BRIEFING

EnergyREV

Post-pandemic recovery: How smart local energy systems can contribute

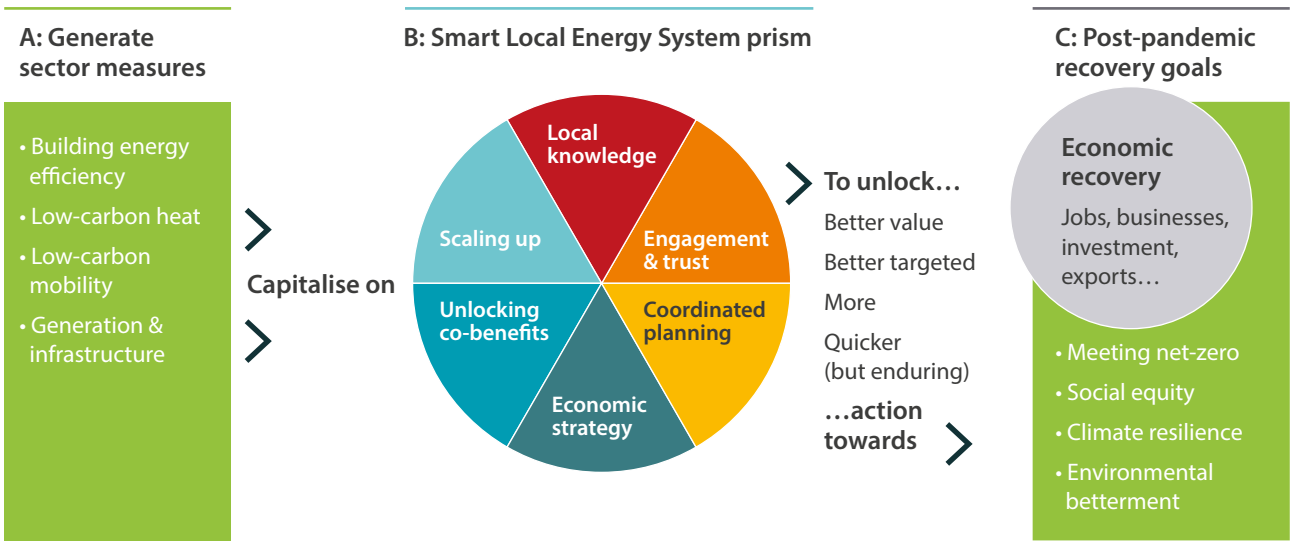
Michael J. Fell | December 2020

This report considers how the development of smart local energy systems (SLES) could support post-pandemic green economic recovery. We suggest reasons why viewing recovery through a 'SLES prism' could be beneficial, and encourage policymakers to consider this in their planning.

Figure 1 illustrates the elements of the case we seek to make. Significant resources are being dedicated to post-pandemic economic recovery, and there is also a broad desire to ensure that such recovery is supportive of social and environmental sustainability goals (see Figure 1, C).

Through a rapid review of post-pandemic proposals, we identified four key areas of activity being suggested as most likely to address all of these goals (Figure 1, A). Our report sets out why bringing a 'SLES prism' (Figure 1, B) to the delivery of these activities could make the recovery better value, better targeted, faster, and stronger.

Figure 1: The elements of a smart local energy system approach to post-pandemic recovery.



INDUSTRIAL STRATEGY
UK Research and Innovation

The elements of the SLES prism are as follows. They are not mutually exclusive, but interact -- often constructively -- with each other:

- **Local knowledge**: Local Government and local actors such as community groups and distribution network operators, hold data, knowledge and assets. These can inform green and resilient recovery strategies that deliver on multiple local and national objectives. Smart technologies expand the potential to collect and update local data.
  - » 'Big win' targets for retrofit and infrastructure upgrade can be recognised and delivered more quickly and with greater confidence, bringing forward associated job creation, investment and other benefits.
  - » It is easier to recognise which measures are likely to make best use of the local workforce and where they can be targeted to have the most positive impact for a given level of investment.
  - » Familiarity with local suppliers allows efficient supply chain management and coordination.
- **Effective engagement and trust**: Local government and local actors have significant local trust. It can be easier for parties to interact and collaborate when all the actors are in the same locality. Trust can support participation in and uptake of smart products and services.
  - » Stimulus activities that depend on wide participation may be started more quickly and taken up more widely than would otherwise be the case.
  - » Working processes may proceed more quickly and efficiently with coordination by a trusted local intermediary such as the local authority.
- **Coordinated local planning**: Considering a green and resilient recovery from a local perspective makes sense in that it is possible to adopt a whole, local, system planning approach. This can combine energy generation, mobility, heat, wider environmental and other objectives, for example economic objectives. Smart technologies support efficient management of these linked systems.
  - » Implementing measures alongside each other rather than in a linear fashion brings forward investment, job creation, and training opportunities -- along with benefits to users such as warmer homes and reduced emissions.
  - » A coordinated approach demonstrates policy commitment to goals, increasing investor confidence.
  - » Opportunities for cost savings can be more easily recognised and captured, while minimising ill-informed investment decisions (i.e. that overlook wider planned activities).
- **Unlocking co-benefits**: Local actors, particularly local government, have multiple objectives and thus are motivated, and able, to capture the co-benefits of SLES. Smart systems can help evidence these co-benefits.
  - » They unlock more money for recovery because savings in other areas can be better factored into cost-benefit analysis.
  - » They improve efficiency of benefits-out for investment put in -- and make it easier to recognise, measure, and account for important local benefits.
- **Economic strategy**: A local focus on green and resilient post-pandemic economic recovery enables alignment with Local Energy Plan (LEP) strategies that cover local business initiatives; development of workforce skills and other identified training needs; local and national supply chain development and innovation strategy.
  - » Use of existing plans can bring forward activity since problems, solutions, capabilities etc. have already been identified. It gives greater confidence in effectiveness since it has already received significant thought/planning.
- **Scaling up**: Developing smart, customisable, and interoperable digital products and services can make local energy system solutions more replicable and investible, both within the UK and overseas.
  - » Investing recovery efforts in smart scalable solutions will maximise value from the point of view of future investment and export potential.

INDUSTRIAL STRATEGY UK Research and Innovation

Figure 2: The SLES prism, and how its facets can support post-pandemic recovery.

These points are summarised in Figure 2, and illustrated in a number of case studies through the report.

As well as potential benefits, there are also important risks that will require mitigation. Prominent among these is the need to ensure that certain localities or population groups such as renters, low-income households and communities, the elderly, unemployed and disabled do not get left behind. Consideration also needs to be given to alignment of measures at different scales and for different actors to help join the dots between national policies / incentives and implementation by end users, including households.

Tensions between local and national government have been evident as the pandemic has progressed. It is therefore key to ensure that governance across these scales works as far as possible in synergy, rather than antagonistically.

Government recently announced a Ten point plan for a Green Industrial Revolution. The SLES approach maps onto all of these, but in particular those focusing on: hydrogen; electric vehicles (EV); public and active transport; homes and public buildings; and nature.

About EnergyREV

EnergyREV was established in 2018 (December) under the UK's Industrial Strategy Challenge Fund Prospering from the Energy Revolution programme. It brings together a team of over 50 people across 22 UK universities to help drive forward research and innovation in Smart Local Energy Systems.

EnergyREV is funded by UK Research and Innovation, grant number EP/S031898/1.

www.energyrev.org.uk

@EnergyREV_UK **info@energyrev.org.uk**