

evaluation of green growth policies in 2012 found that more specific and targeted measures were needed to create green jobs (Prime Minister's Office, 2012).

More recent efforts have been made to boost green jobs and skills. Under the creative economy strategy, a plan to foster human capacity in the green technology industry has been given a legal grounding, and is to be reviewed every five years. It focuses on seven environment-related areas<sup>13</sup> identified by analysing skills demanded by industry. In addition, a job matching system, established in 2013, serves as an interface between universities training individuals and environmental industries demanding people with particular skills (MOE, 2016a). However, to manage the transition to a green economy, Korea will need to conduct a whole-of-economy, quantitative assessment to identify where and how many jobs in "brown" industries may be lost, where there is concrete potential to create green jobs, the skills needed to do them and the training and investment needed to develop them, and how to assist workers in the transition between contracting and expanding sectors (OECD, 2015g; OECD, 2012a).

In the renewables industry, government measures (section 4.4) have stimulated firm and job creation, investment and exports. Solar PV dominates the industry, accounting for 70-90% of employment, investment and exports in any given year (KEMCO, 2014; KNREC, 2015). Between 2008 and 2011, sales tripled, employment doubled, the number of renewables companies almost doubled and export revenue increased by a factor of 2.6 (MOTIE, 2014). However, domestic and global demand did not keep pace with the rapid growth of the renewables industry, leading to an overabundance of solar PV and wind manufacturers (KEMCO, 2014; MOTIE, 2014). The industry contracted sharply in 2012, with investment amounting to less than a third of its value in 2011, exports almost halving, employment dropping and firms closing (KNREC, 2015). In the mid- to long term, however, the government expects increased competition fostered by the RPS and related policies to lead to considerable further growth (MOTIE, 2014).

It remains a challenge for Korea to position itself in the renewables export market, given that its technical capacity remains below that of the United States, Japan and the EU yet its products are more expensive and produced in lower volume than in China, its key rival (GGGI, 2015; Invest Korea, 2015).

## 5.2. Green public procurement

Korea's well-established green public procurement (GPP) system is recognised as an example of best practice among OECD countries (OECD, 2015h). It is part of a broader world-class public procurement system praised for its efficiency, comprehensiveness and flexibility (OECD, 2016h). GPP in Korea, which relies on a strong eco-label foundation (see below), received a boost in 2005 when the Act on Promotion of Purchase of Green Products (Chapter 2) made it obligatory. Each year, institutions must submit a voluntary GPP target and implementation plan to the MOE, though there is no overarching, binding government target. Institutions must also submit a record of green purchasing receipts from the previous year, and over 96% comply (OECD, 2015h). Reporting data are centralised online at the Green Products Information Platform ([www.greenproduct.go.kr](http://www.greenproduct.go.kr)), which streamlines the monitoring and reporting process and renders institutions' performance transparent to the public (OECD, 2015h).

The GPP system has stimulated Korea's EGSS. The Korea Environmental Industry and Technology Institute (KEITI) estimates that the number of certified products grew from



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2 721 to 14 026 and total green purchase value by public institutions increased from KRW 787 billion (USD 768 million) to KRW 2.4 trillion (USD 2.1 billion) over 2005-15, and that 18 264 jobs were created over 2005-14 (MOE, 2016a). Despite this progress, green products only account for 8% of total public procurement and 42% for categories with green options available, indicating room for growth (OECD, 2015h; KEITI, 2014).

To further strengthen the impact of Korea's GPP, the scope, number and quality of green products could be expanded to better meet public institutions' product needs. To this end, the government should improve engagement with the private sector concerning these needs and the green standards that products should meet to be eligible for purchase. Maintaining open channels for dialogue between government, procurers and businesses has been crucial to the success of GPP in Canada, Belgium and Austria, for example (OECD, 2015h). GPP officials should be designated in each public institution, to help combat the problem of frequent turnover, and they should receive more specialised training (KEITI, 2014). Increased support for professionalisation has been identified as a need in the broader public procurement system (OECD, 2016h). Finally, GPP regulations should be harmonised with Korea's numerous other procurement regulations to minimise procurers' confusion and regulatory burden (OECD, 2015h).

#### 5.3. Supporting sustainable consumption

The government manages many environmental labels to inform consumers about the environmental and energy performance of products, shops and buildings so as to stimulate green consumption and production. The Korea Eco-Label (1992) and Good Recycled Mark (1997) are the best-established labels, and provided the basis for smooth implementation of GPP and rapid growth in the green goods market. A carbon footprint label was introduced in 2009. These represent just a fraction of Korea's numerous labelling and certification programmes, which create complexity and burden for producers, consumers and public procurement officials (OECD, 2016h). It may be beneficial to review environmental labelling and certification programmes to look for opportunities to streamline and simplify them.

The number of Eco-Label certified products has grown steadily since 2001, yet recognition of the label remains around 50% and a gap persists between its recognition and actual purchase of certified products (KEITI, 2014). Reasons include higher prices and a lack of variety of green products, insufficient product information, problems with quality and what are perceived as misleading labelling and advertising (GSC, 2014). Indeed, in 2012, 46.4% of eco-labels were found to be false, leading the government to revise the Environmental Technology and Industry Support Act in 2014 to provide a legal basis to punish false eco-labels (MOE, 2015b). Greater collaboration with the private sector and tighter monitoring of eco-labels is essential to tackle low quality and false labelling. Experience from other countries, such as India, shows that full life-cycle analysis of green products and communication of their costs and benefits to consumers are essential to convince people of the economic (as well as environmental and social) advantages of purchasing them (OECD, 2015h). High-level support from a trusted public figure could help overcome misgivings about the system; for example, support by Vienna's city councillor for environment for the "ÖkoKauf GPP project" helped overcome a belief that ecologically sound goods and services were more expensive than conventional ones (OECD, 2015h).

The government has introduced incentives that reward consumers who buy environmental goods and services and save resources. Since 2009 the "carbon point" system has rewarded electricity, water and gas savings and the "carbon cashbag" system has



rewarded purchases of energy-efficient products. Both were integrated with the flagship Green Credit Card system in 2011 (Box 3.4). However, KEITI has found that one barrier to greater uptake of the card is a lack of consumer awareness of eco-friendly lifestyles (KEITI, 2014). This is despite the Greenstart Movement, launched in 2008 to promote green behaviour in non-industry sectors (households, transport, businesses) by developing green leaders, running seasonal events and campaigns, and supporting climate change education (KEI, 2013a).

#### Box 3.4. The Green Credit Card system

The Green Credit Card system was introduced in 2011 to reward eco-friendly consumption. It provides a normal credit card service, but also allows users to accumulate "eco-money points" (equivalent to 3-24% of the product price) when they use the card to purchase low-carbon and eco-friendly products. They can also earn points by saving electricity, water and gas (through linkage with the "carbon point" system) and using public transport (points equivalent to up to 20% of the fare). The points can be converted into cash rebates, used to buy other products (not only green) or to pay public transport fares and phone bills, or donated to environmental associations. Cardholders can also get into certain public facilities such as national parks and museums free of charge.

There are more than 10 million users of the system. The Green Credit Card is used more often than other credit cards to pay for public transport. The number of participating public facilities increased from 381 in 2012 to 746 in 2014. KEITI estimates that reduced household use of electricity, water and gas through the system saved USD 6 million between July 2011 and December 2014. The system is estimated to have mitigated 531 000 tonnes of CO<sub>2</sub> over 2011-14; however, on an annual basis this represents less than 0.02% of total GHG emissions. The system is attracting international attention as a low-cost, convenient way to encourage green consumer behaviour (KEITI, 2016). The government plans to expand its partnerships with retailers and manufacturers (e.g. adding large supermarkets and department stores) as well as the number and type of eligible products and services (e.g. car sharing). The government is also looking to extend use of the card to online shopping and, eventually, to international purchases by establishing a global green credit card partnership (KEITI, 2014).

Source: KEITI (2014), *Policy Handbook for Sustainable Consumption and Production of Korea*; KEI (2012), "Green card system", *Korea Environmental Policy Bulletin*, Issue 1, Vol. X, Korea Environment Institute, Sejong.

## 6. Promoting eco-innovation

### 6.1. General innovation performance

Korea is the world's most research and development (R&D)-intensive country. Gross domestic expenditure on R&D grew from 2.2% of GDP in 2000 to 4.3% in 2014, well above the OECD average (2.4%), but below the ambitious target of 5% set for 2012 in the first Five-year Plan for Green Growth (OECD, 2016i). Korea also ranks first in business R&D, which accounted for 3.4% of GDP in 2014. Large manufacturing conglomerates are the main performers of business R&D, with the service sector and SMEs playing much smaller roles (OECD, 2014c). The government has implemented a vast array of initiatives to raise public support to SMEs. However, streamlining could be beneficial, and some incentives – such as the R&D tax credit, which lacks carry-over provisions or cash refunds – could better stimulate innovation in small service sector firms (OECD, 2014d).