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Considering minimum energy performance standards for Germany

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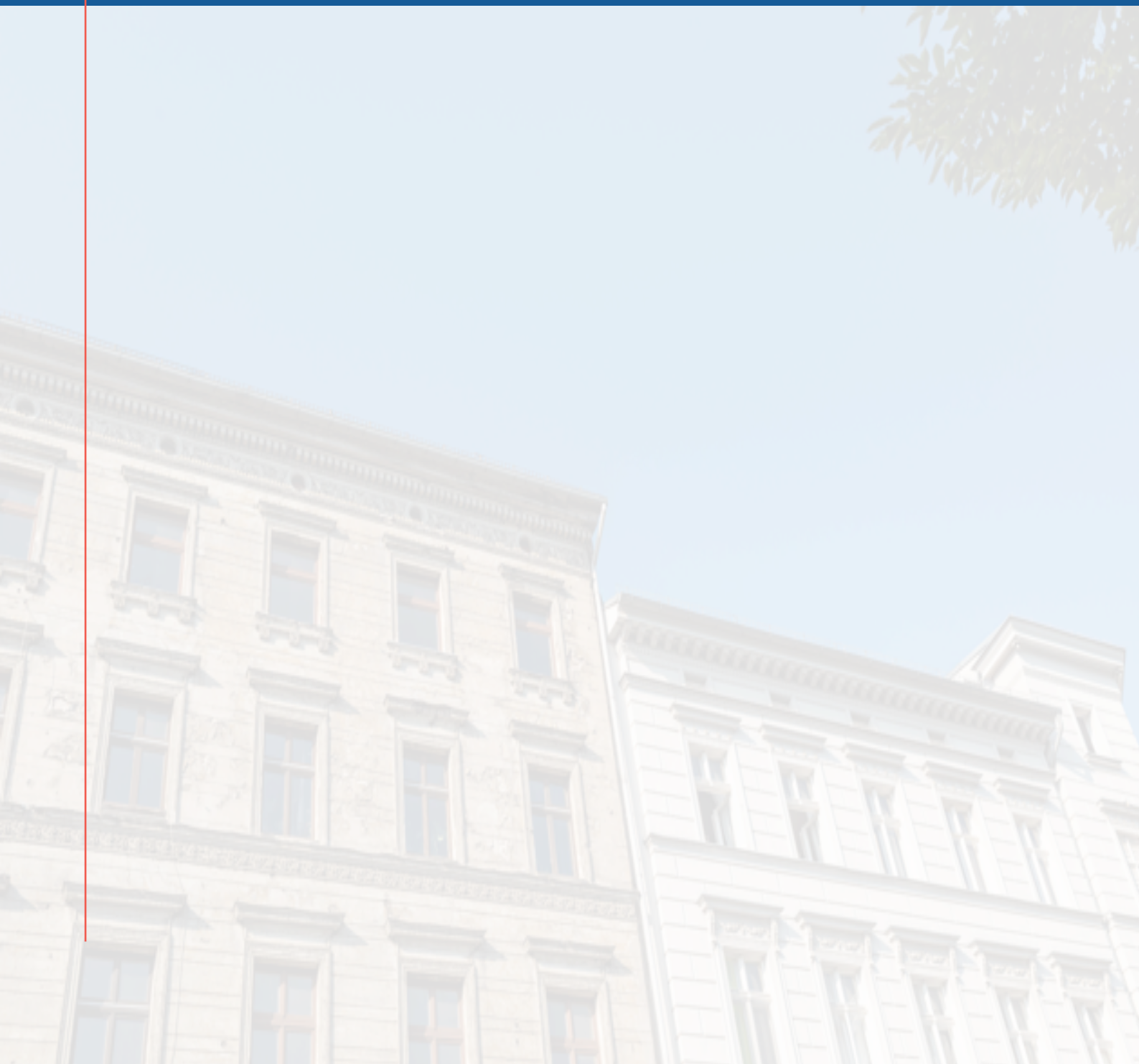


Summary

Minimum energy performance standards are missing piece of the puzzle to drive renovation of buildings in Germany in this decade.[1]

Despite enjoying a relatively well-developed landscape of funding and incentives for building renovation, Germany has still not managed to raise the rate of renovation of existing buildings beyond around 1% of the stock a year.

The buildings sector is Germany's largest energy consumer, meaning the country cannot become carbon neutral without renovating the stock to significantly reduce energy demand and enable decarbonised sources of heat and power. The period to 2030 is critical. The federal Climate Protection Law requires buildings to decarbonise faster than any other sector in the next ten years. It must be a decade of building renovation in Germany.

Even considering new policies aiming to decarbonise buildings, including revised federal funding and the introduction of carbon taxes on heating fuels, the existing policy package falls considerably short of delivering the carbon reductions needed from buildings this decade.

It is an inescapable fact that Germany needs new, robust and complementary policies. Renovating the worst-performing buildings with the highest savings potential first is key to closing the emissions reduction gap and combats energy poverty and its effects.[2] Minimum energy performance standards (MEPS),[3] which complement and leverage existing funding and pricing measures, can target these priority buildings.

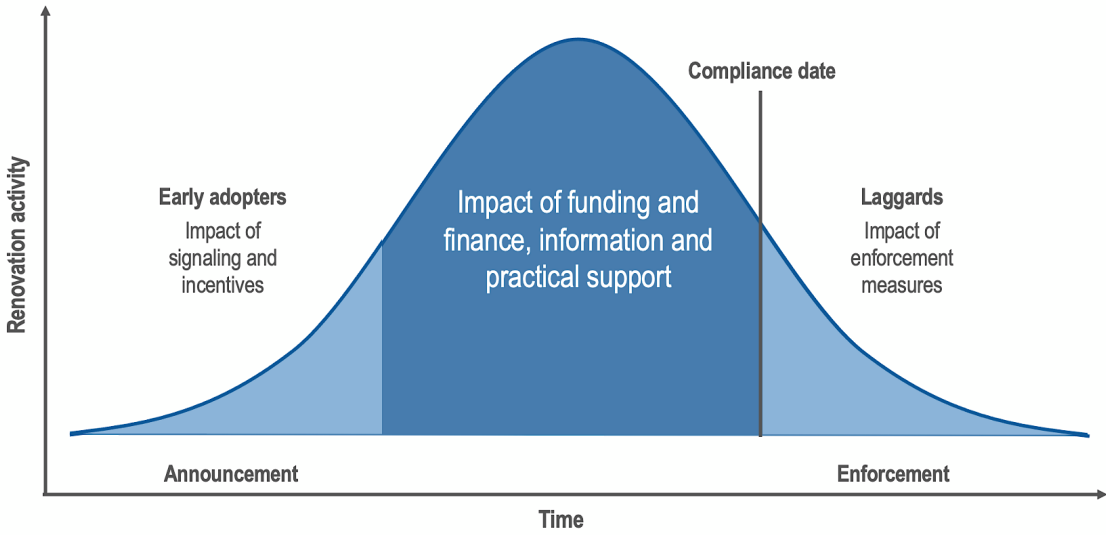
MEPS are regulated standards that require targeted buildings to meet a minimum energy performance standard at a date or trigger point in the future. MEPS are introduced with a long lead time before enforcement and allow flexible routes to compliance. This gives building owners clarity and, importantly, flexibility to renovate at the most suitable time within the building's lifecycle or investment cycle, as illustrated in Figure 1.

[1] The authors would like to acknowledge and express their appreciation to the following people who provided helpful insights into drafts of this paper: Sibyl Steuwer, Buildings Performance Institute Europe; Alexandra Langenheld, Agora Energiewende; Martin Pehnt, ifeu - Institut für Energie- und Umweltforschung Heidelberg; and Anna Wolff und Elisabeth Staudt, Deutsche Umwelthilfe. Deborah Bynum provided editorial assistance.

[2] Steuwer, S., Rosenow, J., & Jahn, A. (2018). *Minimum energy efficiency standards for a fair energy transition.* Buildings Performance Institute Europe, Regulatory Assistance Project. https://www.raponline.org/knowledge-center/minimum-energy-efficiency-standards-for-a-fair-energy-transition/

[3] European Commission. (October 2020). *A renovation wave for Europe – greening our buildings, creating jobs, improving lives*. https://eur-lex.europa.eu/resource.html?uri=cellar:0638aa1d-0f02-11eb-bc07-01aa75ed71a1.0003.02/DOC_1&format=PDF

Figure 1. Impact of MEPS embedded in framework of practical and financial support to drive renovation



When introduced with a clear indication of the future trajectory of rising standards, MEPS can also illustrate a pathway for building owners to renovate towards climate-neutral buildings early, enjoying the benefits and cost savings now.

The clear standards and future trajectory also provide the much-needed planning horizon for industry and building trades to boost the supply of skilled professionals and innovative renovation solutions.

MEPS are not a stand-alone policy — the standards are embedded in a framework of practical and financial support for renovation. This is essential to ensure that the standard is fair and building owners are enabled to comply. Not only is the MEPS reliant on the existence of this support, the standard in turn increases the effectiveness and efficiency of the funding and finance offered.

MEPS are receiving votes of confidence from across the world. National and city governments are increasingly adopting MEPS policies to address local priorities for their building stocks. As a result, policy makers can draw and build on a growing body of policy design evidence. Results show the potential of these standards, when embedded within the supporting framework, to significantly improve the performance of the target stock.

Noting this evidence from European countries and beyond, the European Commission has committed to introducing a framework of mandatory MEPS across Europe. As part of the EU Renovation Wave strategy, MEPS will be proposed later this year through a revision of the Energy Performance of Buildings Directive. The Commission has recognised that this framework must provide Member States with flexibility to design MEPS that are nationally relevant. The task at hand now is for all stakeholders to engage in the design of a MEPS — which includes the buildings to be covered, the standard to be achieved and the timeline for compliance — that triggers the decade of renovation needed.

Buildings stakeholders have already begun the process of engaging with the introduction of MEPS in the German context and have identified three top-line priorities. The first priority is to enable compliance and ensure broad impact. Fair and unambiguous policy design, a strong enabling framework and social protections all work together to this end. The second priority is to avoid unambitious energy-saving measures that prevent deeper renovations. The third is to safeguard compliance. Effective enabling measures can ensure very high levels of compliance well before the enforcement date.

This short policy brief outlines the potential of MEPS and reports on the first stage of ongoing stakeholder engagement. As such, it is an invitation to continue discussions.

Time for new buildings policies

Germany cannot meet its climate neutrality goals, honour the Paris Agreement and avert a catastrophic climate crisis without deep renovation of its buildings.

The buildings sector is the largest single energy consumer in Germany. Buildings account for 35% of final energy use and are responsible for around 30% of greenhouse gas emissions.[4] Of the buildings standing today, the vast majority will still be in use in 2050. Each of these existing buildings needs renovation: first, to reduce energy consumption; second, to make use of decarbonised forms of heating and cooling; and third, to enable more flexible use of energy.

The next decade is critical. Buildings must decarbonise more quickly in the next ten years than any other sector, according to the Climate Protection Law.[5]

But as we enter this pivotal new decade, it is clear that the buildings policies in place are insufficient, and significantly so. Action on buildings within the Climate Protection Programme falls short of delivering the emissions reductions needed to keep the buildings sector on track.[6] The shortfall is in the region of 17 million tonnes of CO_2 equivalent in 2030.

As shown in Figure 2, this gap doubles when taking into account the new European Union 2030 climate target of a 55% cut in emissions by 2030. For Germany, this new binding target, voted by the European Council in December 2020, increases the gap between the emissions reductions offered by existing policies and the reductions target to approximately 35 million tonnes of CO_2 equivalent.[7] To fill this gap, the nation needs policy measures in the buildings sector that are more than four times as powerful as the new carbon pricing schemes across all (non-ETS) sectors.[8]

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[4] German Federal Ministry for Economic Affairs and Energy. (2019). *Energieeffizienz in Zahlen: Entwicklung und Trends in Deutschland 2019* [Energy efficiency in numbers: Developments and trends in German 2019]. https://www.bmwi.de/Redaktion/DE/Publikationen/Energie/energieeffizienz-in-zahlen-2019.html

[5] German Federal Climate Protection Law. (2019). https://www.bgbl.de/xaver/bgbl/start.xav?startbk=Bundesanzeiger_BGBl&start=//*[@attr_id=%27bgbl119s0010.pdf%27]#__bgbl__%2F%2F*%5B%40attr_id%3D%27bgbl119s2513.pdf%27%5D__1611217174527

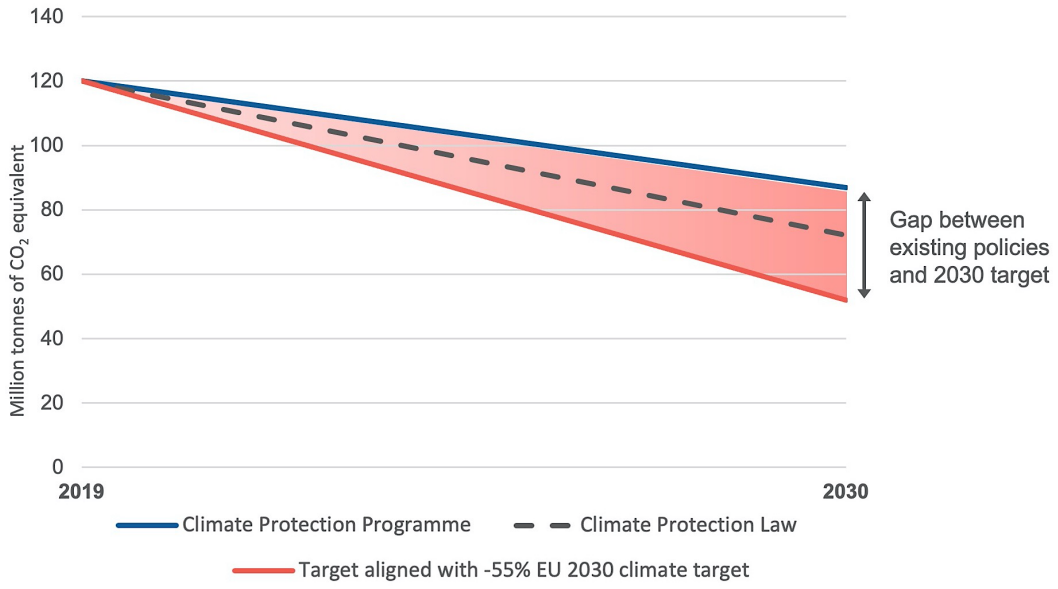
[6] Harthan, R., Repenning, J., Blanck, R., Böttcher, H., Bürger, V., Emele, L., Görz, W.K., Hennenberg, K., Jörß, W., Ludig, S., Matthes, F.C., Mendelevitch, R., Moosmann, L., Scheffler, M., & Wiegmann, K. (2020). *Treibhausgasminderungswirkung des Klimaschutzprogramms 2030 [Greenhouse gas reduction effects of the 2030 climate protection program].* A report for Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2020-03-05_climate-change_12-2020_treibhausgasminderungswirkungen-klimaschutzprogramm-2030.docx_.pdf

[7] The -55% EU climate target for 2030 broadly translates into a target for Germany of -65% in 2030, broken down by sector in Prognos, Öko-Institut, Wuppertal-Institut. (2020). *Klimaneutrales Deutschland [Climate-neutral Germany].* Summary on behalf of Agora Energiewende, Agora Verkehrswende und Stiftung Klimaneutralität. https://www.agora-energiewende.de/veroeffentlichungen/klimaneutrales-deutschland-zusammenfassung/

[8] Carbon pricing is projected to produce 7.7 Mt CO_2e savings in 2030. Wettengel, J. (18 December 2020). Germany's carbon pricing system for transport and buildings. *Clean Energy Wire*. https://www.cleanenergywire.org/factsheets/germanys-planned-carbon-pricing-system-transport-and-buildings

Germany urgently needs new, ambitious, effective, integrated policy measures for buildings. These policies must generate large numbers of additional renovations that first reduce energy demand and then foster the switch to decarbonised heat supply.

Figure 2. Carbon emissions policy gap in the buildings sector



Data source: Harthan, R. O. et al. (2020). *Greenhouse gas reduction effects of the 2030 climate protection program*: Climate protection Law. (2019).; Prognos, Öko-Institut, Wuppertal-Institut (2020) *Climate-neutral Germany*.

Existing measures alone, even if expanded, will not be enough. Relying only on more and more generous subsidies and high carbon prices will be increasingly expensive and cannot guarantee targets will be met. Not even a high carbon price of €245/tonne CO_2, for example, could incentivise renovation of only the worst-performing buildings on an economic basis, notwithstanding other barriers.[9]

Regulation, financial incentives and funding, practical support and carbon pricing must all work together in a smart and complementary way. Clear communication of an ambitious framework will allow Germany to expand markets, develop workforce skills, and mature innovative, cost-effective solutions. All of this will accelerate progress in this vital decade.

[9] Thöne, M., Gierkink, M., Pickert, L., Kreuter, H., & Decker, H. (2019). *CO_2-Bepreisung im Gebäudesektor und notwendige Zusatzinstrumente* [CO_2 pricing in the building sector and necessary additional mechanisms]. Energiewirtschaftliches Institut der Universität zu Köln and Finanzwissenschaftliches Forschungsinstitut der Universität zu Köln. http://www.fifo-koeln.org/index.php/de/projekte/alle-projekte/mitarbeiter/co-bepreisung-im-gebaeudesektor-und-notwendige-zusatzinstrumente

MEPS ensure renovation of priority buildings first

A powerful policy currently missing from the German framework is minimum energy performance standards (MEPS) for existing buildings.

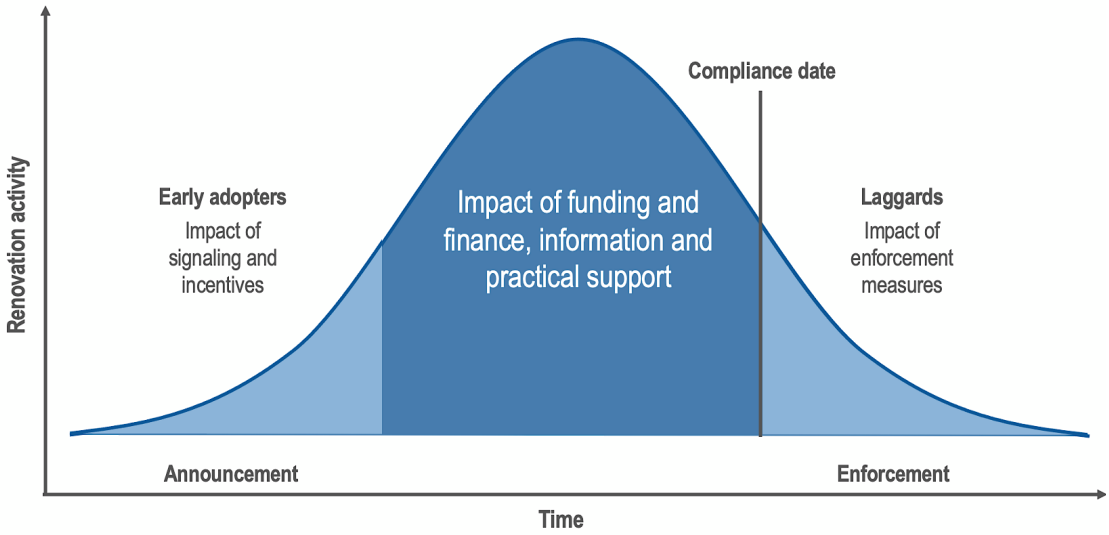
These standards set a date or point in future by which buildings below a certain performance level need to meet a better minimum standard of energy performance, leading to more renovations.

MEPS provide certainty and flexibility

MEPS provide building owners, investors and occupiers with clarity and certainty, whilst affording flexibility. The policy provides a strong signal to renovate within a clear time frame, letting owners and occupiers choose the best moment. Policy makers introduce MEPS with a long lead time, commonly between four and 10 years.[10] This policy-signalling period, coupled with clear and consistent communication, allows building owners time to plan for their renovation in line with investment cycles and building lifecycle stages. The standards also provide flexibility on how to achieve the standard, ensuring technology neutrality.

Figure 3 illustrates that the majority of renovation works are undertaken far in advance of the compliance deadline. A MEPS introduced now can thus be an effective tool for delivering on 2030 targets.

Figure 3. Impact of MEPS embedded in framework of practical and financial support to drive renovation



[10] Sunderland, L. & Santini, M. (2020a). *Filling the policy gap: Minimum energy performance standards for European buildings.* Regulatory Assistance Project. https://www.raponline.org/knowledge-center/filling-the-policy-gap-minimum-energy-performance-standards-for-european-buildings/

By nature, MEPS tackle the worst-performing buildings first. They ensure that the most wasteful and energy-intensive buildings and the buildings that cost the most to keep warm move to the front of the queue. Focus on these buildings — which have the highest potential for savings — is vital to drive down emissions in the next decade. At the same time, MEPS can also set out a longer-term trajectory for each building, creating a pathway towards climate neutrality and illustrating opportunities for building owners to go further faster. Communicating this clear direction of travel provides the supply chain and other enablers — such as technology manufacturers, installers, construction trades, finance providers and others — with the confidence to invest, innovate and upskill with certainty. This ensures a sustained renovation market and good quality jobs.

Policy-signalling impact: Enablers align to support early compliance

Early announcement of the MEPS in the Netherlands, where offices must be EPC C by 2023, triggered major banks to adapt finance to support owners and investors to comply early.

The standard for offices was introduced into legislation in 2018. Alongside it, a framework of technical and practical assistance, government funding and incentives, and preferential private-sector finance supports compliance. The policy also builds on an existing requirement for operators of large offices to undertake all cost-effective efficiency measures.

Following the announcement of the standard, the country's largest banks ABN Amro, ING Real Estate and Rabobank have internalised the standard in their investment strategies. They implemented measures to support existing clients in developing plans to meet the standard early, and proactively encourage building owners to go beyond the EPC C standard in expectation of rising standards beyond 2023. They have signalled that new investments should meet the future standard now and some have extended this requirement beyond office assets to other building types not covered by the MEPS. The banking sector is enabling and encouraging early compliance both within and beyond the target sector. This example illustrates how the clarity provided by a MEPS enables the supply chain to align and enable early action before enforcement.

MEPS are embedded in an enabling framework

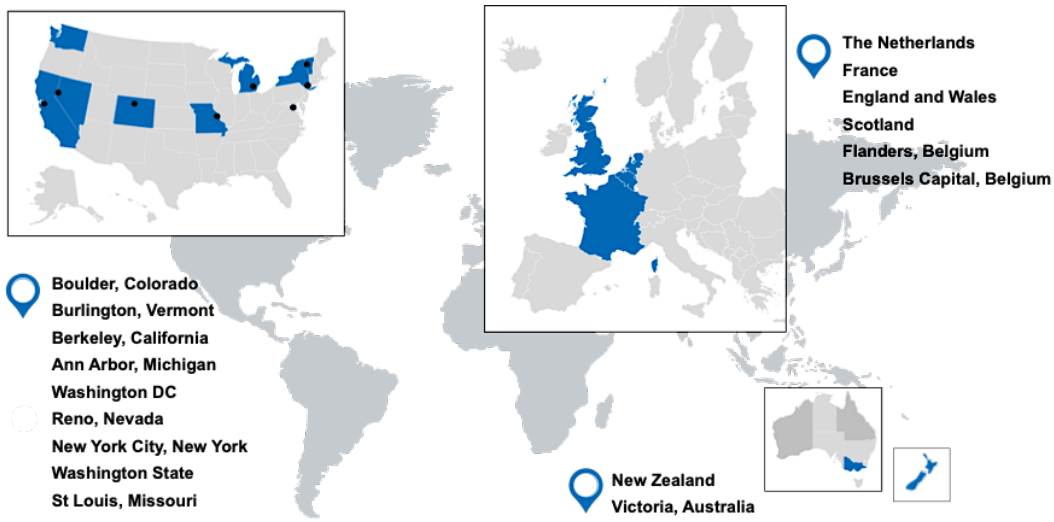
When introduced, the regulated standard is, importantly, embedded in a framework of financial and practical support for renovations. This is essential to ensure that the standard is both effective and fair. The support is in place well before the compliance date to enable timely renovations. Support can incentivise renovations that go beyond the minimum standard, as well as enable renovations for compliance.

The hand-in-glove relationship between the MEPS and renovation support produces a double dividend. While the renovation programme enables compliance with the standard in a socially just way, the presence of the MEPS increases the impact and efficiency of the programme. The MEPS drives demand into the renovation programme, meaning that renovations are no longer spurred by financial incentives alone. Funding becomes more effective, focussed on maximising the social and climate impact for each euro of public funds spent.

MEPS are an increasingly popular policy innovation

Policy makers in countries across the world are increasingly introducing MEPS as part of comprehensive building decarbonisation policy packages, as illustrated in Figure 4.[11]

Figure 4. Leading examples of MEPS around the world



Adapted from: Sunderland, L. & Santini, M. (2020b). *Case studies: Minimum energy performance standards for European buildings.*

Their decisions are supported by evidence from the older standards, which have already reached enforcement, illustrating strong potential to improve entire segments of the stock. For example, the Dutch government's agreement with the social housing

[11] Adapted from Sunderland, L. & Santini, M. (2020b). *Case studies: Minimum energy performance standards for European buildings.* Regulatory Assistance Project. https://www.raponline.org/knowledge-center/case-studies-minimum-energy-performance-standards-for-european-buildings/

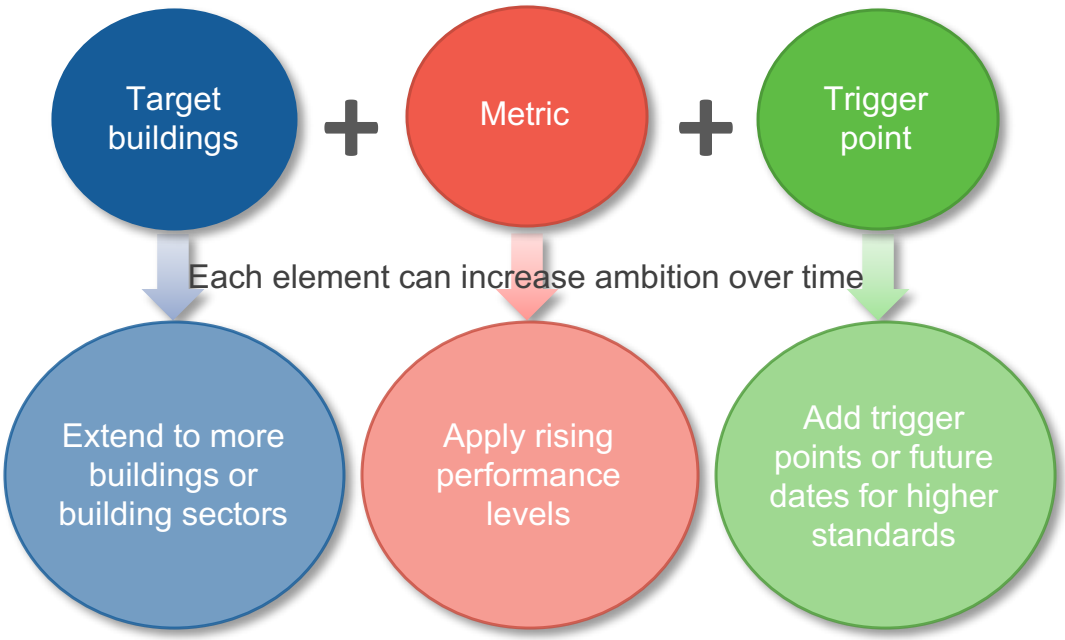
sector — which covers 30% of all housing — to reach an ambitious energy performance certificate (EPC) class B (on an A to G scale) in 2020 is on track to be met in 2021.[12] A standard focussing on rental housing in Boulder, Colorado, achieved over 99% compliance within six months of its enforcement deadline in 2018.[13]

Apprised of this evidence, the European Commission has committed to introduce mandatory MEPS across Europe through a revision of the Energy Performance of Buildings Directive later in 2021.

Flexible policy design fosters successful introduction

One of the attractive qualities of MEPS policies is that they are flexible in design. The standards can be crafted to deliver on local priorities, which is perhaps why they have been adopted and endorsed in many different jurisdictions.

Figure 5. Elements of MEPS policy design



The flexibility is afforded through manipulation of three core elements, illustrated in Figure 5, that make up the policy design:

[12] Sunderland & Santini, 2020a, and Aedes. (2019). *Betere prestaties & grote uitdagingen: Repportage Aedes-benchmark 2019* [Better performance & big challenges: Report Aedes benchmark 2019]. https://dkvwq750av2j6.cloudfront.net/m/620ffd480af237f1/original/Aedes-benchmark_2019_online.pdf

[13] Petersen, A. & Lalit, R. (2018). *Better rentals, better city: Policies to improve your city's rental housing energy performance*. Rocky Mountain Institute. https://rmi.org/how-cities-can-ensure-better-rentals-for-everyone/

Target section of the building stock: Standards in different jurisdictions cover distinct parts of the stock: different sectors, tenures, ownership structures, building type and size. For example, the standard in France applies to homes, in England and Wales to all rented buildings, and in the Netherlands to offices. In New York, and other U.S. states and cities, the standards apply to large buildings, for example, buildings in New York over 2,300 m².

Metric and level of ambition to define the standard: In Europe, the most commonly used metric is energy performance certificate class. Other options include energy intensity (kWh/m²), carbon intensity (CO_2/m²) and the presence of a minimum set of building fabric and heating system measures. Energy and carbon ratings can be either asset based or operational. Standards using EPC class might target the worst-performing buildings only, as is the case for the EPC E standards in England and Wales and in France, or aim for a higher level of performance like the EPC C standard in the Netherlands. The standards can increase in ambition over time, as with the Scottish standard for rented homes, introduced at EPC E and rising to EPC D at change of tenancy three years later and for all rented homes after five years.

Design for local priorities

Jurisdictions design MEPS to deliver on local priorities. For example, for many of the standards recently introduced in the United States, MEPS are part of a strategy to deliver on city-based carbon targets. The design is therefore focused on achieving the greatest carbon savings by targeting large, mostly commercial buildings. Policies in England and Wales, Scotland, Australia and New Zealand focus on improving housing standards, energy affordability and health and well-being, so the regulations target housing, in particular privately rented housing. In Australia and New Zealand, the energy standards are combined as part of wider housing quality standards.

Examples of MEPS design

Single-stage standard, at firm date

Offices in the Netherlands must be EPC C in 2023. On introduction, the government widely discussed a further standard of EPC A in 2030 but this ‘shadow regulation’ was not introduced in legislation.

Rising standard, at trigger point and date

Rented homes in Scotland must be EPC E from 2020 and EPC D from 2022 when a tenancy contract is changed, extending to all targeted properties in 2025.

Stock average standards

Standards in the U.S. target large buildings that perform below the stock average. Each policy period the average is recalculated to increase the standard. Ambition is added through building size thresholds that reduce over time and increasing savings targets.

Trigger point for compliance: Standards can use a firm date in the future or a natural point in the building lifecycle, or both. Trigger points include major renovation or transactional milestones like sale or change of rental contract. The trigger can be a single point in the future or, preferably, can set out phased standards that increase over time. For example, the incrementally increasing standard in Scotland makes use of both the transactional trigger point of change in tenancy contract and a firm date. Following full enforcement of the EPC E standard in 2021, the new EPC D standard will be required first at change of tenancy from 2022 and extended to all rented homes from 2025.

It is important for the success of MEPS that stakeholders are involved in and take ownership of the design. It can ensure the standard delivers maximum benefits, is ambitious but achievable and fair.

The European Commission has mentioned the need to introduce flexibility to the framework at European level that provides room for Member States to design nationally relevant MEPS. In support of this national policy development, is an increasing international body of knowledge and experience with MEPS policy design.[14]

This essential process of engagement, discussion and debate has already begun in Germany. At a workshop attended by building performance stakeholders and experts, hosted by DENEFF in December 2020, three key points for the successful national implementation of MEPS emerged.

Enable compliance

It should be possible for all owners of targeted buildings to comply and do so in a socially responsible manner, this includes ensuring that affordability is protected for renters and that low-income households, including tenants, can benefit more easily and directly from suitable subsidies and support. Building occupiers should also benefit without undue burden.

Policy makers can enable compliance through focus on:

- the design of the standard
- the suitability and capacity of the funding and finance framework
- measures to ensure social fairness.

A number of elements contribute to designing for compliance. The first step is setting an ambitious but achievable standard that is appropriate for the target buildings. Data on the nature of the target stock and its ownership is key to creating suitable standards that are differentiated for different parts of the stock. Flexible routes to compliance and technology neutrality in the choice of metric are also important to keep options open

[14] For example, Sunderland & Santini, 2020a; Sunderland & Santini, 2020b; and Nadel, S., & Hinge. A. (2020). *Mandatory building performance standards: A key policy for achieving climate goals.* American Council for an Energy-Efficient Economy. https://www.aceee.org/white-paper/2020/06/mandatory-building-performance-standards-key-policy-achieving-climate-goals

for building owners. A standard based on EPC class can achieve this. Perhaps most important in designing for compliance though is sufficient time between announcement and enforcement for building owners to comply at a time most suitable to them and building occupiers.

The second, but no less important, step is to establish the right support landscape to enable building owners to finance, plan and implement successful renovation works. Germany already has a framework of renovation finance and incentives, both at national and local level. Recently updated and simplified, the federal funding for energy-efficient buildings offers increased levels of funding through a streamlined application process and offers more generous support for comprehensive upgrades.[15] Compliance with the MEPS is reliant on funding and finance, thus, announcement of a forthcoming MEPS should increase, rather than decrease or even prevent, access to support.

Design for compliance

Over 50% of the housing in the city of Boulder, Colorado, is rented.

The city introduced the SmartRegs policy, which set energy efficiency standards for rental housing, to improve standards in the rented stock, address the split incentive and contribute to the city's climate action.

Introduced in 2010, with eight years before enforcement, the policy had achieved over 99% compliance just six months after enforcement. How did they do it?

- Consultation and engagement in policy design
- Flexible pathways to compliance
- Technical assistance, support and incentives aligned with the standard
- Integration of standard into rental licensing and inspection regime
- Two four-year rental license cycles allowed for compliance
- Non-compliance results in rental license being withheld
- Escalating penalties for renting without a license
- Public disclosure via accessible map

Source: Petersen, A. and Lalit, R. (2018). *Better Rentals, Better City: Policies to Improve Your City's Rental Housing Energy Performance*.

Buildings stakeholders have identified the need to ensure that the funding and finance framework is adequate to the task and that access to financial resources is as efficient as possible for the building owner. Once a MEPS has been introduced, funding and finance needs to be available to enable compliance well before enforcement of the standard. It can also continue to incentivise deeper renovations, over and above the minimum standard, after the compliance date.

The third requirement for successful compliance is to ensure that the renovations induced by MEPS deliver maximum social benefits and avoid negative social

[15] Federal Government of Germany. (2020). *Key elements of the Climate Action Programme 2030*. https://www.bundesregierung.de/breg-en/issues/climate-action/klimaschutzziele-finanzieren-1694724

consequences. The cost of compliance must be shared fairly between buildings owners, the state and tenants. A strength of MEPS is that they can effectively address the landlord-tenant split incentive, driving renovation and improvement of buildings standards that might not otherwise happen. Importantly, a MEPS targeted to improve the worst-performing housing this decade can reduce the escalating cost burden on households created by the rising carbon tax on heating fuels. Tenants, who pay the full cost of the carbon tax through their bills, have no ability to respond directly to the carbon price signal by renovating their homes. Therefore, the carbon tax exacerbates the impact of the split incentive, whereas a MEPS can align tenant and landlord interests.

Appropriate levels and forms of funding and finance are the most important tool to ensure that the lowest income households are not unduly burdened, but further protections, particularly for tenants, are also needed. For tenants, the assessment of a fair share of costs should be made in line with their ability to pay. Safeguards should be in place to ensure that those on lowest incomes, who disproportionately live in poorly performing homes, can benefit from access to climate-friendly housing with modern standards and low heating costs, without bearing the cost.

Prevent lock-in effects

While setting realistic, achievable standards is important to achieve a high level of compliance, creating 'locked-in' shallow or moderate renovations must be avoided. The lock-in effect is the result of implementing low-hanging fruit or only the most cost-effective measures when undertaking a renovation, which make more advanced renovation measures more technically difficult or economically unviable.

MEPS and the enabling framework can help prevent lock-in in three ways: a trajectory of rising standards in regulations, clear communication of that future trajectory and funding structures that support deeper renovation.

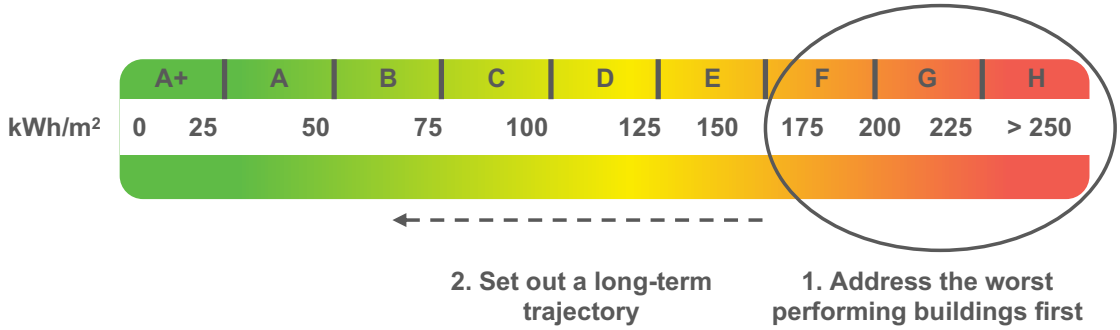
Clarity about future direction is essential to allow building owners the flexibility and foresight to renovate mindful of both today's standard *and* tomorrow's destination. MEPS is one of the very few policy tools that can provide clarity to each and every building owner on the long-term destination and role their building has in reaching the climate targets.

MEPS can therefore be designed to be ambitious from the outset — like the Dutch standard for social housing of EPB B — or staged. A staged MEPS introduces a moderately ambitious starting standard alongside a signal of a future destination, as illustrated in Figure 6.[16] There are a number of ways to deliver this signal. For example, when the Scottish government introduced the EPC E standard for rented homes, the regulation also included the more ambitious standard of EPC D phased in three years

[16] Deutsche Energie-Agentur. (no date). *Energieausweis für Gebäude [Energy certificate for buildings]*. https://www.dena.de/20-jahre-dena/energieausweis/

later. The Dutch government, when introducing the EPC C standard for offices, also widely discussed and signalled a future standard of EPC A in 2030, but did not enter it into the regulation. Interestingly, even in the absence of regulation for the higher standard, the indication of intent from the government has been sufficient to cause building investors to prepare for compliance.[17]

Figure 6. Illustrative example of a MEPS based on EPC rating, incrementally increasing over time



Source: Figure based on Deutsche Energie-Agentur. (no date). *Energy certificate for buildings*.

Funding and finance programmes provide a further method for signalling and incentivising building owners to go beyond compliance with a first-stage standard. Funding can encourage owners to undertake deeper renovations and fully decarbonise their buildings in the longer term, aligning with climate goals. The framework can reward both greater ambition and early action. The state of Washington makes specific financial incentives linked to the size of the building available to owners who comply with the MEPS in the five years before the enforcement date. This incentive is in addition to increased levels of funding available. Funding can also be structured to focus on generating the greatest benefits now. Offering higher levels of support to the worst-performing buildings for ambitious renovations that far exceed the minimum standard can drive the greatest energy, carbon and cost savings.

Finally, the individual renovation roadmap, with its horizon of more than 10 years, is an incredibly valuable guide to building owners and occupiers.[18] This advanced advisory tool, which sets out a renovation pathway of either individual measures or a single deep renovation, is already available in Germany. It is heavily subsidised and linked to energy consultation services and higher grants for efficiency and renewable heating measures. Widespread rollout of this measure, alongside other bespoke advisory services, would support building owners in selecting the right pathway for their building to comply with a technology-neutral MEPS and would incentivise a 'beyond compliance' mindset that takes buildings more quickly to climate neutrality.

[17] Sunderland & Santini, 2020a.

[18] Deutsche Energie-Agentur. (no date). *Individual refurbishment roadmap for residential buildings*. https://www.dena.de/en/topics-projects/projects/buildings/individual-refurbishment-roadmap-for-residential-buildings/

Safeguard compliance

Effective stakeholder engagement, policy design and supporting framework can secure very high rates of compliance in advance of, or at, the trigger point. Nevertheless, as with any regulation, the state must be able to enforce it if necessary. This is why effective MEPS across the world are designed with enforcement in mind. Integrating with and making use of enforcement opportunities is key to good MEPS design.

Marketing for sale or rent, conveyancing and contracts processes, rental licensing, building inspections and planning and building control processes are just some of the opportunities to integrate compliance checking and enforcement. The most common sanction mechanisms in use are periodic or incrementally increasing fines. Restrictions on renting the building or on its continued use are used as final-stage enforcement tools. Public disclosure of non-compliance is a useful, complementary tool.

Using the EPC as the metric to define a MEPS is perhaps the obvious choice in Germany. While the EPC assessment and label were not designed as a tool for checking and confirming compliance with a regulated standard, the EPC has been adopted for this purpose in a number of European states: the Netherlands, France, Flanders in Belgium, and Great Britain. The EPC offers the benefits of a standardised building assessment tool, with a well-recognised label that is already integrated into buildings' marketing, sale and rental processes. The individual EPC assessments have also populated a now extensive national database.

If accepted as a starting point, there are undoubtedly reforms and improvements that would make the EPC more suitable as a compliance tool. The European Commission has proposed to revisit and update the EPC framework at European level at the same time as introducing MEPS in the Buildings Directive this year.[19] At national level, there is time for improvements to address specific weaknesses with the EPC and adapt it for its new role. The long lead time between announcement of the MEPS and enforcement — at which point EPCs become compliance-checking tools — allows policy makers to adapt and improve the tool after announcement of the MEPS.

Finally, there is a clear role for local authorities in safeguarding compliance. They are well placed to integrate enforcement with enabling services, like local renovation advice and one-stop shops, and to use local data, knowledge and powers to support effective compliance. Worldwide, enforcement of MEPS is devolved to local or city authority level. In Germany, federal states and other agencies should therefore be adequately resourced to integrate MEPS with municipal heat planning, enable and enforce MEPS compliance and monitor the impact on local communities.

[19] European Commission. (2020). *A renovation wave for Europe – greening our buildings, creating jobs, improving lives*. https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/renovation-wave_en

Next steps: Implementing best practice

The essential process of engagement must continue and expand to involve all interested parties, including owners, occupiers, aggregators, energy service providers, one-stop shops, the supply chain and interest groups. Drawing on the experience of other countries, this process should work towards a clear definition of the role MEPS can play within the buildings policy framework and within wider decarbonisation strategies. Successfully integrated, MEPS can be the missing piece of the puzzle in a policy framework that delivers the required step change in renovation activity.

To develop a MEPS covering one or more sectors of the building stock, five simple principles, drawn from the available experience of MEPS policy design, are useful:

- Clarity and simplicity: A robust and reliable metric and clear, enforceable trigger points are key to a successful standard. Ambitious policies often need to be balanced with exemptions or caveats that make allowances for outlying situations. However, overly complex MEPS policies are hard to communicate and understand, difficult to enforce and ultimately undermine the impact.
- Long-term visibility: The policy-signally impact of MEPS is huge. Standards are announced early, well before the compliance date. The long-term trajectory must be clear.
- Integration and embeddedness: Embed MEPS within practical and financial support mechanisms and wider heat decarbonisation and renovation plans. Funding and finance is structured to enable compliance by all building owners and occupiers in a socially fair way, and to incentivise more ambitious renovation beyond the minimum standard.
- Evidence-based policy design: Stock data and assessment tools, like the EPC, are key to good policy design. Measures to improve data and assessment tools can be implemented in the policy-signalling period, and the MEPS itself can be designed to improve EPC penetration.
- Plan for effective monitoring and enforcement: Link monitoring, review, compliance checking and enforcement mechanisms to existing procedures where possible and ensure sufficient resources.[20]

[20] Summarised from Sunderland & Santini, 2020a.

Additional Resources

Related papers, reports, and research from RAP and other key organisations.

Filling the policy gap: Minimum energy performance standards for European buildings

https://www.raponline.org/knowledge-center/filling-the-policy-gap-minimum-energy-performance-standards-for-european-buildings/

The authors draw from successful examples around the world to share key design features for minimum energy performance standards, their supporting framework and the considerations for policy makers just getting started.

Case studies: Minimum energy performance standards for European buildings

https://www.raponline.org/knowledge-center/case-studies-minimum-energy-performance-standards-for-european-buildings/

These case studies from six European jurisdictions share key design features for minimum energy performance standards, their supporting framework and the considerations for policy makers just getting started.

Minimum energy efficiency standards for a fair transition

https://www.raponline.org/knowledge-center/minimum-energy-efficiency-standards-for-a-fair-energy-transition/

In a joint fact sheet, the Buildings Performance Institute Europe (BPIE) and the Regulatory Assistance Project (RAP) recommend the introduction of minimum energy performance standards for rental buildings.

Mandatory Building Performance Standards: A Key Policy for Achieving Climate Goals

https://www.aceee.org/white-paper/2020/06/mandatory-building-performance-standards-key-policy-achieving-climate-goals/

A white paper from the American Council for an Energy-Efficiency Economy (ACEEE) that profiles building standards from seventeen jurisdictions, many in the United States, summarises current trends and draws preliminary conclusions.

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