

## **10 TOOLS FOR SYSTEMS CHANGE TO A ZERO CARBON WORLD – ADDITIONAL RESOURCES**

Ahead of COP26, [Future Stewards](#) produced '[10 Tools for Systems Change to a Zero Carbon World](#)', a set of graphical cards that introduce different tools that can be helpful for thinking about systems change. Brief videos to explain each of the tools are now online at the same address.

This note lists other resources with further information on each of the ten tools, and examples of their use.

### **1. WAYS TO WORK WITH THE UNCERTAIN FUTURE**

[The Futures Toolkit](#) (UK Government Office for Science & SAMI Consulting). The Futures Toolkit takes you through 12 different Futures thinking tools, with advice on how to implement them. It also pulls these together into a number of pathways to meet specific objectives with an emphasis on policy. This overview gives a much more complete picture of the extensive field of futures practice than the '10 tools', and provides links into further resources.

[Three Horizons: a pathways practice for transformation](#) (Sharpe, Hodgson, Leicester, Lyon, Fazey). Describes the 2x2 overview diagram of futures approaches.

### **2. THREE HORIZONS**

[Future Stewards](#) has links to many resources - tutorials, practice guides, use examples, training, and a network of practice.

### **3. REGENERATIVE WORLDVIEW**

[Designing Regenerative Cultures](#) (Daniel Christian Wahl). In this widely praised book Daniel Wahl explores ways in which we can reframe and understand the crises that we currently face and explores how we can live our way into the future. Moving from patterns of thinking and believing to our practice of education, design and community living, he systematically shows how we can stop chasing the mirage of certainty and control in a complex and unpredictable world.

[The Regenerative Lens: a conceptual framework for regenerative social-ecological systems](#) (Buckton et al). There is increasing interest in regeneration and regenerative practice as a solution, but also limited coherent understanding of what constitutes regenerative systems at social-ecological scales. This paper presents a conceptual, cross-disciplinary, and action-oriented regenerative systems framework, the Regenerative Lens, informed by a wide literature review.

### **4. SYSTEM MAPS**

[Systems Mapping: how to build and use causal models of systems](#) (Barbrook-Johnson & Penn). A book that you can freely download as a pdf, with short explanations of a range of different systems mapping techniques.

### **5. ACCELERATING TRANSITIONS FRAMEWORK**

[‘Accelerating the low carbon transition: the case for stronger, more targeted and coordinated international action’](#) (Victor, Geels & Sharpe). Makes the case for action-focused, sector-specific, plurilateral international cooperation on climate change, based on the understanding of how technology transitions have happened in the past, how diplomacy has worked in other fields, and what problems need to be solved in each of the largest emitting sectors of the global economy. Provides the underlying rationale for the Breakthrough Agenda.

[Breakthrough Agenda Report 2022](#) (IEA, IRENA, & UN Climate Change High-Level Champions). Makes a detailed assessment of the state of international collaboration, and recommends priorities for international collaboration, in the power, hydrogen, steel, road transport, and agriculture sectors.

[Breakthrough Agenda Report 2023](#) (IEA, IRENA, & UN Climate Change High-Level Champions). Makes an updated and more summary-level assessment of international collaboration in the five sectors covered by the 2022 report, adds the buildings and cement sectors, and includes recommendations in all sectors. The Breakthrough Agenda Report 2024 will be published in early Oct 2024. For the latest on the Breakthrough Agenda see [www.breakthroughagenda.org](http://www.breakthroughagenda.org)

## 6. CAUSAL LOOPS

[‘Thinking in systems’](#) (Meadows). A book introducing systems thinking with causal loop diagrams, with full explanation of why they are useful and how they can be done. See also [‘Leverage points: places to intervene in a system’](#) by the same author, a short article on how different approaches to changing a system can be more or less powerful.

[‘Systems archetypes: diagnosing systemic issues and designing high-leverage interventions’](#) (Kim). Uses causal loop diagrams to give typical examples of systems change problems, and notes on how they may be overcome. See also [‘Using systems archetypes to take effective action’](#) by the same author.

## 7. EXPONENTIAL GOALS

The [2030 Breakthroughs](#), agreed by industry and civil society actors, facilitated by the Climate Champions Team, set exponential goals for the low carbon transition in around 30 major sectors of the economy.

RMI’s ‘X-Change’ reports on [electricity](#), [cars](#), and [batteries](#) provide clear graphics based on up-to-date data showing exponential progress in core technologies of the low carbon transition.

[‘Empirically grounded technology forecasts and the energy transition’](#) (Way et al) is a detailed academic paper showing how exponential progress happens for many technologies including solar, wind, batteries and electrolyzers, but not all (not fossil fuels), and not at the same rate.

## 8. TIPPING POINTS AND CASCADES

[Case studies of positive tipping points](#) (Murphy, Sharpe, & various co-authors). These short slide-packs contain graphics, examples, and other information on positive tipping points in the low carbon transition, covering solar and storage, electric vehicles, heat pumps, and alternative

proteins. Other examples are described in the Global Tipping Points report available on the same webpage. The policy brief [‘A positive tipping cascade in power, transport and heating’](#) has more, based on findings from a modelling study.

[‘The breakthrough effect: how to trigger a cascade of tipping points to accelerate the net zero transition’](#) (Meldrum et al). A report that maps positive tipping points in several emitting sectors, the links between them, and the potential for cascades across sectors. Identifies ‘super-leverage points’ that could activate tipping cascades in the global economy.

[Upward-scaling tipping cascades to meet climate goals: plausible grounds for hope](#) (Sharpe & Lenton). An academic paper that provides evidence that tipping points may have played a role in the fastest low carbon transitions seen so far, and suggests a focus on tipping cascades in policy and diplomacy.

## 9. AMBITION LOOPS

[The Ambition Loop](#) (UN Global Compact, We Mean Business Coalition, WRI) introduced the concept of the Ambition Loop at COP24 that has been further developed in the ‘10 Tools’.

## 10. THE POWER OF CONVENING

[Radical collaboration: Addressing complex challenges for systemic change](#) (Reos Partners)

[The seven practices for radical collaboration](#) (Leaders’ Quest)

The [Future Stewards Three Horizons practice network](#) provides links to many organisations that are putting these tools to use in convening action in their own sectors and communities