Energy Digitalisation supports the green transition, anchors key EU industrial activity and contributes to societal well-being

Call to action; Digitalisation of the energy system is a key enabler to efficiently and securely orchestrate and operate a system with more renewables, develop new business models and energy services and make energy affordable, secure and decarbonized. To reap these benefits we need to align our data communication and agree on sensible and clear rules regarding data access and cybersecurity.

Europe has converging objectives for which the energy transition is critical:

- Accelerating RES deployment and enabling infrastructure to handle this is crucial to ensuring decarbonised, affordable and secure energy (Green Deal: Fit for 55 and REPowerEU)
- Supporting the transition towards net-zero is key to anchoring industrial activity in the EU and ensuring it remains competitive and resilient (Green Deal industrial plan for net-zero)

Digitalisation of the energy system is a key enabler of the energy transition with 5 imperatives:

1. **Empowering consumers** – to enjoy affordable, secure and decarbonised energy through an updated market design and supportive digital tools, maximizing consumer choice
2. **Enabling business model, operational and service innovation** – to encourage greater energy efficiency, flexibility in consumption and energy production by 'prosumers' and to aid the decarbonisation of hard-to-abate sectors
3. **Efficiently and securely orchestrate and operate the European energy system** – with more renewables, greater demand for electrification and 'coupled' adjacent sectors,
4. **Ensuring cybersecurity and resilience** – in a more digitalized, automated and interconnected energy economy
5. **Developing and expanding a skilled workforce** – to deploy 'green tech', develop 'digital energy' apps, tools and systems and manage the electricity and connected systems

1. Empowering consumers

What should be the focus?
- **Digital apps and tools** enabling better awareness of consumption, tariff comparison and energy service offers and encouraging and facilitating consumer engagement
- **Novel business models tailored to diverse and evolving needs** of industry, SMEs and household consumers, enabling their active, commercial participation in the energy system
- **Consumer-oriented energy services at the meter and behind the meter** to unlock the potential of demand-side flexibility
- **Market model and market places** accessible to any market player and consumer, independent of location, allowing exchange of energy and services

What does industry ask for?
1. **Eliminate remaining barriers preventing participation of industry and consumer demand response**, whether connected to the transmission or distribution network, to the different electricity markets
2. **Clarify market rules to support competition behind the meter** and full implementation of a generic market model to allow individual energy transactions

2. Enabling business model, operational and service innovation

What should be the focus?
- **Interoperable access to and sharing of data** from meter, submeters and IoT devices by consumer/user (and to any third party of their choice), as well as to system operators
- **Legislative protection for data owners** to prevent inappropriate use of their data but which nevertheless allows and encourages innovation
- **Energy and cross-sector dataspaces to ensure secure open access to crucial data needed** for citizens, industries, businesses, research organisations, etc.

o **Platforms, APIs and data definitions** that allow easy access to device and system data by users, market players, service providers and system operators, supporting market places for 'energy apps' whilst securing sensitive data and avoiding gaming and market abuse opportunities

What does industry ask for?
1. **Updated electricity legislation** in line with evolutions in other sectors, enabling access and sharing of data behind the meter and also at the meter up to real-time.
2. **Interoperability rules** for access and sharing data across the electricity sector, coherent with interoperable rules of other sectors
3. **Data harmonization** (similar to the UK 'Data Spine') to facilitate communication and Support open-data access for data that is in the interest of society

3. Efficiently and securely orchestrate and operate the European energy system

What should be the focus?
o **Data insights to identify patterns, define probabilities, and predict scenarios**. With more interconnected, cross-border systems this will be essential to optimizing energy flow of energy, improving stability and avoiding outages.
o **Secure data access** to enable innovative system orchestration approaches to secure system integrity and protect the interests of consumers, businesses and society
o **Digital tools and platforms to unlock innovation and different business models and services for system orchestration and for consumers** such as dynamic retail tariffs (for flexible electrical loads like EV, heat pumps, etc.), energy sharing (local or wide area), direct green procurement from specific RES plants, and 'roaming' EV charging
o **Smart meters and submeters deployed rapidly** to provide real-time data and control points for enhanced observability and operation of a more decentralised electricity system
o **High-performing, high-capacity and highly secure digital infrastructure** to cater for significantly increased data exchange for energy-related purposes
o **Harness novel digital technologies (**e.g. IoT, AI, Blockchain, Digital Twin, Quantum) to enhance innovation and efficiency along the energy value chain and across industry sectors.

What does industry ask for?
1. **Technology agnostic legislation** enabling rapid deployment of digital infrastructure and **clear rules around who can access data and how** with easier access and judicious use of presumed consent with opt-out (rather explicit consumer opt-in) for noble cause uses with a societal good (e.g. reducing network cost, lowering carbon emissions etc.)
2. **Enabling rules for the certification of submeters** (including 'virtual submeters') to be used for different energy-related services
3. **Practical AI legislation** requiring increased transparency the training of AI models and the 'explainability' of the outputs, to mitigate bias and non-beneficial outcomes
4. **Collaborative dialogue with Industry** to best define the goals, process and steps leading to the right level of digitalization of the energy system, leveraging existing best practices
5. **Incentives, investment, supportive regulation and access to funding** to accelerate digital solutions, business models and services and de-risk early-stage investments ahead of scaled deployment
6. **Foster new and enhanced existing digital ecosystems** (e.g. Internet of Energy in Belgium) across countries and sectors and **enable market based solutions for demand flexibility** to alleviate grid congestion, meet load variability whilst also incentivising consumers take up

4. Ensuring cybersecurity and resilience

What should be the focus?

o **Highly cyber-secure and cyber-resilient energy and digital infrastructure** to protect a more connected, electrified and decarbonised economy

o **Enhanced preparedness, response and cooperation at both an asset and a system level** of critical infrastructure (such as energy, transport, telecommunications) and value chains (such as ICT, operational technology and electrical equipment) in response to cyber attacks or broader threats like war or severe weather events

o **Addressing enhanced risks posed by much greater inter-connectivity** of markets, country-systems and sectors and IT / OT convergence – all necessities for the energy transition – with a focus on system-level security

What does industry ask for?

1. **Regulator-driven system-level stress-testing, protection and resilience** across Europe, akin to that which has been driven in the banking and financial market sectors

2. **Industry-specific regulation addressing both IT and OT cyber-security measures and standards** to address the increased risks posed by greater inter-connectivity and the presence in the system of older generations of technology and equipment

3. **Coherence between upcoming legislation and concrete sector rules** – appropriate transposition of the EU framework on cybersecurity (NIS2 Directive, proposed Cyber Resilience Act and Data Act), and sectoral rules (i.e. Network code on cybersecurity)

4. **Ensure significant, meaningful energy industry representation** (including REEF participation) in activities to define cyber-regulation, in the Data for Energy' (D4E) working group and the "Smart Energy Expert Group", to shape the framework for sharing energy-related data

5. **Appropriately fund and support innovation and investments** in digital infrastructure and tools to ensure cybersecurity and resilience along the entire value chain.

6. **Promote, incentivize and significantly support cybersecurity education**, such as industry-driven academies, nation-wide awareness campaigns & online courses.

5. Developing and expanding a skilled workforce

What should be the focus?

o **Newly and more broadly skilled work force capable of dealing with all aspects of digitalization and RES technologies**, including at the intersection of these domains

o **Availability of a workforce of sufficient scale and with scarces and high value skills** to address the levels of investment and transformation across Europe's energy landscape

o **Incentives for people to train at all levels** in the skills needed by the energy transition and for skilled workers to enter /remain in the broad energy sector compared to other sectors competing for similar skills (e.g. AI, Cyber-security, data comms, electrical engineering)

o **Upskilling existing workers in the energy sector as well as developing the next generation** through schools, universities and academies

What does industry ask for?

1. **IT / digitalization to be included in basic curriculum** for schools at all levels to create an increase in STEM-aware and capable entrants to both university and vocational training

2. **Increased university focus on skills and technologies relevant to the energy transition** to deliver needed engineers, designers and managers and the entrepreneurs and innovators

3. **Investment in vocational skills training programmes to** build the field force and operational workforce for scaling the deployment of RES and associated digital technologies

4. **Cross-sector and inter-country forum on workforce issues**, including governments and universities, to foster greater collaboration and common solutions

5. **Access to highly skilled workers**, both temporary and permanent, aided by transparency of workforce availability, needs and pinch points across Europe and incentives to enable quicker and more flexible geographic deployment and attract targeted skills from abroad