

Digital Technologies: BD = Big Data; AI = artificial intelligence; IoT = Internet of Things; DL = distributed ledger; DT = digital twins; RB = robotics; 3D = 3D printing; AR/VR = augmented and virtual realities; CC = cloud computing.

Use Cases: O&M = operations and maintenance; DER = distributed energy resources; TSO = transmission system operator; DSO = distribution system operator; RES = renewable energy source; P2P = peer-to-peer.

Energy Value Chain	Use Cases	Related digital technologies									
		BD	AI	IoT	DL	DT	RB	3D	AR/VR	CC	
Generation	Improved planning	●	●			●				●	
	Improved O&M	●	●	●		●	●		●	●	
	Reduced resource use	●					●	●	●		
Transmission	Improved planning	●	●							●	
	Improved O&M	●	●			●	●			●	
	TSO-DSO coordination	●	●								
	Automated grid operation	●	●			●	●		●		
Distribution	Improved planning	●	●			●					
	Improved O&M	●	●			●					
	Data platforms	●	●	●	●					●	
	Automated grid operation	●	●	●						●	
Market Operations/ Trading	RES origin tracking	●	●			●					
	Flexibility markets & aggregators	●	●		●						
	Automated trading (incl. P2P)	●	●		●					●	
Retail	Optimized DER use	●	●	●							
	Electrification planning	●	●	●		●				●	
	Building energy optimization	●	●	●		●					
	Community energy systems	●	●	●	●	●				●	
	Customer data analytics	●	●							●	