



**Research Title:** Impacts of the 2050 Carbon Neutral Strategy on Women's Employment and Policy Tasks

**Principal Researcher:** Min-jung Kang, Research Fellow

## Impacts of the 2050 Carbon Neutral Strategy on Women's Employment and Future Tasks

### Abstract

- ◎ This study explores the impact of forthcoming carbon-neutral policies on women's employment and recommends countermeasures through a gender-sensitive review of related policy formulation and implementation.
- ◎ The main contents of this research are as follows. First, through the review of previous literature and foreign case studies, this research derived policy implications for the inclusion of 'gender' in South Korea's 'policies for carbon neutrality and just transition.' Second, utilizing various datasets, this research conducted a multifaceted analysis of how the employment structure for women has changed and is expected to change across industries during the transition to a carbon-neutral economy. Third, this research comprehensively examined the systems and directions of the current carbon-neutral policies and the policies related to labor transition in South Korea, focusing on the policies and programs designed for companies and workers directly impacted by the transition. Fourth, to accurately understand the current situation of companies and women workers facing these changes, this research conducted field case studies which would inform future policy directions and tasks.
- ◎ The future tasks identified through the research results are as follows: First, basic gender mainstreaming should be implemented in all policies related to transitioning to carbon neutrality, including relevant support policies directed at companies, workers, and local communities. Second, a refined and differentiated approach is necessary based on the characteristics of companies and workers, considering the differences in industry-specific transition-related prospects. Third, the quantitative expansion and qualitative improvement of women's employment should be prioritized in industries directly impacted by the push towards carbon neutrality. Fourth, to achieve carbon neutrality and ensure a just transition, it is essential to secure the roles and responsibilities of various stakeholders — including high-emission industries and companies, workers (including labor unions), and the government (central and local).

Industry	Production and Market	Business Structure	Labor Transition Demand	Analysis Tasks	Analysis Results
Automobile	Internal combustion vehicles → Electric vehicles	Downsizing and transition to other industries	Short-term employment fluctuations	<ul style="list-style-type: none"> <li>Gender-specific characteristics of employment structures and job vulnerability</li> <li>Promotion of women's employment</li> </ul>	<ul style="list-style-type: none"> <li>Expansion of new job opportunities in relevant industries alongside job disappearance</li> </ul>
Steel	High-carbon → Low-carbon emissions	Short-term business contraction	Medium- to long-term employment fluctuations		<ul style="list-style-type: none"> <li>Labor transition as a long-term task is unlikely to significantly affect the structure of women's employment in the short term</li> </ul>
Petrochemicals	Reduction in greenhouse gas emissions → Changes in production and manufacturing processes	Short-term business contraction	Medium- to long-term employment fluctuations		<ul style="list-style-type: none"> <li>Women primarily handle support and auxiliary tasks, leading to job insecurity in future roles</li> <li>Possibility of increased opportunities due to the transition</li> </ul>

## Background and Challenges

- Carbon neutrality is a global imperative and a new paradigm for sustainable economic growth and stability. However, considerations for its gender-specific impacts remain insufficient.
  - The transformation of production facilities and industrial structures to reduce carbon emissions is essential. While this transition is likely to create jobs in new industries and technologies, it can also lead to stagnation and reduction of high-carbon, labor-intensive industries. The structural characteristics of the labor market will cause the impacts to be felt unevenly, depending on the sector and gender.
  - The industries most directly affected by carbon-neutral policies tend to be male-dominated, and gender considerations have yet to be fully integrated into the policies surrounding a 'just transition.' To ensure fair transitions, proactive labor policies that monitor changes in labor demand by gender, industry, and occupation must be implemented. These policies should support the employment stability of workers, particularly those most affected by the transition, and facilitate their smooth transitions to decent jobs.
- This study aims to examine the impact of future carbon-neutral policies on women's employment and to propose countermeasures through a gender-sensitive review on the formulation and implementation of related policies.

- ▶ There are gender gaps in South Korea's labor market, and if policies are implemented without a gender perspective, there is a risk of exacerbating these inequalities. Therefore, this study seeks to provide baseline data for policy development to ensure that a gender perspective is integrated into carbon-neutral policies.
- ▶ This study examines whether a gender-equitable transition is being achieved in the context of industrial and labor market changes driven by carbon neutrality. It aims to propose measures to support job retention through task transition for disappearing jobs and to expand women's employment by actively utilizing women's labor in emerging job sectors.

## Key Research Findings

### Research Contents

- ▶ Through a review of previous studies and foreign cases, this research examined the extent to which 'gender' has been considered in South Korea's 'policies for carbon neutrality and just transition,' and derived policy implications from these findings.

<Table 1> Application of Carbon Neutrality, Just Transition, and Gender Policies in South Korea

Standards	South Korea
Consideration of just transition and gender (women) in national policies	<ul style="list-style-type: none"> <li>- The term "Just Transition" is included in carbon-neutral scenarios.</li> <li>- Initially, women were not considered in terms of the just transition dimension, but from 2023, women have been included in terms of the governance dimension.</li> </ul>
Ensuring women's participation and representation in transition policies	<ul style="list-style-type: none"> <li>- Women's representation is secured in the Just Transition and Climate Change Adaptation Sub-commission of the Presidential Commission on Carbon Neutrality and Green Growth.</li> </ul>
Inclusion of women workers in redistributive policies for workers in closed industries	<ul style="list-style-type: none"> <li>- Women are not considered.</li> </ul>
Consideration of women in access to job opportunities in new industries	<ul style="list-style-type: none"> <li>- Women are not considered.</li> </ul>

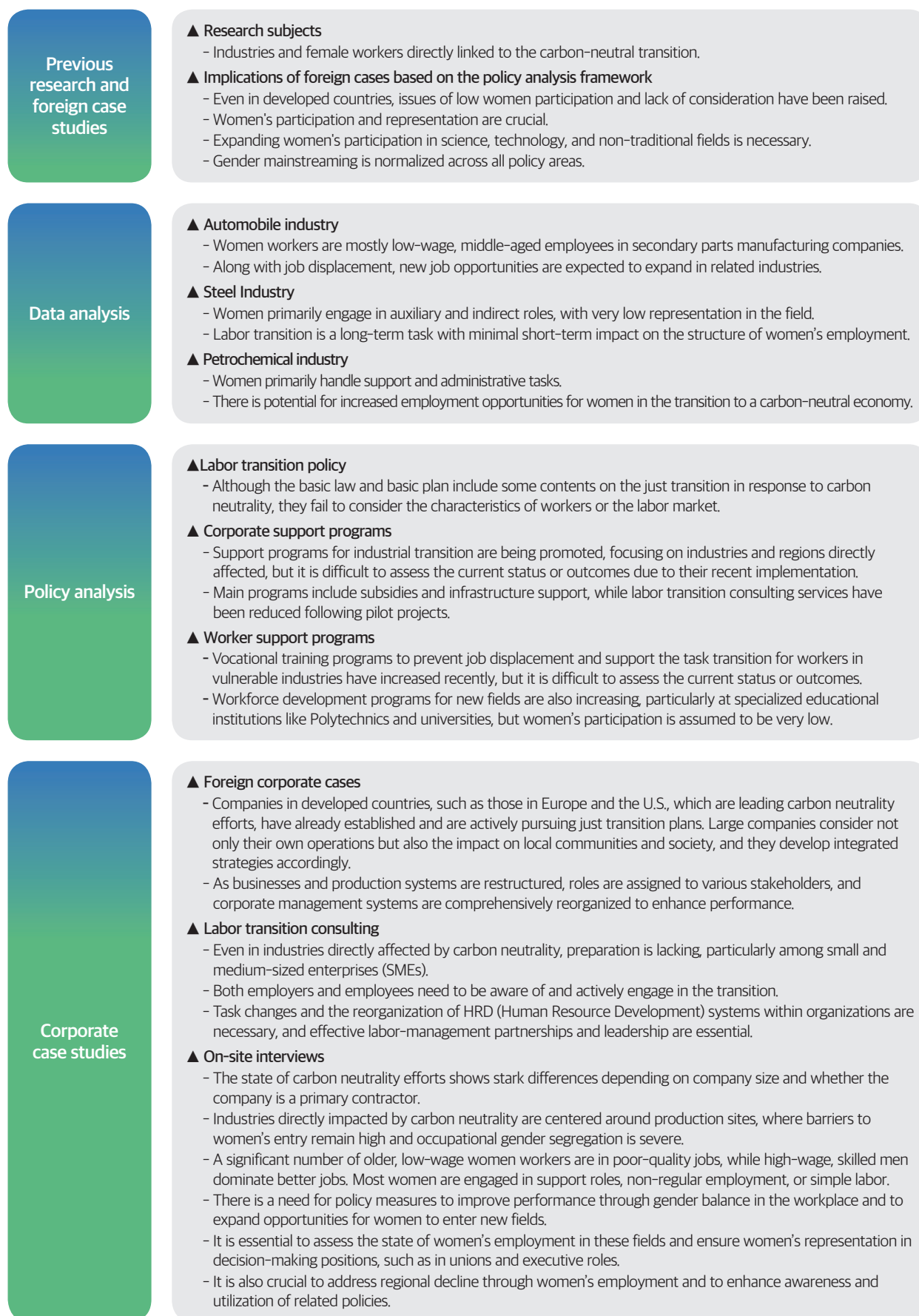
- ▶ This research analyzed how the employment structure of women in various industries has changed and will change during the transition to a carbon-neutral economy, from multiple perspectives using various data sources, such as the Economically Active Population Survey, the Census on Establishment, the Survey on Labor Conditions by Employment Type, and the Employment Information Statistics.

<Table 2> Transition to a Carbon-Neutral Economy and Employment Outlook for Women by Industry

Industry	Production and Market	Business Structure	Labor Transition Demand	Analysis Tasks	Analysis Results
Automobile	Internal combustion vehicles → Electric vehicles	Downsizing and transition to other industries	Short-term employment fluctuations	<ul style="list-style-type: none"> <li>• Gender-specific characteristics of employment structures and job vulnerability</li> <li>• Promotion of women's employment</li> </ul>	<ul style="list-style-type: none"> <li>• Expansion of new job opportunities in relevant industries alongside job disappearance</li> </ul>
Steel	High-carbon → Low-carbon emissions	Short-term business contraction	Medium- to long-term employment fluctuations		<ul style="list-style-type: none"> <li>• Labor transition as a long-term task is unlikely to significantly affect the structure of women's employment in the short term</li> </ul>
Petrochemicals	Reduction in greenhouse gas emissions → Changes in production and manufacturing processes	Short-term business contraction	Medium- to long-term employment fluctuations		<ul style="list-style-type: none"> <li>• Women primarily handle support and auxiliary tasks, leading to job insecurity in future roles</li> <li>• Possibility of increased opportunities due to the transition</li> </ul>

- ▶ This study comprehensively examined the current carbon-neutral policies in South Korea, particularly focusing on those related to just transition and labor transition. It analyzed the structure and direction of these policies in achieving carbon neutrality and provided an overview of the policies and programs designed to support companies and workers directly affected by these transitions.
- ▶ This research also sought to precisely understand the current conditions faced by companies and women workers. To inform future policy directions and challenges, this research examined case studies from prominent foreign companies, SMEs that have participated in labor transition consulting, and interviews with industry managers (executives and responsible personnel), women workers (production and engineering roles), and women union leaders and members. Through this comprehensive approach, the research sought to propose strategies for actively utilizing women labor in new job sectors and thereby expanding women's employment opportunities.

<Figure> Research Contents and Policy Implications



### Policy Direction

- ▶ Carbon-neutral policies must be reviewed from a gender mainstreaming perspective. Basic gender mainstreaming should be applied to transition policies such as corporate support policies, worker support policies, regional support policies, and so on.
- ▶ A refined and differentiated approach is needed based on the characteristics of companies and workers, according to the varying prospects of industrial transitions. The changes brought about by industrial transitions due to the promotion of carbon neutrality will affect different groups in different ways, and the impacts will also vary depending on the employment structure within the existing labor market. Therefore, it is essential to first understand the current status of women's employment in these sectors and propose policy measures based on this understanding.
- ▶ With the promotion of carbon neutrality, there must be a priority focus on the quantitative expansion and qualitative improvement of women's employment in industries directly affected. These industries and occupations have traditionally been male-dominated, and due to the nature of production work, they have been perceived as areas where it is difficult for women to work. Although gender equality in the labor market has steadily progressed over the past few decades through policy initiatives, social awareness improvements, and technological advancements, the level of gender equality in production sites remains low. While the characteristics of the work environment in production have been seen as barriers to addressing inequality, the digital and low-carbon transitions should dismantle these barriers. Efforts are needed to transform the persistent stereotype of 'jobs women cannot do' into 'jobs where both men and women can work safely.'
- ▶ For the promotion of carbon neutrality and the accompanying just transition, not only high-carbon industries and companies but also workers (labor unions) and the government (central and local governments) must each assume their roles and responsibilities. All three parties should fully understand the concept, necessity, processes, and outcomes of carbon neutrality and strive to minimize disbenefits and discrimination. It is essential to consider variables such as gender, generation, region, and occupation in this process.

### Policy Tasks

- ▶ Gender mainstreaming in carbon-neutral policies
  - 1) Gender mainstreaming in carbon-neutral policies
    - Include the perspective of women's employment in national-level carbon-neutral policies and industrial transition policies.
    - Mandate the collection of gender-disaggregated data related to carbon-neutral policies.
    - Conduct in-depth surveys on a company and local government level to assess the current status.
    - Use policy programs supporting industrial transition to address gender-based occupational segregation.

- Expand the participation of women researchers in government R&D projects supporting the transition to carbon neutrality.
  - Build a user-friendly policy platform to increase awareness and utilization of policies.
- 2) Incorporating the just transition perspective when promoting carbon neutrality in businesses
- Companies need to establish just transition strategies in line with their carbon neutrality goals.
  - Utilize corporate disclosure systems to ensure that ‘gender balance’ is included in labor transitions resulting from carbon neutrality efforts.
  - Support the reorganization of internal human resource management systems to align with industrial transitions.
  - Expand women’s participation in support programs for startups in the eco-friendly and renewable energy sectors.
  - Increase the participation of women researchers in government R&D projects that support the transition to carbon neutrality.
- 3) Promoting women’s employment in carbon-neutral industries
- Actively pursue sector-specific policies to promote women’s employment.
  - Improve perceptions regarding women’s employment in male-dominated fields.
  - Establish regional governance to promote women’s employment.
  - Support young women and employed women in obtaining technical certifications.
  - Develop strategies to address labor shortages in production sites.
- 4) Raising women’s awareness and securing women’s representation
- Expand opportunities for young women to challenge and enter new fields.
  - Strengthen the role of labor unions in carbon neutrality and labor transitions, and secure women’s representation within unions.
  - Increase women’s representation in companies related to carbon neutrality such as those involved in automotive, petrochemicals, and steel.
  - Expand the number of women members in the Presidential Commission on Carbon Neutrality and Green Growth.

## References

「Framework Act on Carbon Neutrality and Green Growth to Cope with Climate Crisis」and related laws

Employment and Labor Data System (ELDS) HRD raw data

Joint press release by relevant ministries (April 2023), National Strategy and the First National Basic Plan for Carbon Neutrality and Green Growth

Joint press release by relevant ministries (March 21, 2023), 「Basic Plan for Carbon Neutrality and Green Growth」, The Presidential Commission on Carbon Neutrality and Green Growth

Korea Employment Information Service, 「Employment Information Statistics」, Employment Insurance System, 2018-2022

Ministry of Employment and Labor, 「Survey on Labor Conditions by Employment Type」, KOSIS, 2009-2022

Statistics Korea, 「Census on Establishment」, KOSIS, 2006-2020

Statistics Korea, 「Economically Active Population Survey」, KOSIS, 1970-2022

Relevant ministries : Ministry of Employment and Labor, Human Resource Development Division, Regional and Industrial Employment Policy Division; Ministry of Gender Equality and Family, Gender Impact Assessment Division  
Responsible ministries: Ministry of Gender Equality and Family(Women's Resources Development Division), Ministry of Employment and Labor(Women's Employment Policy Division)