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Using public procurement as a decarbonisation policy: a look at Germany

By Olga Chiappinelli and Vera Zipperer

Public authorities spend large proportions of their GDP on goods and services and are therefore responsible for a significant share of embedded emissions. Given this large impact, governments have the responsibility of decarbonizing their purchases, as well as the potential to influence markets towards sustainability. So-called ‘Green Public Procurement’ (GPP) consists in the use of environmental criteria in the procurement process. In Germany, Europe’s biggest economy, public purchases account for 15 percent of annual GDP. However, despite a rising trend, the use of GPP in public procurement contracts remains marginal. The main barriers to broader implementation is the perception that including environmental criteria leads to higher procurement costs. Further, administrative capacity faces constraints to acquire legal and technical expertise about GPP. A clear political mandate for financing the incremental costs incurred from the environmental impact of procured goods and services, as well as specific training programs for procurement officials can encourage an increased adoption of GPP in the future.

In Germany, public procurement amounts to over 500 billion euros per year. This equates 15 percent of GDP, making it both a paramount economic phenomenon and a central activity of the government. Specifically, government purchases account for 18 percent of total consumption and 11 percent of total investment. In some sectors, public purchasers command a significant share of the market, such as in health (74 percent), education (91 percent), transport infrastructure, telecommunications, and defense (100 percent each). Given this considerable impact, governments can use their purchasing decisions to pursue strategic policy objectives, among which sustainability is a major one.

Green Public Procurement (GPP) describes procurement processes that specify environmental criteria in the call for tenders and thus take into account environmental considerations, such as energy efficiency and the use of low-carbon materials, in the award process. Some examples of GPP purchases are energy-efficient computers and buildings, office furniture from sustainable sources, etc. A clear political mandate for financing the incremental costs incurred from the environmental impact of procured goods and services, as well as specific training programs for procurement officials can encourage an increased adoption of GPP in the future.

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1 OECD (2017): Size of public procurement in Government at a glance 2017 (available online, retrieved on November 22nd, 2017. This applies to all other online sources in this report, unless specified otherwise). According to the OECD, public procurement is defined as the sum of (1) intermediate consumption by governments for their own use, (2) gross fixed capital formation, and (3) social transfers in kind via market producers. These figures exclude spending by utility companies and state-owned enterprises.

2 OECD (2017): OECD.stats – National Accounts at a Glance 2017 – General Government and OECD.stats – National Accounts – National Accounts at a Glance – Overview Table. The consumption share is the ratio between the sum of (1) and (3) in footnote 1, and total consumption expenditure in the economy; the investment share is the ratio between (2) in footnote 1, and total investment expenditure in the economy.

3 Calculation based on Statistisches Bundesamt (2015): Health Expenditure (available online).

4 See Eurostat: Total educational expenditure by education level, program orientation and type of source (educ_uee_fine01) (available online).

5 Other strategic objectives that can be pursued through public procurement are for example innovation, competitiveness and growth, support for small and medium enterprises and gender equality.

6 European Commission (2008): Public Procurement for a better environment. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (available online).
GPP holds great large potential to decarbonize the economy, also relative to the other decarbonization policies that are currently being implemented or discussed. Current levels of carbon pricing in emission trading schemes are not yet high enough to trigger the changes that are needed for moving towards a low-carbon economy. On the other hand, GPP can have a fast, significant and comprehensive impact. First, GPP offers authorities the option to make purchase decisions based on implicit carbon prices that are higher than the general carbon price, as well as taking into account more environmental impacts than solely carbon emissions. This implies that when buying green products and services, authorities can substantially reduce their own environmental impact. Second, given authorities’ large procurement volumes, GPP can create lead markets for climate-friendly options early on, which carbon pricing may struggle to create in the short term. Therefore GPP can provide the industry with credible incentives for adopting and developing green technologies and processes along the whole value chain. Furthermore, like other ‘demand-side’ innovation policies (e.g. regulations and standards), procurement can provide incentives for industries to innovate without or with limited impact on public spending, which is a key advantage in times of fiscal consolidation. Also, GPP seems politically easier to implement than other forms of carbon pricing, such as a carbon tax. GPP can be implemented at the national and local level without requiring broader political consensus.

Moreover, public authorities have the size and the role to push the public awareness and the political commitment for environmental protection, as well as sustainable consumption and production.

The potential of public procurement as a decarbonization policy is widely acknowledged by key international policy institutions. For example, a target on GPP was included in the United Nations’ 2030 Sustainable Development Goals (SDG 12, target 12.7). Though the implementation of GPP is not mandatory (Box 1) and the targets are not binding, the European Commission made GPP one of six policy priorities in its newly published public procurement strategy.

Given the political momentum in Europe, Germany’s ambitious emission reduction targets – at risk of being missed if no further action is taken – and in anticipation of the formation of a new government, it is a good time to assess where Germany currently stands in regard to goals and implementation of GPP. This report also examines the barriers to fully unleashing GPP’s potential, and proposes policy options to overcome them.

**Implementing GPP: going beyond the purchase price by accounting for environmental impacts**

In many cases, public procurement contracts are awarded solely on the basis of the purchase price: Using the so-called “lowest price criterion”, the cheapest bid is awarded the contract. However, the purchase price only accounts for a portion of the total cost generated by a public purchase (see Figure 1). There are further direct and indirect cost, which should be considered in the procurement process in order to reflect the true costs of a procured good or service.

Regarding direct costs, the public authority will often face post-purchase expenses over the life-time of the object. For example, when procuring the construction of a building, the public authority will not only incur an expenditure for the construction, but will also have to cover the costs during the operational stage of the building (i.e. electricity bills, maintenance works) and the disposal costs at the end of life (i.e. demolition costs). The direct costs of an object over its entire lifetime are often referred to as Total Cost of Ownership (TCO).

Alongside economic benefits, using TCO when awarding procurement contracts, even if not explicitly taking into account environmental criteria that would qualify as green procurement, can have environmental benefits. While sustainable products and services tend to have a higher purchase price than conventional options (e.g., LED lighting compared to incandescent bulbs), they are likely to be cheaper overall when accounting for the costs incurred over the entire life-time, since they have lower

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7 UN Environment (2017): Global review of Sustainable Procurement (available online).
9 Kasten Neuhoff et al. (2017): Innovation and use policies required to realize investment and emission reductions in the materials sector. Policy Design for a Climate-Friendly Materials Sector. Climate Strategies and DIW Berlin (available online).
10 UN Environment (2017), loc.cit.
13 CEPS and College of Europe (2011): Uptake of Green Public Procurement in the EU 27. Study mandated by the European Commission, DG Environment (available online).
14 CEPS and College of Europe (2011), loc.cit.
energy and fuel use), as well as lower maintenance, operating costs (for instance because of more efficient environmental externalities, as part of the concept of life-cycle cost, which allows to take into account all direct and environmental costs of a purchase over the entire life time of a product. Also, the EU-2014 Directives simplified the use of environmental labels and allowed the public authorities to require certain environmental labels without infringing the competition law. The current EU regulation thus provides a regulatory framework for including environmental criteria. However, it neither nor sets binding targets. Therefore, EU Member States are free to determine the extent to which they implement and use GPP.

The EU sets common rules for the public procurement of contracts which have a reserve price (i.e., the auction’s starting value as defined by the purchasing authority) exceeding given thresholds. Regarding the use of environmental considerations in public procurement, two sets of EU Directives are especially important. First, the EU-2004 Directives introduced the option of including environmental considerations in the award procedure, both as award criteria and as technical requirements (e.g., environmental labels). Second, the EU-2014 Directives explicitly introduced the possibility of including the costs imputed to environmental externalities, as part of the concept of life-cycle cost, which allows to take into account all direct and environmental costs of a purchase over the entire life time of a product. However, it neither mandates the use of GPP nor sets binding targets. Therefore, EU Member States are free to determine the extent to which they implement and use GPP.

Germany implemented the EU-2004 Directives in 2006. The novel EU regulation of 2014 was implemented in 2016. In addition, for contracts below the EU thresholds, national regulations apply. Here are some examples of sector-specific laws which foster sustainability aspects:

- the law to promote the circular economy and environmentally friendly waste management, where environmentally friendly options have to be considered in procurement contracts;
- the administrative directive of the Federal Ministry for Economic Affairs and Energy on the procurement of energy efficient products and services in 2017, which requires the consideration of the highest energy efficiency standards as well as environmental labels in evaluating tender bids;
- a joint decree on the procurement of wood products from 2011, which requires that all wood products are sourced from legal and sustainable wood production.

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1 European Commission (2014): Thresholds according to type of procurement under the 2014 directives on concessions, general procurement, and utilities (available online, last retrieved November 13th, 2017)
2 European Commission (2004): Directive 2004/18/EC on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts (available online); and Directive 2004/17/EC coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors (available online).
4 There are, however, some sector-specific legislations e.g. requiring certain energy efficiency standards of office IT equipment (EU Regulation No 106/2008 on a Community energy efficiency labelling programme for office equipment, available online) or road transport vehicles (EU Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles, available online).
6 For a detailed overview of the legal framework of environmentally friendly procurement see Umweltbundesamt (2017): Rechtfertigungen umweltfreundliche öffentliche Beschaffung (available online).

operating costs (for instance because of more efficient energy and fuel use), as well as lower maintenance, conversion, recycling and disposal costs than the business-as-usual option. Looking at TCO instead of the simple purchase price therefore allows the purchaser to choose the offer with the overall lowest direct cost, exploiting potential economic savings over the life-time of a product or infrastructure.

Due to the environmental impact of products (environmental externalities), the purchase will not only generate costs for the purchasing organization but also for society as a whole. For example, the construction of a public building requires materials (e.g., steel and concrete) the
The regulatory framework of the EU and Germany (see Box 1) allows for two GPP implementation options. First, environmental considerations can be specified in the technical requirements in the call for tenders. This implies that all bids are required to satisfy certain (minimum) standards or specifications (e.g., on energy efficiency, material use), Second, environmental criteria can be part of the award criteria. This approach is possible when the so-called “Most economically advantageous tender” (MEAT) award criterion is used, which allows to consider quality dimensions in the award alongside price. Using the MEAT criterion allows to take both total cost of ownership and environmental considerations into account in the competition. The current EU directives on public procurement actually sets MEAT as the default award criterion, in contrast to the lowest-price criterion. Using the MEAT rather than tender technical requirements allows for flexibility in evaluating different technologies that may be offered with respect to the environmental performance and costs rather than predefining specific technical requirements. A combination of technical requirements and environmental award criteria is also possible.

There are two GPP implementation options with MEAT. The approach used most frequently considers various dimensions of environmental quality as award criteria, such as material use and energy efficiency and allots specific weights to them. The contract is awarded to the bidder that achieves the highest overall “score,” i.e. weighted average between the price and quality score (including environmental dimensions). By reducing the weight given to the simple purchase price and increasing the weight given to the environmental quality dimensions, climate-friendly options can be put at an advantage in the competition (see Box 2).

In the second implementation option, environmental quality attributes are fully monetized, discounting the bidders’ submitted prices, and the contract is awarded to the bidder with the lowest (fictional) “corrected bidding price”. The more environmentally friendly the products or services with respect to business-as-usual alternatives are, the larger the downward adjustment to reach the corrected bidding price. The discount can be significant enough to award contracts to bidders who do not present the lowest bidding price, but whose offer is cheaper once environmental impacts during the production phase and subsequent stages are included.

This second GPP implementation option through MEAT is used for example by the Dutch public infrastructure authority for their infrastructure procurement (see Box 2). This has led to an estimated reduction in the overall emissions produced over the entire life span of the infrastructure—construction, operation, and disposal—of 24 to 50 percent compared to standard tenders.  

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16 Karsten Neuhoff et al. (2017), loc. cit.
18 These figures refer to seven big infrastructure contracts awarded in 2015 and 2016 by the Dutch Public Infrastructure Authority in the context of the GPP2020 Initiative. See footnote 28 for more information on GPP2020.
Green Public Procurement

tion works alone account for 38 percent of the overall volume of public contracts (Figure 2).

Only half of these large public procurement contracts are awarded based on MEAT, the other half are based on the lowest price criterion (Figure 3). Thus, the options for GPP in current procurement procedures are not yet fully exhausted. In terms of monetary values, the share of MEAT awards varies significantly over time. Peak shares of nearly 60 percent in 2010 and more than 70 percent in 2013 indicate that some large-scale procurement contracts indeed involved MEAT criteria.

GPP potential is still largely unexploited in Germany

The majority of large-scale public procurement contracts in Germany are concentrated in a small number of sectors. Based on data from the European TED-Database (see Box 3), which only covers tenders that fall under EU directives, contracts for petroleum products and electricity, for construction works, and for transport services, account for almost 65 percent of the volume all public contracts in Germany between 2009 and 2015. Measured by the number of contracts, construction works alone account for 38 percent of the overall volume of public contracts (Figure 2).

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The usage of environmental criteria for procurement contracts is still very limited in Germany, amounting to 2.4 percent of all public contracts awarded in 2015, suggesting that authorities still underestimate the strategical potential of GPP. The trend has been positive, however, and the number of tenders with environmental criteria has tripled over the last decade. The main driver behind the increase is the growing use of GPP in tenders for services contracts. The number of green service contracts increased almost six-fold from 2009 to 2015 (Figure 4). On the other hand, the use of GPP is particularly low for works (i.e., construction) contracts. While tenders for works accounted for almost 30 percent of all tenders in 2015 (both in terms of number of contracts and in terms of value contracted), only 1.3 percent of the volume of work awards considered environmental criteria.

While GPP is used in almost every category of procured goods, works and services, only four product categories account for more than two thirds of tenders that adopted green criteria: office and computing machinery; transport equipment; sewage, refuse and cleaning services and architectural, construction and engineering services (Figure 5). In terms of volume contracted, office and computing machinery come first, followed by construction work, and transport equipment. Box 4 describes two examples of GPP in Germany in more detail.

Remaining obstacles and policy recommendations

Despite GPP’s large potential as a decarbonization policy, actual data shows that the uptake in Germany to date is low. This is due to a number of challenges and barriers. These are typically more pronounced at the local level, which is particularly relevant as it is where most of the procurement takes place (80 percent in Germany).

The most important barrier to a widespread use of GPP is the perception that green products and services are more costly than standard ones. In light of the expectation that public authorities use financial resources sparingly, this poses a big concern to procurement officers. This is especially true at the local level because of tighter budget constraints and a higher reluctance to stress the tax base. While the purchase price for environmentally friendly products and services is indeed often higher than for business-as-usual options—for instance, LED bulbs against standard ones—taking into account the costs over the entire life-time (TCO), however, the green alternatives can actually be cheaper. Procurement procedures should thus to a greater degree include costs

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19 In four out of 45 object categories, GPP was not used at all from 2009 to 2015.
that go beyond the mere purchase price and reflect ulterior costs as well.

Furthermore, local purchasing authorities typically have no incentive for considering the social costs of the purchase decisions they make. To push the willingness to implement GPP at the local level, specific funding arrangements should be designed, whereby the central government—the federal level, in the case of Germany—, covers the incremental costs of GPP. A more extensive use of GPP requires a clear commitment by the central government and a clear governance structure ensuring consistency among all government levels such that the national climate objectives have influence on individual procurement choices.

Another obstacle is that GPP is perceived to reduce the number of bidders in the competition, thereby leading to a further increase in the purchase price. A priori, such a negative effect on competition is not clear, however. Adopting green criteria may in fact encourage the participation of more innovative firms because they could have a competitive advantage in a competition that not only considers price.\(^\text{23}\) GPP may therefore both attract participation and level the playing field for the competition.

Administrative capacity constraints are also a relevant barrier. Especially at the local level, procurement teams are often small and officials lack both technical and legal expertise needed for the implementation of GPP, regarding technical details and environmental impact of a product or service, for instance. Moreover, GPP is perceived as time-consuming, a delay in acquiring of necessary goods and services that adds to the overall complexity of an activity that is already seen as complicated and overly bureaucratic. Due to structural and financial constraints, public authorities, especially at the local level, are often not in a position to hire extra trained staff. More specific training courses for procurement officials, such as those that go beyond the mere purchase price and reflect ulterior costs as well.

Figure 2

Share of product categories in total public procurement, in Germany (2009–2015)

In percent

Note: Data shown uses the macro-level categorization of the Common Procurement Vocabulary (CPV). The Common Procurement Vocabulary (CPV) was developed by the EU in order to provide a classification system for procurement contracts and facilitate the description of the objects of procurement for public authorities. The first two digits of the eight-digit CPV code indicate a macro category of the objects. The rest of the code provides more details on the object (e.g., 45,000,000 indicates the macro category “Construction works”, 45,100,000 “Site preparation work”, 45,110,000 “Building demolition and wrecking work and earth-moving work” and so forth with increasing detail. For more details on the CPV coding, see EU Commission Regulation (EC) No 213/2008.

Source: Authors’ own calculations based on data from EU TED-database (available online).

Only a few procurement object categories account for the vast majority of contracts.

provided by the Competence Centre for Sustainable Procurement (Kompetenzstelle für nachhaltige Beschaffung beim Beschaffungsamt des Bundesministeriums des Innern (KNB)), would improve both professionalization of and commitment to GPP, and would facilitate its systematic implementation. The publication of relevant handbooks to evaluate environmental criteria, as the EU has started to produce on some products, would further facilitate the implementation. At both national and European levels (for large tenders), a regulatory framework for these guidelines and product evaluation criteria could lead to higher confidence in using GPP as well.

Strengthening the communication and coordination between authorities is also proven to foster a broader implementation of GPP. The establishment of multi-stakeholder collaboration and knowledge-sharing platforms (also including the private sector) at local, national and international level seems promising. A good-practice example here is the European GPP2020 initiative, which aims to establish green procurement practices at the EU level. Coordinating efforts is particularly valuable at the local level, for instance with the establishment of networks of municipalities that implement joint procurement, as practiced by the German Association of Cities (Box 4). This allows to aggregate demand (e.g., at the central/federal level), thereby allowing public authorities to reap benefits from suppliers’ economies of scale, while reaching the size, information and professionalism needed to unlock the opportunities mentioned above.

Going beyond the actual procurement process, there is a lack of standards and practices for monitoring and evaluating compliance in the contract implementation, as well as practices and standards on measuring and reporting the outcomes of GPP. It is important that such standards are established at both the national and the EU level. Appointing an independent institution to conduct random checks on compliance could guarantee the transparency of the procurement process including the implementation stage.

Green public procurement is heavily underused with take-up rates between almost zero and three percent depending on the type of contract.
There is a discrepancy between the German government’s climate goals and the incentives at the local level, where most of the procurement activity takes place but where the budget constraints are the tightest. More extensive use of GPP therefore requires a clear political mandate that makes climate goals relevant at all levels and providing it with adequate earmarked funding locally, for instance through dedicated transfers from the federal level.

A successful implementation of GPP further requires adequate capacity building. In particular, procurement officers have to be trained to implement GPP and further tools have to be developed to make the practice of GPP as easy and time-efficient as possible. Single initiatives and projects, put in place by various municipalities or organizations in Germany but also abroad, for instance in the Netherlands, can serve as best-practice examples.

**Conclusion: a political commitment to green public procurement can help Germany achieve its emission reduction targets**

Germany needs to act quickly if it wants to live up to its 2020 emission reduction targets. The decarbonization policies currently in place are not sufficient to drive the changes that are needed towards a low-carbon economy. Given the large volumes of government purchases, green public procurement offers a significant potential for steering public money into climate-friendly products and services and reducing emissions. By choosing environmentally friendly goods and services in the areas where public authorities are important buyers, public purchasers can have both a direct and indirect effect in helping driving markets towards sustainability. A broader use of GPP, which is currently being implemented only in homeopathic doses, is thus one option to reduce Germany’s carbon footprint.

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Two examples of GPP from Germany

Use of recycled concrete in new public construction projects in the State of Berlin

In order to reduce the environmental impact of construction, the City-State of Berlin has required the use of recycled concrete in a number of public construction projects. This includes the recent construction of the Berlin Institute for Medical System’s new laboratory building at the Max-Dellbrück-Centre for Molecular Medicine, which started in 2015. This project has proven that recycled concrete can be of high quality as well as meet all necessary standards (such as strength, class and consistency) and require no special or additional handling during installation. As a result, the State of Berlin will require the use of recycled concrete in all its future public high-rise construction projects. This will replace around 100,000 m³ of standard concrete per year.

Joint procurement of 100 % recycled copying paper in the City of Erlangen.

Erlangen is part of a joint initiative for the procurement of recycled paper organized by the German Municipal Purchasers Group (Einkaufsgemeinschaft Kommunaler Verwaltungen eG), which is coordinated by the German Association of Cities (Deutscher Städtetag). This joint procurement allows (especially small) local authorities to coordinate their efforts and to reach the size and the expertise needed to implement GPP optimally. Since 2013 all municipal departments in the City of Erlangen are required to only use 100 percent recycled paper for their office needs. The annual environmental savings are estimated at 12.03 tonnes of CO₂, 2,191,093 litres of water and 451,234 kWh in energy.


3 Calculations were made using the Pro Recycling Paper (IPR) Sustainability Calculation tool and based on the annual consumption (from 2013) of 13.85 million sheets of Blue Angel certified 100 percent A4-sized recycled paper.