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This is the final policy brief issued by the EVALUATE (Energy Vulnerability and Urban Transitions in Europe) project, underway between March 2013 and February 2018. More information about the project can be found at www.urban-energy.org/evaluate.

As argued in a recent book (www.energystudies.net), the project has found that the emergence of energy poverty in Europe, and beyond, is linked to multiple layers of systemic change. Of particular importance to this argument has been the revelation of the material and technical features that characterize the existence of an infrastructural divide in Europe. The divide operates at multiple levels and scales of activity – from the differences between nation states, to variations within the fabric of neighbourhoods and even households themselves. EVALUATE concluded that the European energy divide can be seen as a socio-technical assemblage that is continuously dismantled and put together by multiple political interests and path-dependencies. It is highly territorially contingent, which means that the geographical characteristics of cities, regions and countries themselves combine to produce and sustain this particular form of injustice.

EVALUATE also established that the emergence of energy vulnerability of a distinct spatial formation involves the interplay between concurrent processes of social change on the one hand, and the tangible and intangible features of particular places, on the other. The dynamics that allow energy poverty to arise and persist within specific material sites also shape wider political and social processes – as well as processes of institutional change in the energy sector itself – via an additional feedback loop.

The wide body of evidence reviewed by the project shows that Eastern and Central European countries are characterized by record levels of energy poverty in the European context. Here, it is clear that the decision to move towards a market-based regulation of the energy sector – involving, inter alia, the liberalization of energy trade, the rebalancing of energy prices, the unbundling and privatization of energy utilities and the creation of new institutions to facilitate competition – was a crucial component of the institutional driving forces of energy-related injustices.

The project found that the urban scale provides a material site for amalgamating the multiple dynamics of change described within the first and second layer of transition into specific spatial formations. Energy vulnerability is imprinted in the urban landscape through existing and new forms of socio-economic segregation, access to infrastructural services, and variations in built environment structures. However,

domestic energy deprivation does not bring about a passive and reactive set of behaviours and practices within households and institutions. Rather, the diverse strategies that are articulated with respect to the condition have far-reaching effects on the systemic conditions that underpin the emergence of energy poverty.

Key policy recommendations issued by the project point to the significant opportunities to address energy poverty via demand-side energy efficiency policies – mainly in the form of deep building retrofits and appliance market transformations; including a minimum standard for all housing across Europe, and the banning of disconnections for all consumers. Such measures are clear win-win solutions in the case of energy poverty, as they can also assist the broader process of poverty alleviation. Given the major social and geographical differences in the incidence of energy poverty within the EU, many policies are best delivered at the regional scale.

Based on a recent paper (Thomson et al 2017, see http://journals.sagepub.com/doi/abs/10.1177/1420326X17699260) we would argue that energy poverty can be measured and monitored via a set of distinct measures (partly based on Bouzarovski and Petrova 2015, see https://www.sciencedirect.com/science/article/pii/S221462961500078X). The list of such measures and indicators is presented below, and offers a tiered approach (higher vs lower priority indicators, disaggregated based on 6 energy vulnerability factors):

Energy vulnerability factor	**Higher priority**	**Lower priority**
Access	Information on the choice and availability of energy carriers. It is important to note that this should not be limited to mains gas and electricity only – rather it should incorporate all potential sources, including, for example, self-collected firewood and peat.	Inadequate access to affordable energy carriers.
Affordability	Detailed information about household income, including welfare benefits. Total energy costs for all energy carriers and services (both theoretical and actual). Questions on self-perceived affordability ratio/ burden of energy services in the home (encompassing heating, cooling, and non-temperature related services such as lighting). Non-payment and arrears on energy bills, and if energy supply has been disconnected.	Information on payment methods (e.g. pre-payment meter, cash, direct debit) and tariffs.
Flexibility	Information on householder flexibility to move to new energy services, to understand infrastructural and built environment contexts. Tenure type.	
Energy efficiency	Technical energy efficiency and housing quality data, to allow estimation of theoretical energy costs (comparable to the English Housing Survey).	Direct measurement of energy ser- vice

	Self-assessments of the adequacy of the home's built fabric and equipment contained within. This could also include questions around indoor air quality and indicators of humidity, such as damp and mould.	levels in a sub-sample of dwellings.
Needs	Self-assessed thermal comfort levels (including shivering), in relation to adequate warmth in winter and coolth in summer. Health and wellbeing questions to assess any potential additional energy needs, and to monitor the impacts of living in energy poverty. Socio-demographic questions, including household size and type. Information on the ways in which households may have rationed their provision of energy services in the home – for example by restricting heating, lighting and/or usage of appliances.	Questions around everyday energy functioning as they relate to social and cultural contexts.
Practices	Information on the ways in which households may have rationed their provision of energy services in the home – for example by restricting heating, lighting and/or usage of appliances.	Information on everyday energy-related social practices, perhaps by way of energy diaries where householders record things they did to keep warm/cool and activities they undertook that required electricity (this also relates to 'needs'). Energy supplier switching behaviour and level of civic participation around energy provision. Questions to gauge knowledge about local/regional/national sup- port schemes, and if the household has previously taken up any schemes.