public opinion regarding climate change in Taiwan*. Delta Electronic Foundation, Taiwan.
- Co-investigator (2012-2014). *Scientific communication and the global warming (climate change) literacy of media*. National Science Council, Taiwan.
- Principal Investigator (2011-2015). *Emerging issues in risk communication*. National Chengchi University Top University Project, Taiwan.
- Principal Investigator (2011-2014). *Media construction, lay perceptions and engagement intention of indigenous environmental risk issues*. National Science Council, Taiwan.
- Principal Investigator (2008-2011). *Risk communication of global warming: From media representations to public perception*. National Science Council, Taiwan.

***A glimpse of energy supply, consumption,  
and related policy in Taiwan***



# 能源供給（按自產與進口別）

## Energy Supply (by Indigenous & Imported)

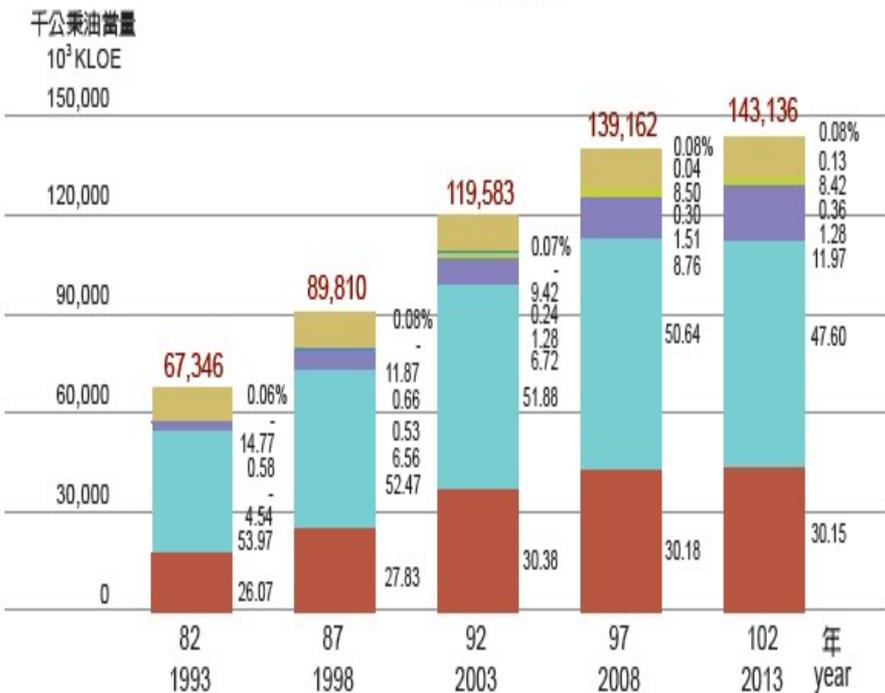


- Taiwan depends mostly on imported energy (97.9% in 2013).

Source: Energy Statistics Handbook 2013, from  
[http://web3.moeaboe.gov.tw/ECW/populace/content/SubMenu.aspx?menu\\_id=141](http://web3.moeaboe.gov.tw/ECW/populace/content/SubMenu.aspx?menu_id=141)

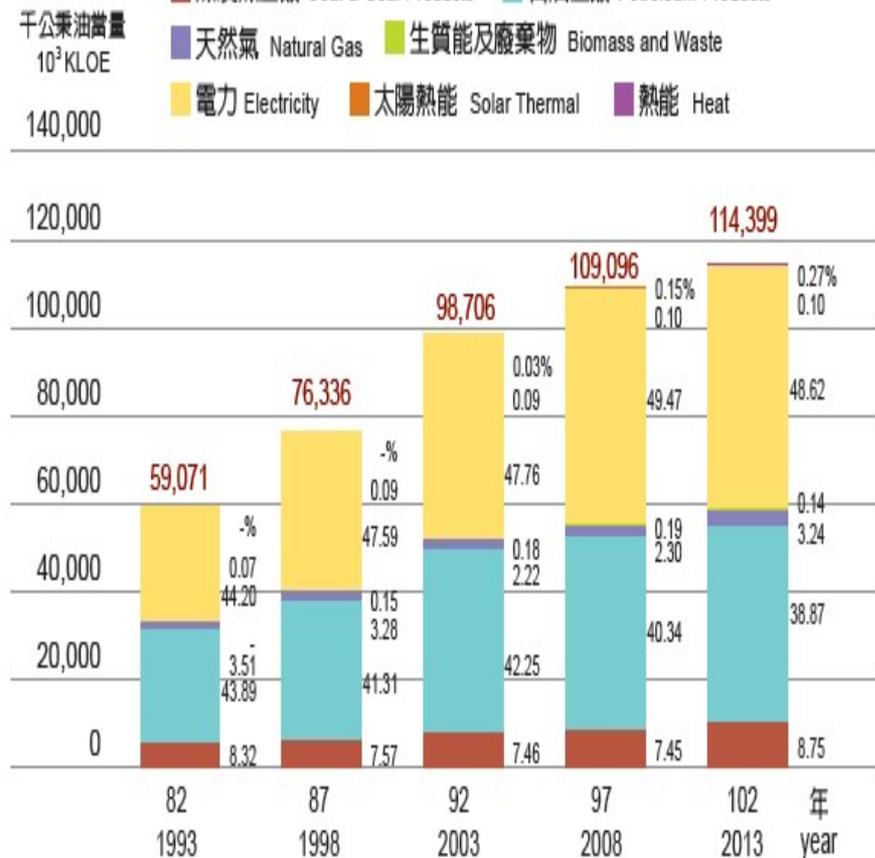
## 能源供給 (按能源別)

### Energy Supply (by Energy Form)



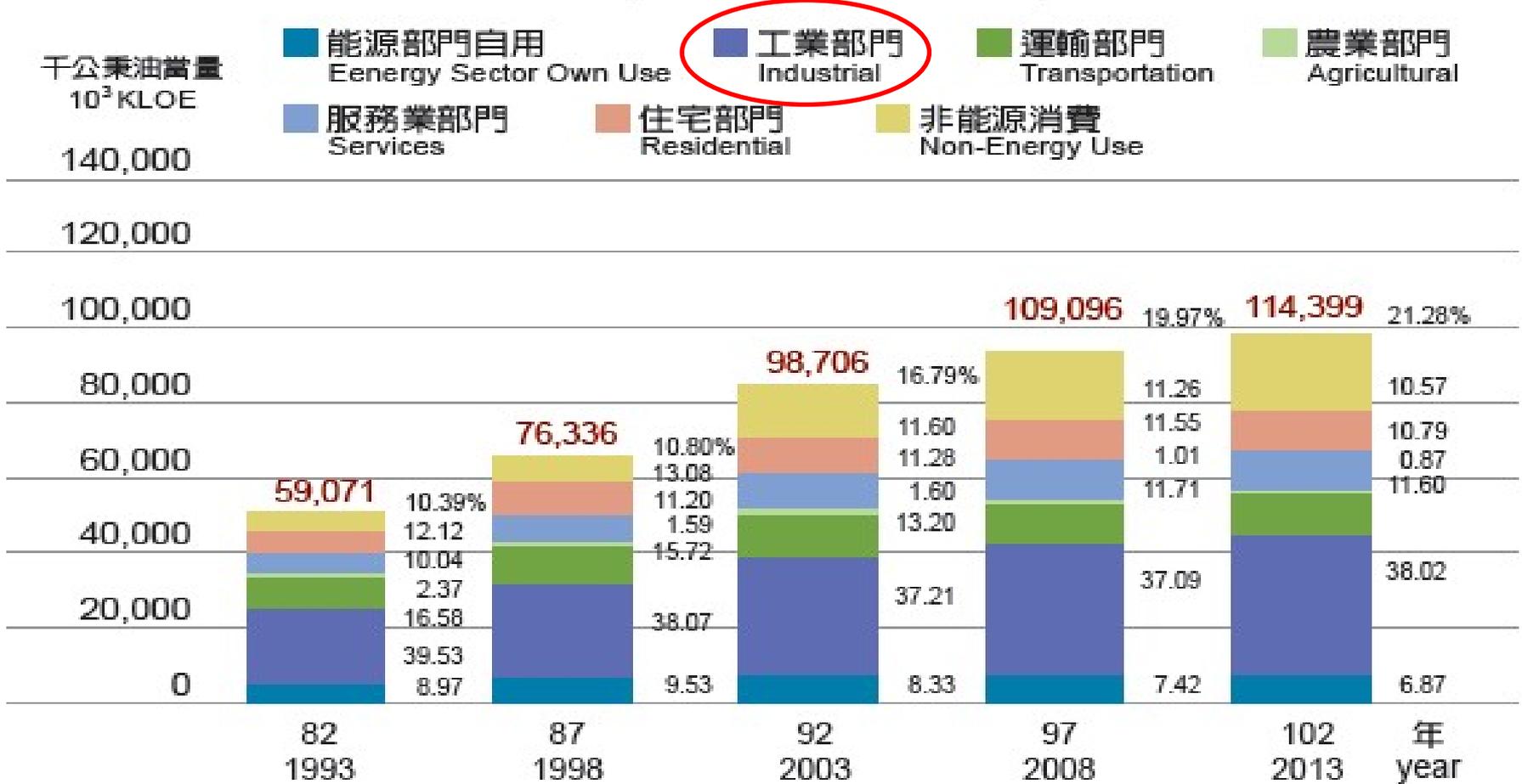
## 國內能源消費 (按能源別)

### Total Domestic Consumption (by Energy Form)



# 國內能源消費 (按部門別)

## Total Domestic Consumption (by Sector)

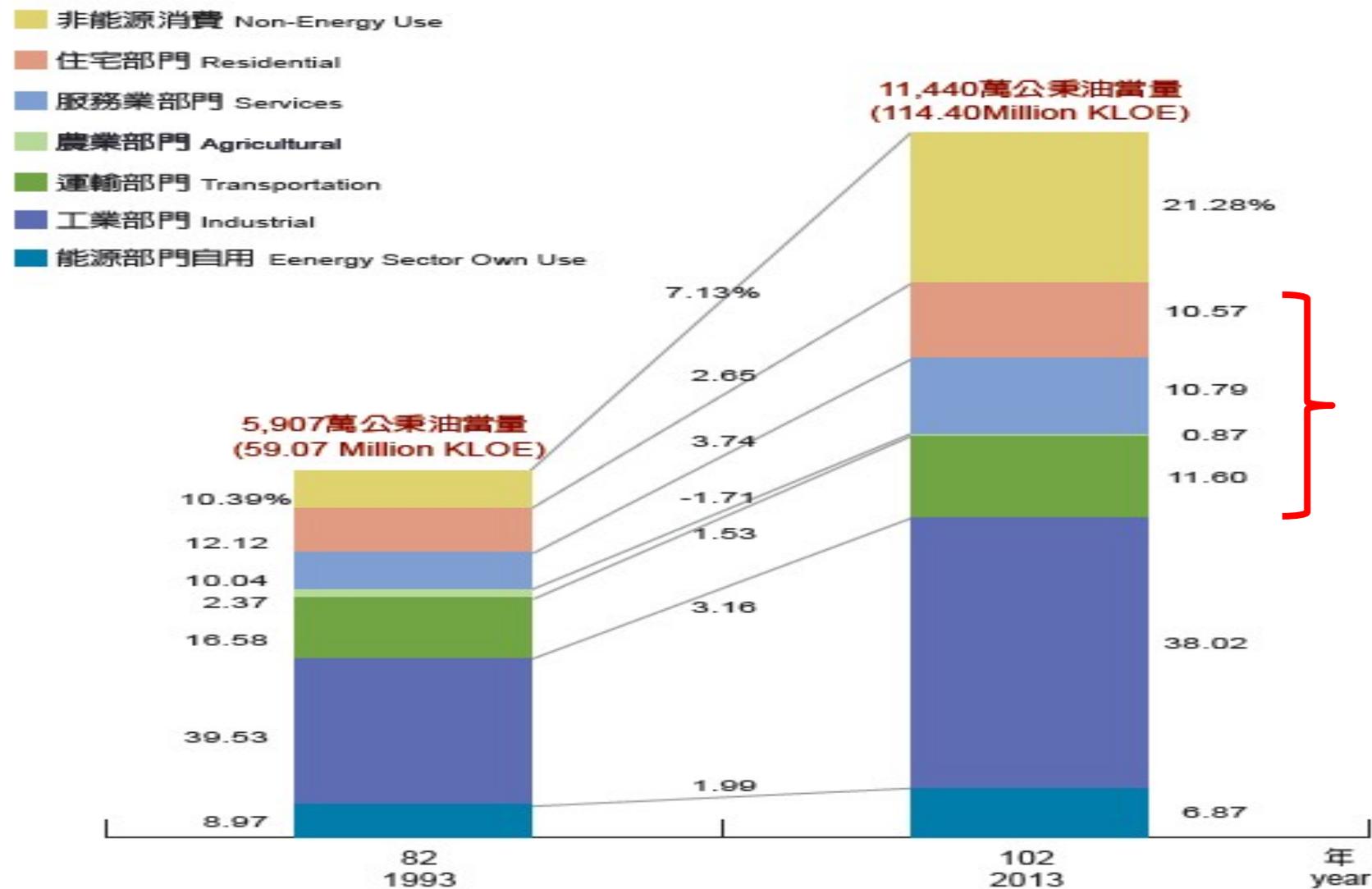


**Industrial sector:** The largest share of energy consumption and where nearly half of the CO<sub>2</sub> emissions are from

# 國內能源消費結構 (按部門別)

## Structure of Total Domestic Consumption (By Sector)

- 住宅、服務與運輸部門之能源消費均大幅成長  
Energy consumption grows significantly in residential, services, and transportation sectors.

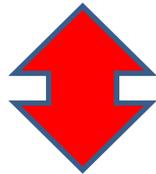


# Policy preference/controversy for climate change and alternative energy

- “Energy Conservation and Carbon Reduction” has been prioritized as the nation’s climate change policy since 2008
- The government has been criticized for a lack of solutions to curb GHG emissions in the industrial sector as well as a lack of planning for renewable energy compared with other countries at the same level of development

⇒ Framework of Sustainable Energy Policy (2008): prioritizing nuclear power as clean energy for consideration

Conflicting



⇒ Renewable Energy Development Act (2009): promoting wind power and solar energy

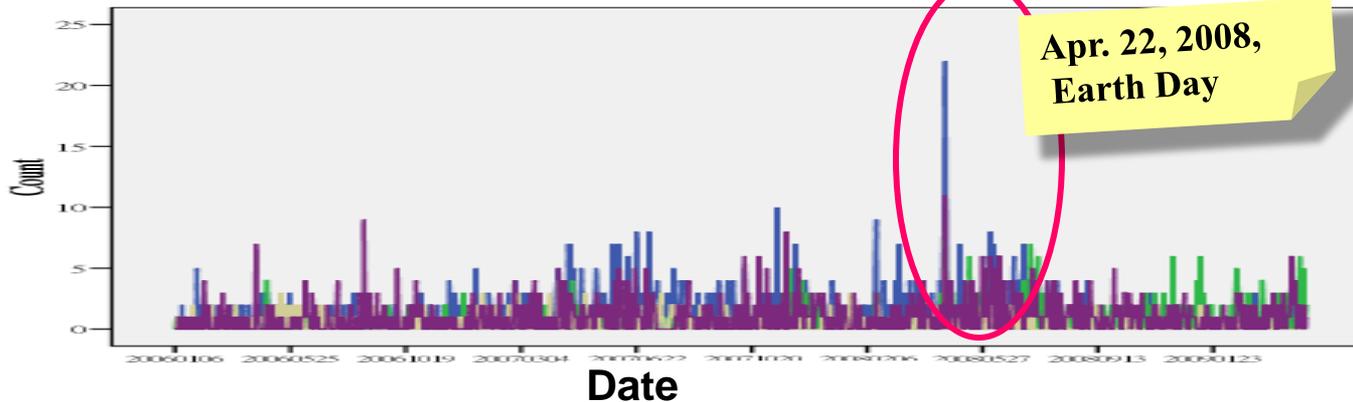


***How do Taiwanese public and news media react to issues related to climate change/global warming?***



# Distributions of climate change coverage by media in Taiwan (N = 5,978)

Wave 1 (N = 3,216), Jan. 1, 2006 – Apr. 30, 2009



News media

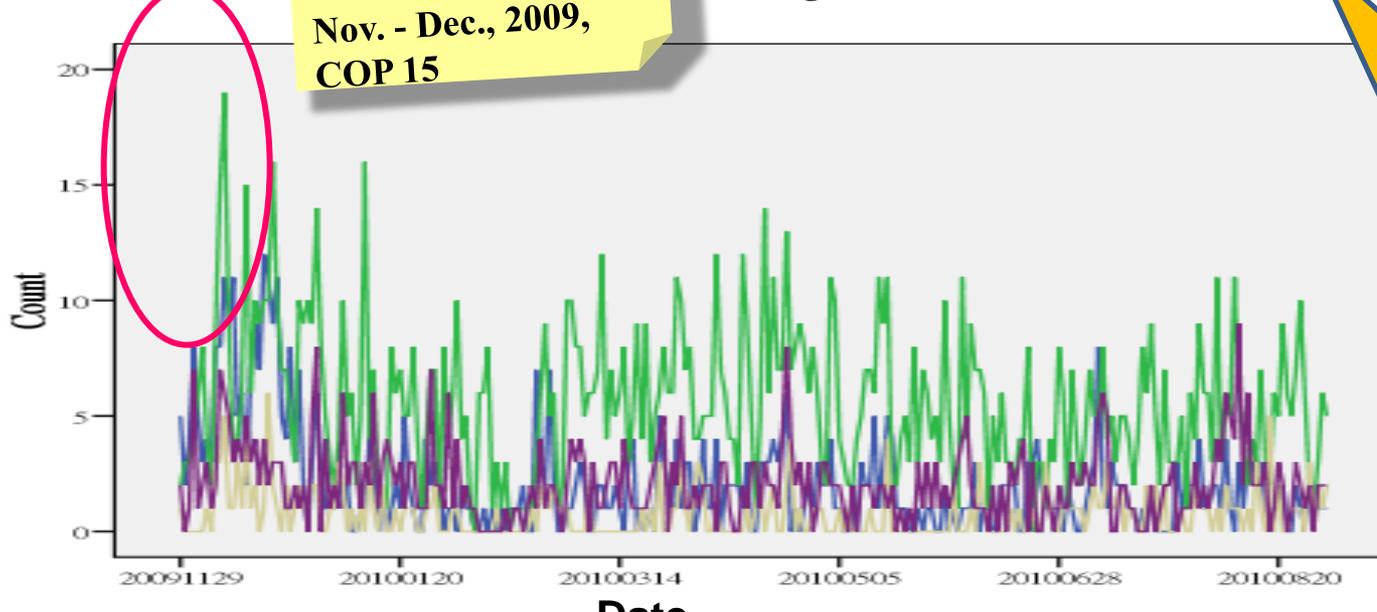
CT —

UD —

AD —

LT —

Wave 2 (N = 2,762), Nov. 1, 2009 – Aug. 31, 2010



- Mostly straight news ( 61.9% -> 73.4% )
- Depending heavily on foreign dispatches ( 19.9% -> 10.4% )
- In lack of features or investigative reports ( 7.0% -> 5.7% )
- Themes focusing on personal actions ( 67.8% -> 57.1% ) or descriptions of impacts ( 11.5% -> 9.1% ), with the lowest attention to causes ( 2.0% - 1.4% )

# Results

## Distributions of climate change frames by news wave (% , N = 5,442)

News frame	News wave (N = 3,085)	Wave 2 (N = 2,357)
Calls for human actions to save the planet earth	86.5	84.5
calls for actions via science or technology	21.9	17.4
calls for actions via social or political forces	44.0	50.8
acknowledging anthropogenic contribution	18.1	13.0
mere mentioning of the necessity of actions	1.5	3.3
Fatalism	0.3	0.5
Catastrophic panic	8.7	4.3
Promoting green consumption/human interest	4.3	9.6
Skepticism	0.7	0.8
Other	0.3	0.3
Total	100.0	100.0

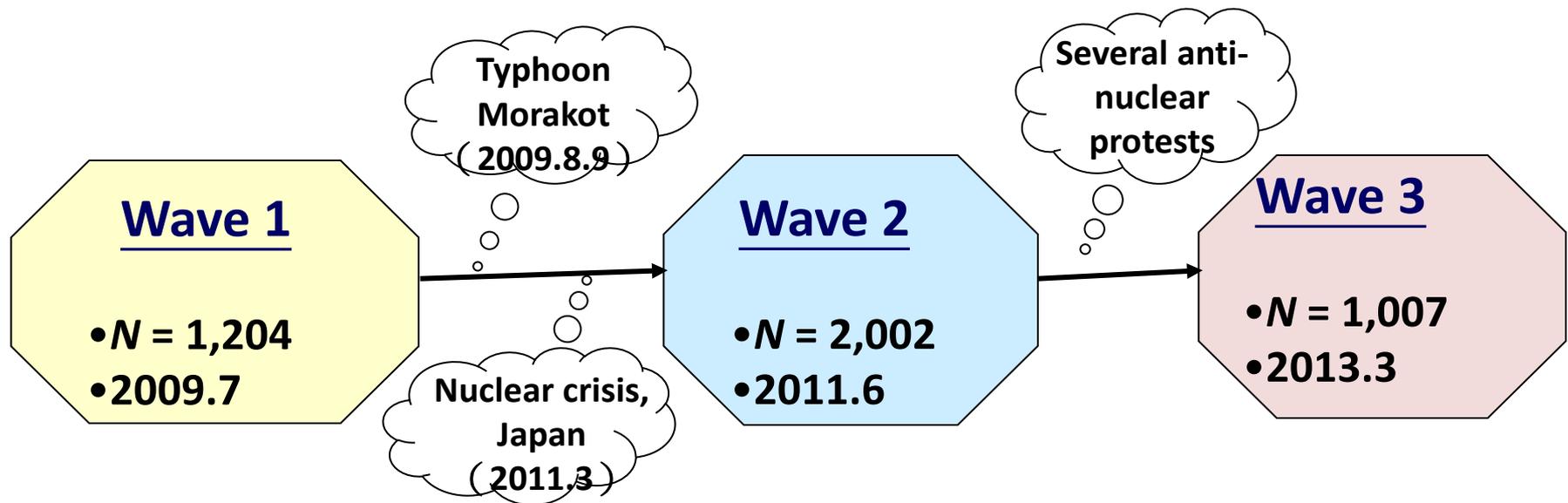
$$\chi^2 (6, 5,442) = 96.7$$

- 99% of the stories framed as anthropogenic contribution, skepticism comprising less than 1% => Absence of debates between supporters and skeptics of anthropogenic contribution to climate change
- Not much change for 'calls for human actions' (86.5->84.5%), but variations found within the sub-frames => more via social/political forces, less via science/technology
- A decrease in 'catastrophic panic' frame
- An increase in 'promoting green consumption/human interest' frame



# Public perception, attitudes, actions, and policy support: A comparison of 3-wave Taiwanese data

- Method: Telephone surveys
  - Sampling: Nationally representative samples over the age of 18
  - Those who have heard of the term “climate change” or “global warming” were retained for further analysis



# Key events:



- Typhoon Morakot (7-9 Aug., 2009)
  - The most devastating typhoon in 50 years
  - Causing more than 600 casualties, destroying several villages, including completely wiping out a village, Xiaolin, by mudslides under torrential rain
  - Generating discussions on national land management and preservation policies as well as environmental protection policies



- Fukushima nuclear disasters (11 March, 2011)
  - The massive earthquake and the following destructive tsunami shut down the cooling systems in several reactors of the nearby Fukushima No.1 nuclear plant, resulting in the exposure of fuel rods and the subsequent publicized and unpublicized tragedies
  - Taiwanese government's pro-nuclear energy policy was soon harshly questioned

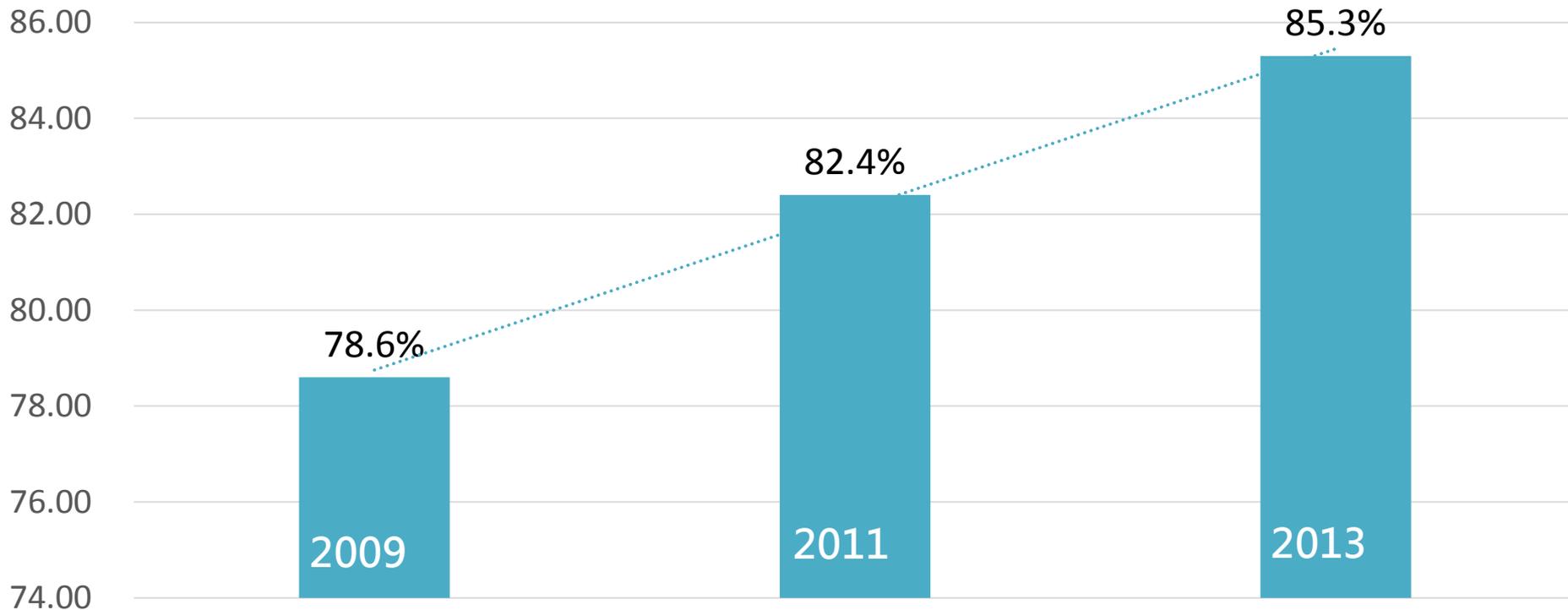
# Post-Fukushima anti-nuclear protests

- Growing public concern over nuclear safety=> Several protests were held in Taiwan
- Largest ever protest (9-10 March, 2013): 68,000 Taiwanese protested across major cities against the island's fourth nuclear power plant, which is under construction
- The ruling KMT Party agreed to temporarily suspend work on two nuclear reactors but have so far refused to halt the project altogether



# Taiwanese who have heard of the term “climate change” or “global warming”

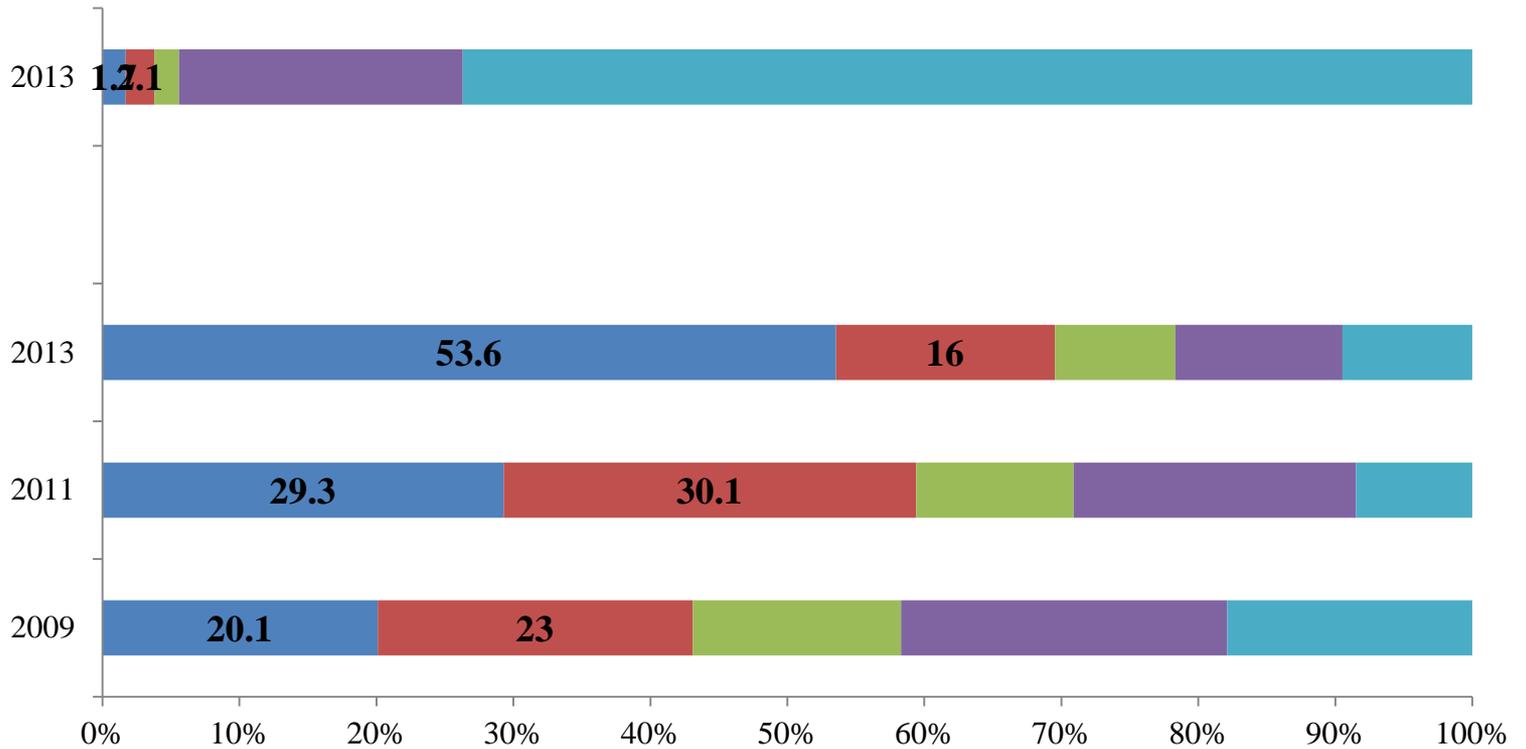
- An upward trend regarding public awareness
- 2013: 87.7% believed that global warming is caused by human activities



# Public support for alternative/renewable energy (2009-2013)

Support for development of renewable energy

- 2013: 94.4%



Support for nuclear power

- 2009: 41.7%
- 2011: 29.1%
- 2013: 21.7%

■ SD ■ D ■ Neutral ■ A ■ SA

***Can news media play a good role in facilitating public participation in issues related to alternative/renewable energy?***



# Core theoretical concepts and research questions

**News framing:** By emphasizing specific values, facts, and other considerations, and endowing them with greater apparent applicability for making related judgments, news media promote particular definitions, interpretations, evaluations and recommendations (Entman, 1993)

- How did the news media frame issues related to alternative/renewable energy?

A shift from the '**deficit model**' to '**public participation model**' of science communication, encouraging public participation in technology decision even in the early stage (Irwin & Wynne, 1996; Kahlor & Rosenthal, 2009)

- How did the news media represent the mechanisms that could contribute to public participation in alternative/renewable energy-related issues?
- Did they vary by media and energy form, respectively?

# Method: A 2-wave content analysis of news coverage of alternative/renewable energy



自由時報



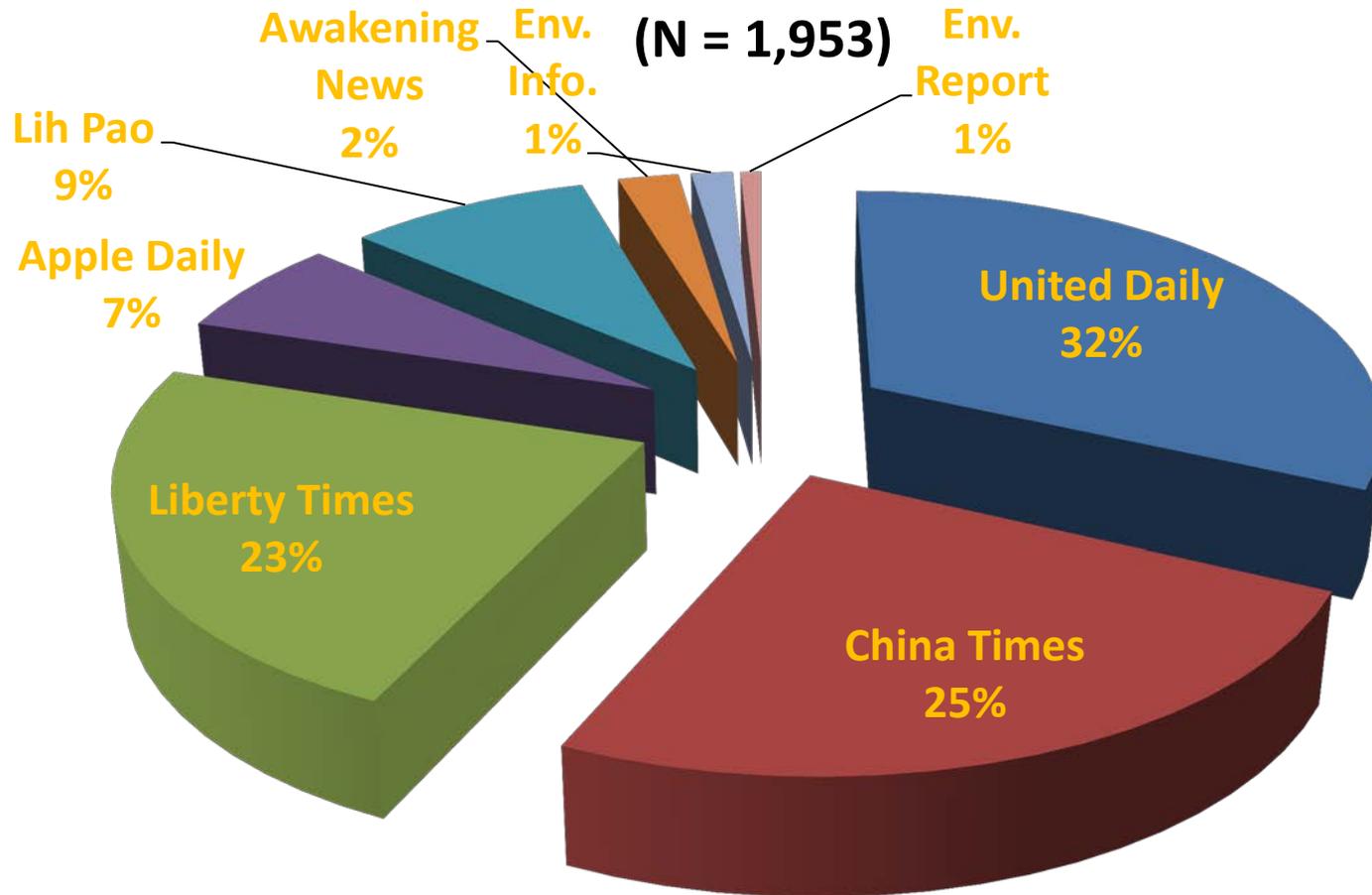
Mainstream media

Alternative media

# Procedures

- Criteria of news search:
  - A combination of key word search in news databases, news websites: Renewable energy, alternative energy, names of different renewable/alternative energy, energy, electric power, nuclear plant...etc.
  - 200 words+
  - Content of alternative/renewable energy > 50%
  - Excluding non-news
- Pretest:
  - Stratified sampling by month=> random sampling of a day=> analysis of all news of that day
  - Overall inter-coder reliability of 3 coders: .95(respective category: .73~1.00)

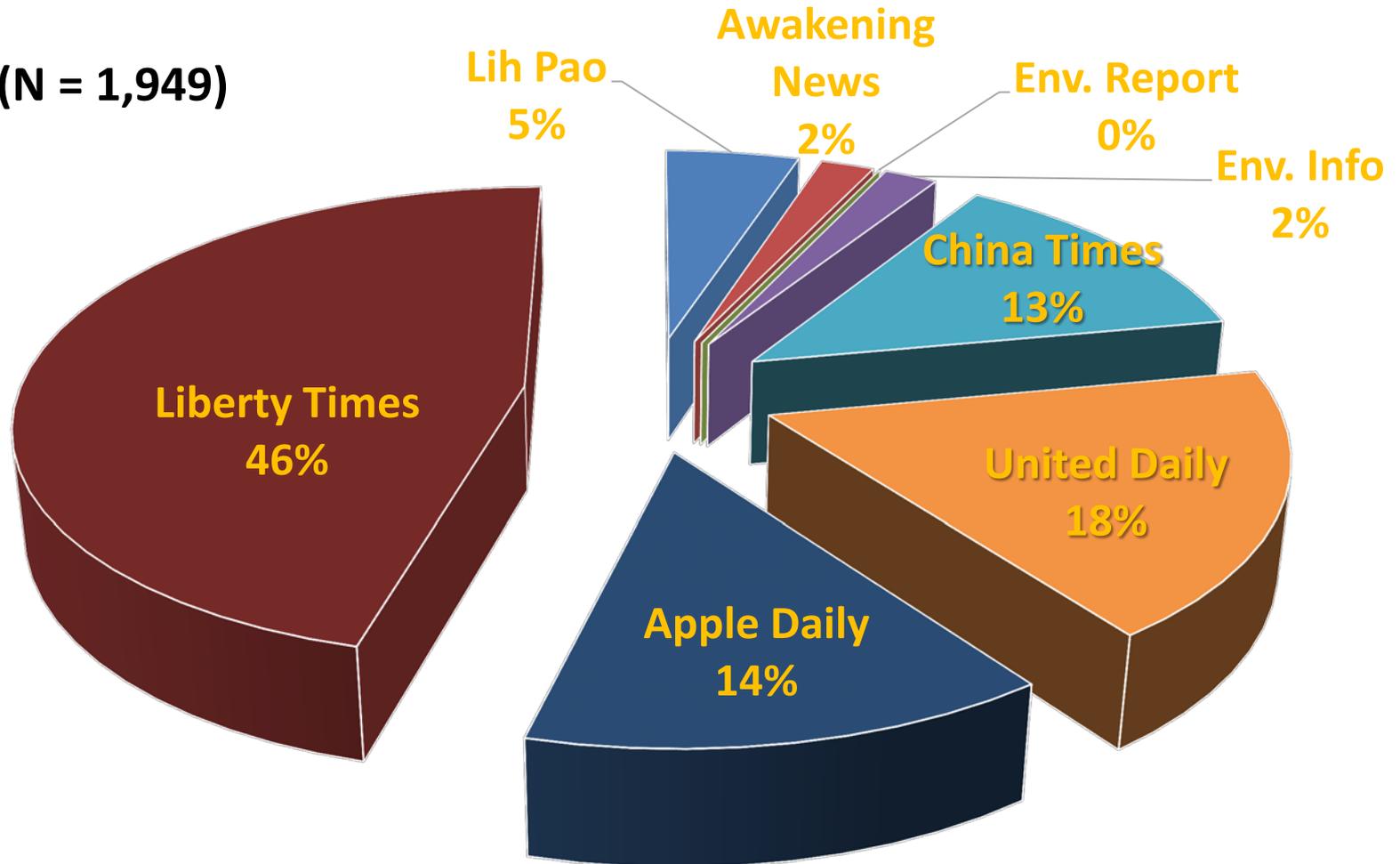
# News coverage of renewable energy by media ( 1<sup>st</sup> wave: 9 Aug., 2009-31 Dec. , 2011 )



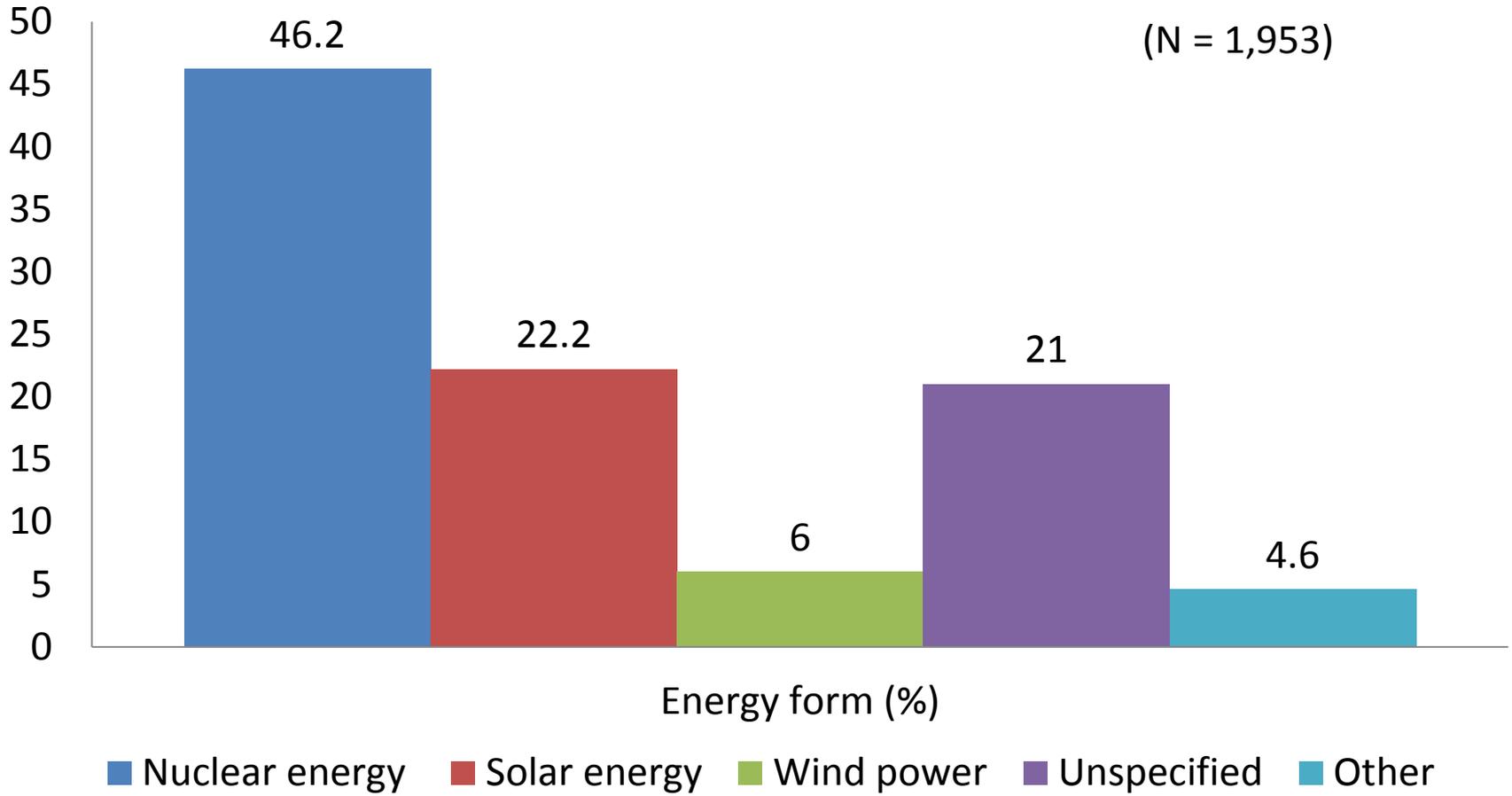
# News coverage of renewable energy by media

(2<sup>nd</sup> wave: 1 Apr., 2013-30 Jun., 2014)

(N = 1,949)

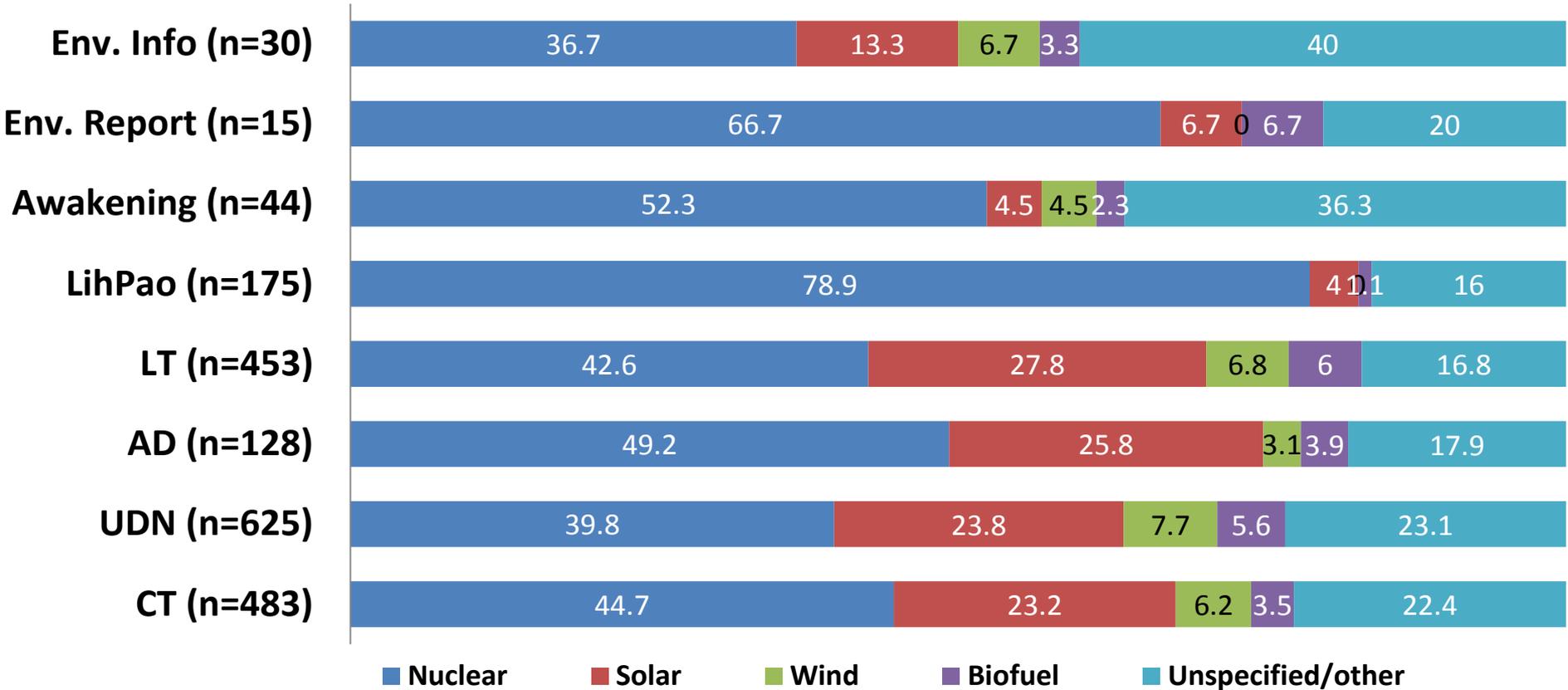


# Results from 1<sup>st</sup> wave news analysis



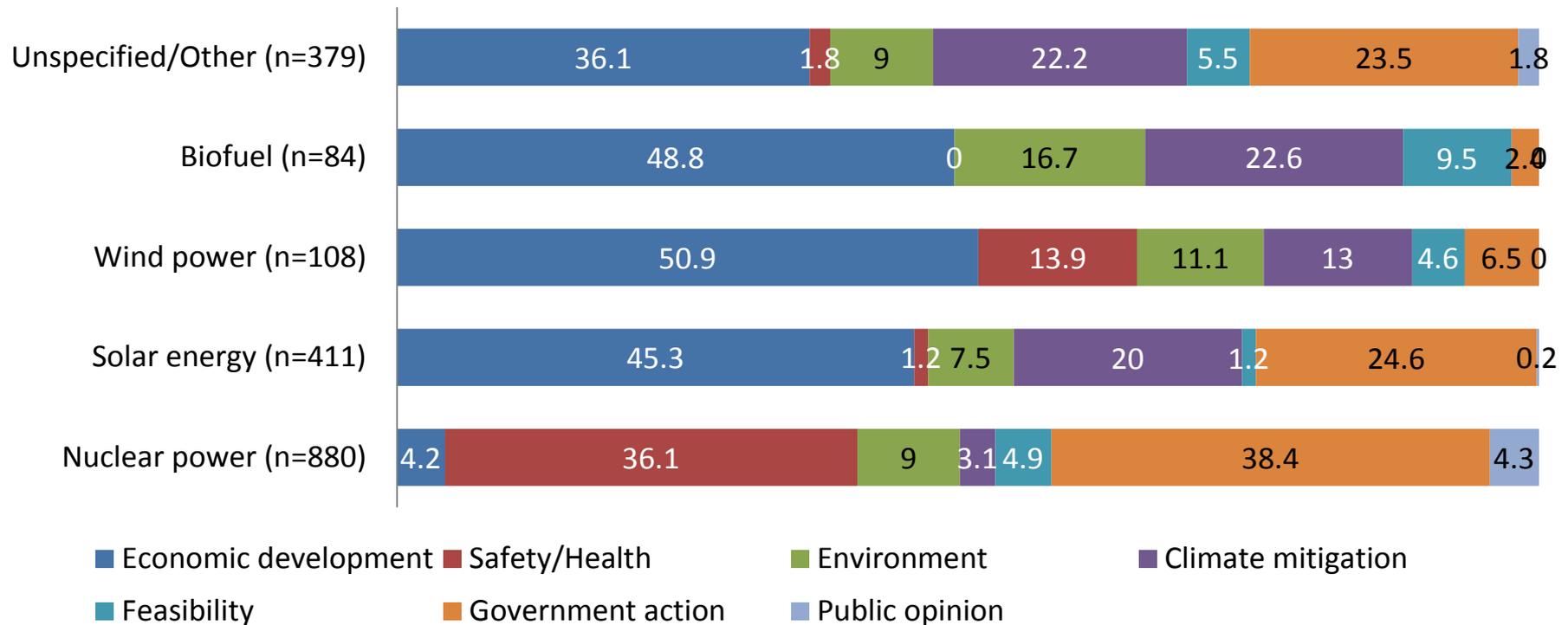
# Distribution of alternative forms of energy by media

[%;  $\chi^2 (28, 1953) = 138.04, p < .001$ ]



- Nuclear power was covered most, especially in alternative media
- Mainstream media paid more attention to other forms of alternative energy than alternative media, especially solar energy
- Alternative media focused more on unspecified alternative energy

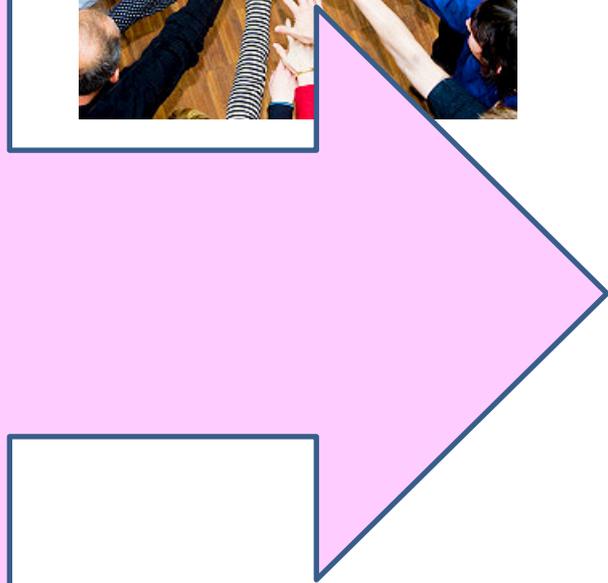
## Distribution of frames by forms of alternative energy (%)



- Frame of climate mitigation: seldom used in news in alternative/renewable energy
- Frames of safety/health and government action and government action: used mostly on nuclear power or unspecified alternative energy
- Frame of economic development: used mostly in forms of renewable energy other than nuclear power

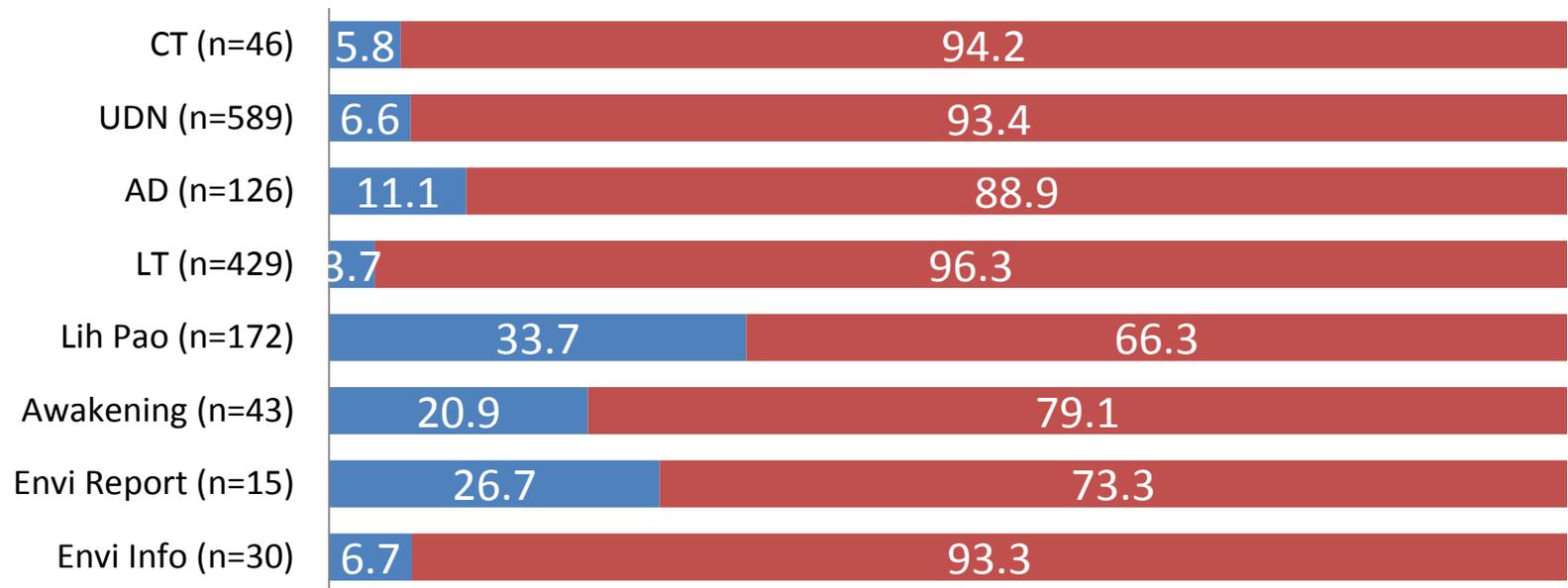
## Elements of public participation in renewable energy

- Disclosure of relevant information
- Suggestions for everyday lifestyle change or civic responsibility
- Participation in public activity or relevant group
- Public supervision of policy formulation or practice
- Public discussion or opinion exchange
- Official public action such as election, referendum, recall,... etc.

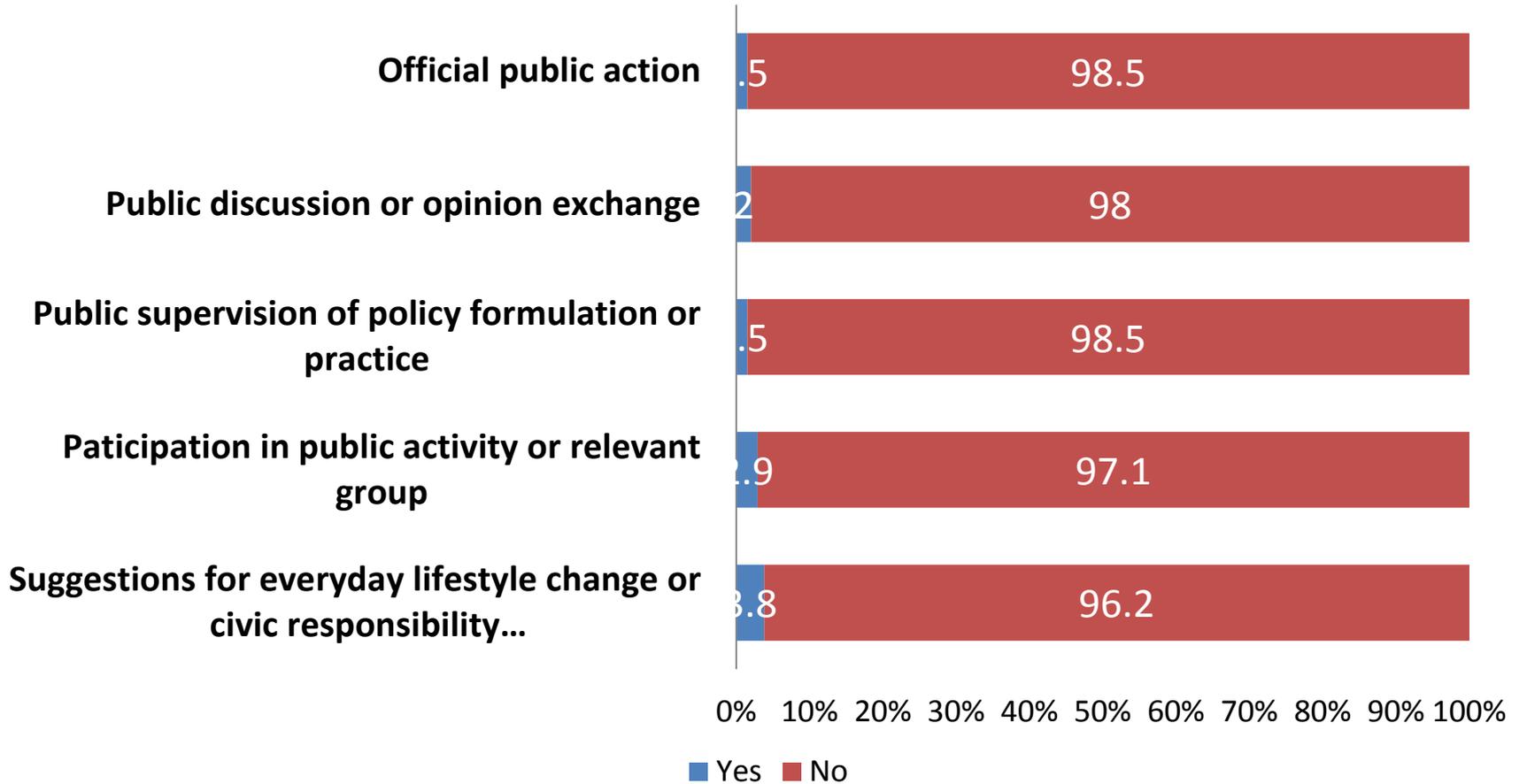


# Disclosure of relevant information (%)

$[\chi^2 (7, 1873) = 37.05, p < .001]$



- News media performed the best in disclosing relevant, but still < 10%
- Alternative media > Mainstream media



# Discussion

- Features and problems of news domestication in hindering public participation in issues related to renewable energy
  - Still a long way to go in facilitating public participation
  - Alternative media played a better role than mainstream media in disclosing relevant information, but both types of media failed to further facilitate public participation (< 10 %)
  - Is it good or bad by framing renewable energy with economic development rather than environment or climate change mitigation?
- Reconsidering the role of news media
  - Journalists as facilitators, not gatekeepers
  - News functions from providing information to navigation
  - Power of deliberative reporting and visualization



***Can we do something to improve the news media representation in facilitating public participation in issues related to alternative/renewable energy?***



# Media Message Design of and Public Participation in Issues Related to Renewable Energy (3-year ongoing project)

- To analyze how various ways of message designing will affect public participation in the issue of renewable energy
- **Methods:**
  - 1<sup>st</sup> yr: qualitative data collections of relevant media reports, opinions from the lay public, issue experts and media practitioners
  - 2<sup>nd</sup> & 3<sup>rd</sup> yr: Message designs and experiments
- **Research questions:**
  - How has issues related to renewable energy been represented in both the print and electronic media? What are the features?
  - How have the lay public, issue experts, and media practitioners perceive the issue of renewable energy itself and in the related media representations? How are those perceptions different by print vs. electronic form?
  - Will various forms of framing or representing renewable energy in the media affect experiment subjects' sense of public participation?
  - What are the socio-cultural preconditions such as relevant cognitions, perceptions, attitudes and beliefs that could affect experiment subjects' sense of public participation?
  - Will the experiment subjects' sense of public participation, as affected by forms of message design, vary by media (print vs. electronic)?

# Content and textual analyses of renewable energy in TV news clips/documentary

- Criteria of TV news clip and documentary search:
  - A combination of key word search in 14 TV news websites, YouTube, Google: Renewable energy, names of different renewable/alternative energy, climate change...etc.
- Total : 206 (TV documentary: 83; TV news clips: 91; news clips in TV talk shows: 32)
- Pretest: Random sampling of 1/10 of sample
- Time range: 1'25" – 57'10"



# Elements of public participation and practice in renewable energy in TV news clips/documentary

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Mere slogan

Public expressions of support or complaints/objections

Concept or method  
Introduction

Public discussion or opinion exchange

Mentioning benefits of public participation

Public supervision of policy formulation or practice

Feedback or subsidy from government

Participation in public activity or relevant group

Suggestions for daily life change or civic responsibility

Official public action such as election, referendum, recall,... etc.

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# Audiovisual elements of TV news clips/documentary

## Narrative form

- Exposition
- Story

## Value/Tone (overall, ending)

- Positive
- Neutral/mixed
- Negative

## Sensationalization content

- Anecdote
- Conflict
- Disaster

## Sensationalization format

- Language exaggeration
- Infographics
- Background music
- Visual effects (e.g., angles of depression, elevation, close-up...etc.)

THANK YOU