Energy Positive Communities

G-STIC 2017 called for an energy access agenda that is driven by decentralized systems that are affordable, appropriate, allow for bottom-up distribution and generate and deliver renewable energy to cover the living and comfort needs of local communities.

The positive impact of such demand-driven energy systems on local communities goes beyond the delivery of energy services and providing universal access to modern, affordable, reliable and sustainable energy (SDG 7). Access to modern energy improves the availability of water and sanitation for local communities (SDG 6). Also, by advancing employment in local communities, it helps promote sustainable economic growth (SDG 8) and industrialisation (SDG 9). Increasing the share of local renewable energy sources will also contribute to combat climate change and its impacts (SDG 13).

G-STIC 2018 identified that to achieve a stable investment climate for energy positive communities, we need to bring together two worlds. On one hand, the world of international and national energy scenarios and planning has a strong focus on the central energy networks. On the other hand, the world of local energy planning and solutions is closely involved with renewable mini- and microgrids. More than ever, we need an equal focus on decentralized and central energy solutions, and we need to monitor the market impact of each solution with real-time data in order to convince private investors.

To bring both worlds together, **we need a coherent portfolio with intelligent decision tools for energy planning on different geographic levels**. These tools can be based on a growing amount of big data available from running initiatives and can be widely applied via open source platforms such as Odyssey, OSeMOSYS, PEAK, etc. These decision tools allow translating the wide opportunity of promising energy solutions to the local conditions (which vary a lot), but can only work if the targets and questions are clearly defined for each community and if there is an active involvement of the (local) stakeholders. In addition, we need to clarify/define how to feed/update these open source service platforms with relevant innovations and practice examples.

To empower a shift from thousands to millions of energy positive communities, **we equally need energy solutions that are based on the principles of modularity, interoperability and reliability**. This is essential if we want to support energy positive communities to grow in feasible steps, and if we want to assure the involvement and acceptance of their inhabitants. In this context, an energy solution is not merely a technology. **An energy solution is a combined solution of "hardware, multi-services and an integrated financing mechanism"**. Energy is no longer a commodity sold per unit, it is a complete service adapted to the local needs of communities and their inhabitants.

G-STIC 2018 clearly identified that entirely new solution, still requiring additional research, **can also have a significant impact before 2030**, especially as digital breakthroughs in the field of artificial intelligence (e.g. deep learning for energy management) have proven to have a much shorter go-to-market than hardware technologies.