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SEG-CG Report
Final Report of the Working Group Clean Energy Package (WG-CEP)
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Comments should be send to:
Joerg Seiffert, Uniper Technologies GmbH
joerg.seiffert@uniper.energy
Convenor of the WG Clean Energy Package

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61 **1 Reference Documents**

- 62 1. COM/2016/0860 final - COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
63 PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE, THE
64 COMMITTEE OF THE REGIONS AND THE EUROPEAN INVESTMENT BANK Clean Energy For All
65 Europeans
- 66 2. Commission proposes new rules for consumer centred clean energy transition
67 [https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-](https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition)
68 [transition](https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition)
- 69 3. SEGCG/M490/G_Smart Grid Set of Standards Version 4.1 (2017-01-06)
- 70 4. SGTF EG1 Final Report - Towards Interoperability within the EU for Electricity and Gas Data Access &
71 Exchange (March 2019)
72 https://ec.europa.eu/energy/sites/ener/files/documents/eg1_main_report_interop_data_access.pdf
- 73 5. SGTF EG2 Final Report - Recommendations to the European Commission for the Implementation of Sector-
74 Specific Rules for Cybersecurity Aspects of Cross-Border Electricity Flows, on Common Minimum
75 Requirements, Planning, Monitoring, Reporting and Crisis Management (June 2019)
76 https://ec.europa.eu/energy/sites/ener/files/sgtf_eg2_report_final_report_2019.pdf
- 77 6. SGTF EG3 Final Report - Demand Side Flexibility - Perceived barriers and proposed recommendations
78 (April 2019)
79 [https://ec.europa.eu/energy/sites/ener/files/documents/eg3_final_report_demand_side_flexibility_2019.04.15](https://ec.europa.eu/energy/sites/ener/files/documents/eg3_final_report_demand_side_flexibility_2019.04.15.pdf)
80 [.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/eg3_final_report_demand_side_flexibility_2019.04.15.pdf)
- 81 7. Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal
82 market for electricity (CELEX 32019R0943)
- 83 8. Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for
84 the internal market for electricity and amending Directive 2012/27/EU (CELEX 32019L0944)
- 85 9. Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the
86 promotion of the use of energy from renewable sources (CELEX 32018L2001)
- 87 10. Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending
88 Directive 2012/27/EU on energy efficiency (CELEX 32018L2002)
- 89 11. Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive
90 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency (CELEX
91 32018L0844)
- 92 12. ENTSO-E - All TSOs' proposal for the Key Organisational Requirements, Roles and Responsibilities
93 (KORRR) relating to Data Exchange in accordance with Article 40(6) of Commission Regulation (EU)
94 2017/1485 of 2 August 2017 establishing a Guideline on Electricity Transmission System Operation
- 95 13. ENTSO-E - CGMM - All TSOs' proposal for a Common Grid Model Methodology pursuant to Regulation
96 2017/1485 ("CGMM-v3")
- 97 14. ENTSO-E - Generation and Load Data Provision Methodology (GLDPM)
- 98 15. ENTSO-E - All TSOs' proposal for a methodology for coordinating operational security analysis in
99 accordance with Article 75 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a
100 guideline on electricity transmission system operation (CSAM)

2 Executive Summary

End of November 2016, the European Commission presented a package of measures [1][2] to keep the European Union competitive as the clean energy transition is changing global energy markets. Within the scope of the Clean Energy Package, consumers shall be active and central players on the energy markets of the future, having a better choice of supply, access to reliable energy price comparison tools and the possibility to produce and sell their own electricity. The legislative proposals cover energy efficiency, renewable energy, the design of the electricity market, security of supply and governance rules for the Energy Union, pursuing the three main goals of putting energy efficiency first, achieving global leadership in renewable energies and providing a fair deal for consumers.

In order to support the deployment of the outcome of the Clean Energy Package by providing the adequate set of standards, the CG-SEG has correspondingly established the WG 'Clean Energy Package' (WG-CEP), noting that the CG-SEG WG 'Set of Standards' (WG-STD) would remain the point of convergence for the assessment and ranking of gaps.

This report issued by WG-CEP intends to address both the final key legal propositions of the Clean Energy Package which are considered as most relevant for standardisation as well as an initial assessment of priority topics with possible implications on the updated WG-STD 'First set of standards' as former deliverable of M/490 [3] and the related standardisation work programme in general.

Summarising the content of this final report, **Section 1** lists the relevant reference documents as key input for this report.

Section 2 provides an executive summary incl. the relevant findings of the WG-CEP work.

Section 4 therefore outlines the key principles of the Clean Energy Package and in more details for the revision of the following legal propositions:

- Electricity Market Regulation (714/2009)
- Electricity Market Directive (2009/72/EC)
- Renewable Energy Directive (2009/28/EC)
- Energy Efficiency Directive (2012/27/EU)
- Energy Performance of Buildings Directive (2010/31/EU)

The scope and objectives of the WG-CEP are detailed in **section 5**.

Section 6 outlines the methodology used by WG-CEP to identify and assess the initial standardisation priority topics resulting from the key Clean Energy Package legal propositions for further processing (e.g. gap analysis and ranking by stakeholder survey) within the WG-STD workstream.

| Reference | Priority topic <i>Recommended action (summary)</i> |
|------------------------|---|
| CEP-EED-1 | Energy Efficiency - New binding energy savings target at EU level by 2030 <i>Forward to CLC/TC 57 and CLC/TC 8, promote role of standardisation for reporting</i> |
| CEP-EPBD-1 | Development of new Smart Readiness Indicators (SRI) <i>Forward to CLC/TC 205 WG 18, CEN/TC 294 and IEC TC 13 to check support of standards</i> |
| CEP-ECO-1 | Eco-design Work Plan <i>Report eco-design related attributes back to IEC TC57 for CIM / IEC 61850 support and CEN/CENELEC for other ontology developments</i> |
| CEP-RED-1 | DER management and connection to the grid <i>Forward to IEC TC 13 and TC 57 to consider different types of DER and to provide adequate data models and services</i> |
| CEP-RED-2 | Phase-out of priority dispatch for RES <i>Forward to CLC/TC 57 in charge of providing market information exchange</i> |
| CEP-EMD-1 | Data Management and interoperability <i>Align with EG1 and other stakeholders to promote role of standardisation and ESO's interoperability methodology, coordinate with Horizon2020 projects</i> |
| CEP-EMD-2 | Near real-time access to consumption data and connectivity to the smart metering infrastructure <i>Forward to CG-SM, dissemination to the market and consideration of new use cases</i> |
| CEP-EMD-3 | Interoperability with Consumer Energy Management systems <i>Align ongoing work with IEC TC 205 and TC 57, coordinate with Horizon2020 projects</i> |
| CEP-EMD-4 CEP-EMR-1 | Demand Response, congestion mechanism and market solutions for balancing <i>Alignment with EG3 and IEC TC 57 WG21, coordinate with Horizon2020 projects</i> |
| CEP-EMD-5 CEP-RED-3 | Microgrid management – Energy communities (CEC and REC) <i>Check new/boost previous microgrid use cases and align with IEC TC 57 WG 17</i> |
| CEP-EMD-6 | Dynamic electricity price contract for customers <i>Follow-up with work outcomes of SAREF, process further gaps by CG-SM and CG-SEG</i> |
| CEP-EMD-7 | Neutrality and transparency of grid operators <i>Identify good standard practices ensuring neutrality and transparency and identify whether and which harmonized processes on European level would be needed</i> |

| | |
|-----------|---|
| CEP-EMR-2 | Management of storage and integration into the grid <i>Check for new use cases drafted in 62913-2-3</i> |
| CEP-EMR-3 | Operational data exchange between grid operators and grid users <i>Check requirements with NC SO Guideline and KORRR, coordinate with Horizon2020 projects</i> |
| CEP-EMR-4 | Compliance to new network codes (also on DSO level) <i>Action to be explored with the EC depending on mandate decision</i> |
| CEP-EMR-5 | Compliance to new cybersecurity network codes <i>Action to be explored with the EC depending on mandate decision</i> |

Table 1 – Consolidated list of priority topics and high-level recommendations

The annexes include the detailed priority topic assessments and recommendations per legislative domain performed by WG-CEP.

139 **3 Acronyms**

140 To support readability of this report, the definition of acronyms used is outlined in the following table.

| Acronym | Definition |
|-------------|---|
| ACER | Agency for the Cooperation of Energy Regulators |
| BACS | Building Automation and Control Systems |
| BRP | Balance Responsible Party |
| CBA | Cost-Benefit-Assessment |
| CE | Circular Economy |
| CEC | Citizen Energy Community |
| CEM | Consumer Energy Management System |
| CGMM | Common Grid Model Methodology |
| CG-SEG | Coordination Group of Smart Energy Grids of CEN/CENELEC/ETSI |
| CG-SM | Coordination Group on Smart Meters of CEN/CENELEC/ETSI |
| CIM | Common Information Model |
| CSAM | Coordinating Operational Security Analysis Methodology |
| DCC | EU Network Code 'Demand Connection Code' |
| DER | Distributed Energy Resource |
| DLMS/ COSEM | Device Language Message Specification / Companion Specification for Energy Metering |
| DSO | Distribution System Operator |
| EBIX | European forum for energy Business Information eXchange |
| EC | European Commission |
| ECO | Eco-design work plan |
| EED | Energy Efficiency Directive |
| EG | Expert Group (of the Smart Grid Task Force) |
| EMD | Electricity Market Directive |
| EMR | Electricity Market Regulation |
| ENTSO-E | European Network of Transmission System Operators for Electricity |
| EPBD | Energy Performance of Buildings Directive |

| | |
|--------|---|
| EPC | Energy Performance Certificate |
| ESO | European Standardisation Organisation |
| FYNDP | Five Year National Development Plan |
| GLDPM | Generation and Load Data Provision Methodology |
| GO | Guarantee of Origin |
| ICT | Information and Communications Technology |
| ISO | Independent System Operator |
| ITO | Independent Transmission Operator |
| KORRR | Key Organizational Requirements, Roles and Responsibilities |
| NEMO | Nominated Electricity Market Operator |
| NRA | National Regulatory Authority |
| P2P | Peer-to-Peer |
| PV | Photovoltaic |
| REC | Citizen Energy Community |
| RED | Renewable Energy Directive |
| RES | Renewable Energy Source |
| RfG | EU Network Code 'Requirements for Generators' |
| SAREF | Smart Appliances REFerence ontology |
| SGAM | Smart Grid Architecture Model |
| SGTF | Smart Grid Task Force |
| SRI | Smart Readiness Indicator |
| TSO | Transmission System Operator |
| TYNDP | Ten Year Network Development Plan |
| WG-CEP | Working Group Clean Energy Package of CEN/CENELEC/ETSI |
| WG-STD | Working Group Set of Standards of CEN/CENELEC/ETSI |

Table 2 – List of acronyms

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143 **4 Introduction to the Clean Energy Package**

144 From 2009 until the present, European legislation for electricity and gas grids within EU member states were mainly
 145 driven by the EU Third Energy Package which determines the high-level legislative requirements for energy market
 146 and grids within the EU single market.

147 The Third Energy Package is a European legislative package for an internal gas and electricity market, with the
 148 purpose to further open up the gas and electricity markets in the EU. The package was proposed by the European
 149 Commission in September 2007 and adopted by the European Parliament and the Council of the European Union by
 150 July 2009, entering into force on 3rd September 2009.

151 Core elements of the Third Energy Package include

- 152 • Ownership unbundling, which stipulates the separation of utilities' generation and sale operations from their
 153 transmission networks,
- 154 • Establishment of a National Regulatory Authority (NRA) for each Member State and the Agency for the
 155 Cooperation of Energy Regulators (ACER) which provides a forum for NRAs to cooperate,
- 156 • Regulated access to energy grids,
- 157 • Regulation of grid investments as well as generation, wholesale and utility markets through the establishment
 158 of regulated grid fees, system support services and incentives related to
 - 159 ○ investments
 - 160 ○ security of supply
 - 161 ○ energy efficiency measures
 - 162 ○ grid expansion planning
 - 163 ○ consumer protection

164 At the end of November 2016, the European Commission presented a package of measures to keep the European
 165 Union competitive as the clean energy transition is changing global energy markets [1][2]. It should furthermore
 166 present an opportunity to speed both the clean energy transition and growth and job creation.

167 Consumers shall be active and central players in the energy markets of the future. Consumers across the EU will in
 168 the future have a better choice of supply, access to reliable energy price comparison tools and the possibility to
 169 produce and sell their own electricity. Increased transparency and better regulation give more opportunities for civil
 170 society to become more involved in the energy system and respond to price signals. The package also contains a
 171 number of measures aimed at protecting the most vulnerable consumers.

172 The legislative proposals cover energy efficiency, renewable energy, the design of the electricity market, security of
 173 supply and governance rules for the Energy Union. The package pursues three main goals:

- 174 • **Putting energy efficiency first by**
 - 175 ○ Making sure that energy efficiency is taken into account throughout the energy system, i.e. actively
 176 managing demand so as to optimise energy consumption, reduce costs for consumers and import
 177 dependency
 - 178 ○ Extend beyond 2020 the energy saving obligations set out in the Energy Efficiency Directive
 - 179 ○ Promoting clean energy buildings and accelerating building renovation rates by reinforcing
 180 provisions on long-term building renovation strategies

- 181 ○ Supporting the delivery of the EU's low-emission mobility strategy with e-mobility as one of the key
 182 driver
- 183 ○ Improving Ecodesign and energy labelling with regard to a number of product-specific measures
- 184 • **Achieving global leadership in renewable energies by**
- 185 ○ Setting a regulatory framework that allows a level playing field for all renewables technologies
 186 without jeopardising climate and energy targets
- 187 ○ Allowing renewable electricity generators to earn increasing shares of their revenues from the
 188 market
- 189 ○ Integration of renewables by a well-interconnected European network
- 190 ○ Increasing Member State's share of renewable fuels in heating and cooling, district heating and
 191 cooling operators to open up their network to competition and encourage the take-up of for instance
 192 heat pumps
- 193 ○ Development of advanced alternative fuels for transport
- 194 ○ Extending the existing EU sustainability criteria to cover all types of bioenergy
- 195 • **Providing a fair deal for consumers by**
- 196 ○ Empowering consumers and enable them to be more in control of their choices when it comes to
 197 energy and to provide them with better information about their energy consumption and their costs
- 198 ○ Making it easier for consumers to generate their own energy, store it, share it, consume it or sell it
 199 back to the market, directly or as energy cooperatives

200 All legislative proposals have been intensively discussed and widely amended during the negotiation process taking
 201 place between the European Commission, the Parliament and the Council. As result of the negotiations, the Clean
 202 Energy Package was technically finalized at the beginning of June 2019 with the publication of the last documents,
 203 the Electricity Market Regulation and the Electricity Market Directive.

204 The amendments contained in the package which are technically most relevant for smart grids are outlined in the
 205 following table and described in the following sections.

| Legislative domains | Legislation | Amending |
|--|---|---------------|
| Electricity market design and security of supply | (EU) 2019/943 - Revised Electricity Market Regulation (CELEX 32019R0943) [7] | (EU) 714/2009 |
| | (EU) 2019/944 - Revised Electricity Market Directive (CELEX 32019L0944) [8] | 2009/72/EC |
| Renewable energy | (EU) 2018/2001 - Revised Renewable Energy Directive (CELEX 32018L2001) [9] | 2009/28/EC |
| Energy efficiency and performance | (EU) 2018/2002 - Revised Energy Efficiency Directive (CELEX 32018L2002) [10] | 2012/27/EU |
| | (EU) 2018/844 - Revised Energy Performance of Buildings Directive (CELEX 32018L0844) [11] | 2010/31/EU |

206 *Table 3 – Legislation in scope of the Clean Energy Package for standardisation*

207 **4.1 (EU) 2019/943 - Revised Electricity Market Regulation**

208 The Regulation amends the key legal acts that were part of the Third Energy Package. These include the Electricity
 209 Market Regulation (No 714/2009) and the Electricity Market Directive (No 2009/72/EC), alongside the Regulation
 210 establishing ACER (No 713/2009).

211 **Chapter I** of the Regulation sets out the scope and subject matter and the definitions of terms used in it. It
 212 emphasises the importance of undistorted market signals to provide for increased flexibility, decarbonisation and
 213 innovation and updates and complements the main definitions used in the Regulation.

214 **Chapter II** of the Regulation introduces a new Article which sets out the key principles to be respected by national
 215 energy legislation in order to allow for a functioning internal electricity market. It also sets out the main legal
 216 principles for electricity trading rules within different trading timeframes (balancing, intraday, day-ahead and forward
 217 markets), including principles for price formulation. It clarifies the principle of balancing responsibility and provides
 218 for a framework for more market compatible rules for the dispatch and curtailment of generation and demand
 219 response, including conditions for any exceptions thereof.

220 Relevant amendments for smart grids in this chapter include the following, but not limited to:

- 221 • New principles regarding the operation of electricity markets (new Article 3):
 - 222 ○ Prices shall be generally formed based on demand and supply
 - 223 ○ Customers shall be enabled to benefit from market opportunities and increased competition on retail
 224 markets and be empowered to act as participant in the energy market and the energy transition
 - 225 ○ Integration of electricity from RES and providing incentives for energy efficiency
 - 226 ○ Deliver appropriate investment incentives for generation, storage, energy efficiency and demand
 227 response to meet market needs and facilitate fair competition
 - 228 ○ All producers shall be directly or indirectly responsible for selling the electricity they generate
 - 229 ○ Enable the efficient dispatch of generation assets, energy storage and demand response
 - 230 ○ Market rules shall allow for entry and exit of electricity generation, energy storage and electricity
 231 supply undertakings based on their assessment of the economic and financial viability of their
 232 operations
 - 233 ○ Long-term hedging products shall be tradable on exchanges in a transparent manner and long-term
 234 supply contracts shall be negotiable over the counter, to comply with EU competition law
- 235 • New balancing responsibility (new Article 5), where all market participants shall aim for system balance and
 236 shall be financially responsible for imbalances they cause in the system.
- 237 • New provisions on the balancing market (new Article 6), where all market participants shall have access to.
 238 It shall take into account of the different technical capability of generation from variable RES and demand
 239 side response and storage. The imbalances shall be settled at a price that reflects the real time value of
 240 energy, based on products to be developed in this area,
- 241 • New provisions on Day-ahead and intraday markets and trading (new Articles 7 and 8), where TSOs and
 242 nominated electricity market operators (NEMOs) shall jointly organise the management of the integrated
 243 day-ahead and intraday markets based on market coupling. Market operators shall be free to develop
 244 products and trading opportunities that suit market participants' demand and needs.
- 245 • New technical bidding limits (new Article 10), depending on different conditions. In general, there shall be no
 246 maximum or minimum limit of the wholesale electricity price.

247 • New provisions on dispatching of generation and demand response (new Article 12), where TSOs shall give
 248 priority to generating installations using RES or high efficiency cogeneration from small generating
 249 installations or generating installations using innovative technologies.

250 • New provisions on redispatching and curtailment (new Article 13), using market-based mechanisms and be
 251 financially compensated and open to all generation technologies, storage and demand response. Non-
 252 market-based curtailment or redispatching of generation or redispatching of demand response shall only be
 253 used where no market-based alternative is available.

254 **Chapter III** of the Regulation describes the process to define bidding zones in a coordinated manner, in line with the
 255 review process created in Regulation 1222/2015 establishing a Guideline on Capacity Calculation and Congestion
 256 Management. In order to address the persisting problem of significant national limitations to cross-border electricity
 257 flows, the conditions for such exceptional limitations are clarified, notably by rules that shall ensure that electricity
 258 imports and exports are not restricted by national actors for economic reasons. This Chapter further contains
 259 amendments to pre-existing principles for transmission and distribution network tariffs and sets a procedure for
 260 fostering the progressive convergence of transmission and distribution tariff methodologies. It also sets out amended
 261 rules for the usage of congestion rents.

262 Relevant amendments for smart grids in this chapter include the following, but not limited to:

- 263 • Allocation of cross-zonal capacity across timeframes to be provided by TSOs (new Article 17)
- 264 • Adaption of the charges for connection and access to networks (Article 18, formerly Article 14) incl.
 - 265 ○ Access charges are more specified including charges for connection to the networks, for use of
 266 networks, for related network reinforcements, network security and flexibility
 - 267 ○ Charges shall not discriminate against energy storage or aggregation and shall not create
 268 disincentives for participation in demand response, self-generation or self-consumption
 - 269 ○ Tariffs shall grant appropriate incentives to TSO and DSO, over both the short and long term, to
 270 increase efficiencies, including energy efficiency, foster market integration and security of supply,
 271 and support investments and the related research activities
 - 272 ○ Tariffs shall reflect the cost of use of the transmission and distribution network by system users
 273 including active customers, and may be differentiated based on system users' consumption or
 274 generation profiles, considering the deployment of smart metering systems
 - 275 ○ Regulatory authorities shall provide incentives to distribution system operators to procure services
 276 for the operation and development of their networks and integrate innovative solutions in the
 277 distribution systems, including energy efficiency, flexibility and the development of smart grids and
 278 intelligent metering systems

279 **Chapter IV** of the Regulation sets out new general principles for addressing resource adequacy concerns by
 280 Member States in a coordinated manner. It sets out principles and a procedure for the development of a European
 281 resource adequacy assessment to better determine the need for capacity mechanisms and, if appropriate, the
 282 setting of a reliability standard by Member States. It clarifies how and under which conditions capacity mechanisms
 283 can be introduced in a market compatible manner. It also clarifies market compatible design principles for capacity
 284 mechanisms, including rules for the participation of capacity located in another Member State and for
 285 interconnection usage. It sets out how Regional Operational Centres, national TSOs, the ENTSO for electricity and
 286 national regulators via ACER will be involved in the development of technical parameters for the participation of
 287 capacities located in another Member State as well as the operational rules for their participation.

288 **Chapter V** of the Regulation sets out the tasks and duties of the ENTSO-E and the monitoring tasks of ACER in this
 289 regard whilst clarifying its duty to act independently and for the European good. It defines the mission of Regional
 290 Operational Centres and provides for criteria and a procedure for defining system operation regions covered by each
 291 Regional Operational Centre and the coordination functions that these centres perform. It also sets out working and
 292 organisational arrangements, consultation requirements, requirements and procedures for the adoption of decisions
 293 and recommendations and their revision, the composition and responsibilities of the management board and liability

294 arrangements of Regional Operational Centres. The rules on a ten-year network development plan, inter-
 295 transmission system operator compensation, information exchange and certification remain largely unchanged.

296 **Chapter VI** of the Regulation sets up a European entity for DSOs, defines a procedure for its establishment and its
 297 tasks including with regard to the consultation of stakeholders. It also provides detailed rules on the cooperation
 298 between DSOs and TSOs with regard to the planning and operation of their networks.

299 Relevant amendments for smart grids in this chapter include the following, but not limited to:

- 300 • Establishment, tasks and consultations of the new EU DSO entity for electricity (new Articles 52-55), which
 301 is not directly relevant for establishing and operating smart grids, but may coordinate, align and solve
 302 resulting issues on a high-level European scale
- 303 • New provisions on the cooperation between DSOs and TSOs (new Article 57) in planning and operating
 304 their networks, incl. exchange of all necessary information and data and coordinated access to resources
 305 such as distributed generation, energy storage or demand response that may support particular needs of
 306 both the distribution system and the transmission system

307 **Chapter VII** of the Regulation sets out pre-existing powers and rules for the Commission to adopt delegated acts in
 308 the form of network codes or guidelines. It provides for clarifications as to the legal nature and the adoption of
 309 network codes and guidelines and enlarges their possible content to areas such as

- 310 • Distribution tariff structures
- 311 • Rules for the provision of non-frequency ancillary services
- 312 • Demand response, energy storage and demand curtailment rules
- 313 • Cyber security rules
- 314 • Rules regarding to Regional Operational Centres
- 315 • Curtailment of generation and redispatch of generation and demand

316 It simplifies and streamlines the procedure for the elaboration of electricity network codes and gives national
 317 regulators the possibility to decide within ACER on issues concerning the implementation of network codes and
 318 guidelines. It also includes the European entity for DSOs and other stakeholders more closely in the procedure of
 319 the development of proposals for electricity network codes, incl. the following new subject areas of network codes:

- 320 • Curtailment of generation and redispatch of generation and demand
- 321 • Provision of non-frequency ancillary services, including steady state voltage control, inertia, fast reactive
 322 current injection, black-start capability and islanding operation;
- 323 • Demand response, including aggregation, energy storage, and demand curtailment rules
- 324 • Network and reliability rules with cyber security provisions in scope

325 If the subject matter of the network code is directly related to the operation of the distribution system and less
 326 relevant for the transmission system, the Commission may require the EU DSO entity for electricity instead of the
 327 ENTSO for Electricity to convene a drafting committee and submit a proposal for a network code to the agency.

328 **Chapter VIII** of the Regulation sets out the final provisions of the Regulation. It includes the pre-existing rules for the
 329 exemption of new direct current interconnectors from certain requirement of the Electricity Market Directive and
 330 Regulation whilst clarifying the procedure for subsequent amendments made by NRAs thereof. The Annex to the
 331 Regulation defines in more detail the functions attributed to the Regional Operational Centers created by the
 332 Regulation

333 **4.2 (EU) 2019/944 - Revised Electricity Market Directive**

334 **Chapter I** of the Directive provides some clarifications to the scope and subject matter of the Directive, emphasising
 335 the focus on consumers and the importance of the internal market and its main principles. It provides also an update
 336 of the main definitions used in the Directive, including e.g. active customer, Citizen Energy Community (CEC) and
 337 balancing responsible party.

338 **Chapter II** of the Directive lays down the general principle that Member States have to ensure that the EU electricity
 339 market is competitive, consumer-centred, flexible and non-discriminatory. It emphasises that national measures
 340 should not unduly hamper cross border flows, consumer participation or investments. It further enshrines the
 341 principle that supply prices shall be market-based, subject to duly justified exceptions. The chapter also clarifies
 342 certain principles relating to the functioning of the EU electricity markets, such as the right to choose a supplier. It
 343 also provides for updated rules on possible public service obligations which may be imposed by Member States on
 344 energy undertakings under certain circumstances.

345 Relevant amendments for smart grids in this chapter include the following, but not limited to:

- 346 • New provisions on the competitive, consumer-centred, flexible and non-discriminatory electricity market
 347 (new Article 3), including cross-border trade of electricity, consumer participation including through demand-
 348 side response, investments into in particular variable and flexible energy generation, energy storage, the
 349 deployment of electro-mobility or new interconnectors between Member States, and that electricity prices
 350 reflect actual demand and supply
- 351 • New provisions on market based supply prices (new Article 5), where suppliers shall be free to determine
 352 the price at which they supply electricity to customers under effective competition between electricity
 353 suppliers. Protection of energy poor or vulnerable customers shall be ensured

354 **Chapter III** of the Directive reinforces pre-existing consumer rights and introduces new rights that aim at putting
 355 consumers at the heart of the energy markets by ensuring that they are empowered and better protected. It sets
 356 rules on clearer billing information and on certified comparison tools. It contains provisions ensuring that consumers
 357 are able to freely choose and change suppliers or aggregators, are entitled to a dynamic price contract and are able
 358 to engage in demand response, self-generation and self-consumption of electricity. It entitles every consumer to
 359 request a smart meter equipped with a minimum set of functionalities. It also improves pre-existing rules on the
 360 consumers' possibility to share their data with suppliers and service providers by clarifying the role of the parties
 361 responsible for data management and by setting a common European data format to be developed by the
 362 Commission in an implementing act. It also aims to ensure that energy poverty is addressed by Member States. It
 363 further requires Member States to define frameworks for independent aggregators and for demand response along
 364 principles that enable their full participation in the market. It defines a framework for local energy communities which
 365 may engage in local energy generation, distribution, aggregation, storage, supply or energy efficiency services. It
 366 further provides some clarifications to pre-existing provisions on smart meters, single points of contacts, and rights to
 367 out-of-court settlement, universal service and vulnerable consumers.

368 Relevant amendments for smart grids in this chapter include the following, but not limited to:

- 369 • New provisions on dynamic price contracts (new Article 11) where final customers who have a smart meter
 370 installed can request to conclude a dynamic electricity price contract from at least one supplier and from
 371 every supplier that has more than 200,000 final customers, and is informed about opportunities, costs and
 372 risks
- 373 • New provisions on the right to switch supplier and rules on switching-related fees (new Article 12), where at
 374 least household customers, microenterprises and small enterprises are not charged any switching-related
 375 fees
- 376 • New provisions on contract with an aggregator (new Article 13), where a final customer wishes to conclude
 377 an aggregation contract, this shall not require the consent of the final customer's electricity undertaking

378

- 379 • New provisions on household customers, and microenterprises with an expected yearly consumption of
 380 below 100,000 kWh to have free-of-charge access to comparison tools (new Article 14), which may be
 381 operated by any entity
- 382 • New provisions on final customers (new Article 15) who are entitled to act as active customers, without
 383 being subject to disproportionate or discriminatory technical and administrative requirements, procedures
 384 and charges and network charges that are not cost reflective. Active customers may jointly be involved in
 385 flexibility and aggregation, self-generation and -consumption and storage
- 386 • New provisions on citizen energy communities (CEC, new Article 16), which is technically related to
 387 microgrid systems, incl. engagement in local generation, distribution, supply, consumption, aggregation,
 388 energy storage, energy efficiency services or charging services for electric vehicles or provide other energy
 389 services to its members or shareholders
- 390 • New provisions on demand response (new Article 17), allowing final customers, including those offering
 391 demand response through aggregation, to participate alongside electricity generators in a non-discriminatory
 392 manner in all electricity markets
- 393 • New provisions on bills and billing information (new Article 18)
- 394 • Additional provisions on smart metering (Article 19), ensuring
 - 395 ○ The implementation of smart metering systems that shall assist the active participation of customers
 396 in the electricity market
 - 397 ○ The adoption of the minimum functional and technical requirements for the smart metering systems,
 398 including consideration of the cost-benefit assessment (CBA), 2012/148/EU as well as best
 399 available techniques for ensuring the highest level of cybersecurity and data protection whilst
 400 bearing in mind the costs and principles of proportionality
 - 401 ○ Interoperability of these smart metering systems as well as their ability to provide output for
 402 consumer energy management systems with regard to the use of relevant available standards
 403 including those enabling interoperability, best practices and the importance of the development of
 404 the internal market in electricity
 - 405 ○ That final customers contribute to the associated costs of the deployment while considering the
 406 long-term benefits for customers and the whole value chain
 - 407 ○ Periodically revised CBA when the deployment of smart metering is negatively assessed in
 408 response to changes in the underlying assumptions and to technology and market developments
- 409 • New provisions on smart metering functionalities and entitlement (new Articles 20 and 21) which shall be in
 410 accordance with European standards, the provisions in Annex III, and in line with the following principles
 411 such as accuracy, security, privacy and data protection and information to the customer. Where smart
 412 metering is negatively assessed as a result of a national CBA, every final customer is entitled to have a
 413 smart meter installed or upgraded on request and under fair and reasonable and cost-effective conditions.
- 414 • New provisions on metering and consumption data management and exchange (new Article 23) which is in
 415 line with the provisions of the new General Data Protection Regulation (EU)2016/679.
- 416 • New provisions on interoperability requirements and procedures for access of eligible parties to energy data
 417 (new Article 24) which was driven by the Smart Grid Task Force EG1 and shall accompany national data
 418 formats in the future (as stated in Annex 1 of 2009/72/EC)

419 **Chapter IV** of the Directive provides for some clarifications concerning the tasks of DSOs, notably relating to the
 420 activities of DSOs concerning the procurement of network services to ensure flexibility, the integration of electrical
 421 vehicles and data management. It also clarifies the role of DSOs with respect to storage and recharging points for
 422 electric vehicles.

423 Relevant amendments for smart grids in this chapter include the following, but not limited to:

- 424 • New tasks of the DSO in the use of flexibility (new Article 32), where DSOs are incentivised to procure
 425 flexibility services, including congestion management in their service area. They shall define standardised
 426 market products for such services procured at least at national level ensuring effective participation of all
 427 market participants including renewable energy sources, demand response, and aggregators, incl.
 428 exchange of information and coordination. Furthermore, development of a distribution system shall be based
 429 on a transparent network development plan that DSOs shall submit every two years to the regulatory
 430 authority, containing the planned investments for the next five to ten years, with particular emphasis on the
 431 main distribution infrastructure which is required in order to connect new generation capacity and new loads
 432 including re-charging points for electric vehicles. The network development plan shall also demonstrate the
 433 use of demand response, energy efficiency, energy storage facilities or other resources that a DSO is using
 434 as an alternative to system expansion. A de-minimis rule of 100,000 connected customers may apply on
 435 national level.
- 436 • New provisions on the integration of e-mobility (new Article 33) ensure that distribution system operators
 437 cooperate on a non-discriminatory basis with any undertaking that owns, develops, operates or manages
 438 recharging points for electric vehicles, including with regard to connection to the grid. Under specific
 439 conditions, a DSO may own, develop, manage or operate recharging points for electric vehicles, but this
 440 shall not be the case by default
- 441 • New tasks of the DSO in data management (new Article 34), where the DSO is involved in smart metering
 442 and shall provide access of data to eligible parties
- 443 • New provisions on the ownership of energy storage facilities (new Article 36), where under specific
 444 condition, the DSO may be allowed to own, develop, manage or operate storage facilities, but this shall not
 445 be the case by default

446 **Chapter V** of the Directive summarises the general rules applicable to TSOs, largely based on existing text,
 447 providing clarifications concerning ancillary services and the new Regional Operational Centres.

448 Relevant amendments for smart grids in this chapter include the following, but not limited to:

- 449 • Additional responsibilities of a TSO (Art. 40) related to digitalisation of transmission systems incl. data
 450 management, cyber security and data protection
- 451 • New provisions on the ownership of energy storage facilities (new Article 54), where under specific
 452 condition, the TSO may be allowed to own, develop, manage or operate storage facilities, but this shall not
 453 be the case by default

454 **Chapter VI** of the Directive, setting out the rules on unbundling as developed in the Third Energy Package, remains
 455 unchanged as concerns the main substantive rules on unbundling, notably with respect to the three regimes for
 456 TSOs (ownership unbundling, independent system operator and independent transmission operator), as well as with
 457 respect to the provisions on TSO designation and certification. It only provides a clarification on the possibility for
 458 TSOs to own storage or to provide ancillary services.

459 **Chapter VII** of the Directive contains the rules on establishment, scope of powers and duties as well as rules of
 460 functioning of the independent national energy regulators. The proposal notably emphasises the obligation of
 461 regulators to cooperate with neighbouring regulators and ACER in case issues of cross-border relevance are
 462 concerned and updates the list of tasks of regulators, inter alia with respect to the supervision of the newly created
 463 Regional Operational Centres.

464 **Chapter VIII** of the Directive changes some general provisions, inter alia on derogations to the Directive, exercise of
 465 delegated powers by the Commission and the Committee established under comitology rules pursuant to Regulation
 466 (EU) No 182/2011.

467 **The new Annexes** to the Directive set out more requirements on comparison tools, billing and billing information
 468 and amends pre-existing requirements for smart meters and their roll-out.

469 **4.3 (EU) 2018/2001 - Revised Renewable Energy Directive**

470 The main provisions in the revised Renewable Energy Directive with potential relevance to smart grids which
 471 substantially change Directive 2009/28/EC are as follows:

- 472 • Article 2 introduces new specific definitions such as
- 473 ○ The renewable self-consumer who consumes and may store and sell renewable electricity which is
 474 generated within his or its premises. Renewable self-consumers are also allowed to act jointly if
 475 located in the same building or multi-apartment block
 - 476 ○ The renewable energy community (REC) which might produce, consume, store and sell renewable
 477 energy, including through renewables power purchase agreements and aggregation. A REC shall
 478 be a SME (Small or Medium-sized Enterprise) or a non-profit organisation, the shareholders or
 479 members of which cooperate in the generation, distribution, storage or supply of energy from
 480 renewable sources, according to the criteria provided in Article 22
- 481 • Article 15 includes a new calculation methodology (anchored in the Energy Performance of Buildings
 482 Directive) of minimum levels of energy from RES in new and existing buildings that are subject to
 483 renovation, ensuring that investors have sufficient predictability of the planned support for RES.
- 484 • Article 16 establishes a permit granting process for renewable energy projects with one designated authority
 485 ("one-stop-shop") and a maximum time limit for the permit granting process. It shall coordinate the entire
 486 permit granting process for applicants for permits to build and operate plants and associated network
 487 connection for the production of energy from RES. It also contains a specific provision on accelerating
 488 permit granting process for repowering existing renewable plants.
- 489 • Article 17 introduces a simple notification to DSOs for small scale projects (capacity of 10,8 kW or less).
- 490 • Article 19 includes some modifications to the guarantees of origin (GO) system to make the use of GOs
 491 mandatory for electricity RES and to improve the administrative procedures through the application of EN
 492 16325.
- 493 • Article 21 empower renewable self-consumers (individually or through aggregators), without losing their
 494 rights as final customers, to
- 495 ○ Generate renewable energy, including for their own consumption, store and sell their excess
 496 production of renewable electricity
 - 497 ○ Install and operate electricity storage systems combined with installations generating renewable
 498 electricity for self- consumption without liability for any double charge
 - 499 ○ Receive remuneration, including support schemes
- 500 • Article 22 introduces new provisions on renewable energy communities (REC) to empower them to
 501 participate in the market, which are entitled to produce, consume, store and sell renewable energy, including
 502 through renewables power purchase agreements and aggregation, without being subject to disproportionate
 503 procedures and charges that are not cost-reflective.

504 **4.4 (EU) 2018/2002 - Revised Energy Efficiency Directive**

505 The previous European Union legal framework was constructed around an energy efficiency target of 20% for 2020.
 506 This now needs to be reset with a 2030 perspective, where this proposal sets a 32,5% minimum binding energy
 507 efficiency target for 2030 at EU level. This will give Member States and investors a long-term perspective to plan
 508 their policies and investments and to adapt their strategies towards energy efficiency.

509 The main provisions in the revised energy efficiency Directive with relevance to smart grids changing Directive
 510 2012/27/EU are as follows:

- 511 • Article 4, which previously required Member States to establish long-term strategies for mobilising
 512 investment in the renovation of their national building stock, was removed from this Directive and added to
 513 the Directive on the energy performance of buildings where it fits better due to the smart financing for
 514 buildings initiative, long term plans for nearly zero energy buildings and the goal of decarbonisation of
 515 buildings.
- 516 • New Articles 7a and 7b extend the obligation period beyond 2020 to 2030 and to make it clear that Member
 517 States can achieve the required energy savings through an energy efficiency obligation scheme, alternative
 518 measures, or a combination of both approaches. Member States will be able to take into account to some
 519 extent the installation of new renewable energy technologies on or in buildings. Annex V is also amended to
 520 simplify how energy savings must be calculated and to clarify which savings are eligible for the purposes of
 521 Article 7. This is in particular relevant as regards energy savings stemming from measures targeting the
 522 renovation of buildings which can now be claimed in full.

523 **4.5 (EU) 2018/844 - Revised Energy Performance of Buildings Directive**

524 The aim of the replaced Directive 2010/31/EU (Energy Performance of Buildings Directive – EPBD) was to promote
 525 the improvement of the energy performance of buildings in the EU by

- 526 • Integrating long term building renovation strategies (Article of 4 Energy Efficiency Directive), supporting the
 527 mobilisation of financing
- 528 • Encouraging the use of ICT and smart technologies to ensure buildings operate efficiently
- 529 • Encouraging the roll-out of the required infrastructure for e-mobility with a focus on large commercial
 530 buildings
- 531 • Streamlining provisions where they have not delivered the expected results

532 The revision of the EPBD will also strengthen the links between public funding for building renovation and energy
 533 performance certificates (EPC) and will incentivise tackling energy poverty through building renovation.

534 The EPBD has already been the main driving force behind significant improvements in the energy used in EU
 535 buildings, with stricter minimum energy performance requirements (based on 'cost optimality') in all Member States
 536 and a major updating of national building codes with a view to ensuring 'nearly zero energy' buildings.

537 The main provisions in the revised EPBD with relevance to smart grids changing Directive 2010/31/EU are as
 538 follows:

- 539 • The definition of technical building systems under Article 2 is extended to on-site electricity generation
- 540 • The current Article 4 of the EED on building long-term renovation strategy (new Article 2a) is moved to this
 541 Directive for greater consistency, and will include additionally the consideration of energy poverty issues,
 542 support for smart financing of building renovations and a vision for the decarbonisation of buildings by 2050
- 543 • Article 8 is updated to take into account the revised definition of technical building systems. A new
 544 paragraph introduces infrastructure requirements for e-mobility, where new residential and non-residential
 545 buildings with more than ten parking spaces shall be equipped with charging infrastructure. Furthermore, the
 546 so-called smart readiness of buildings shall be measured by establishing the definition of a smart readiness
 547 indicator; and a methodology by which it is to be calculated.

548

549

550 **5 Scope and objectives of the WG 'Clean Energy Package'**

551 The WG-CEP acts as a working group under the Coordination Group of Smart Energy Grids (CG-SEG) and is open
 552 to interested stakeholders who are invited based on their expertise.

553 The objective of the WG-CEP is to ensure that CEN-CENELEC-ETSI will support the deployment of the outcome of
 554 the Clean Energy Package by providing the adequate set of standards.

555 The WG-CEP will advise the CG-SEG on the best way to reach the above objective, one of the outcomes being to
 556 feed the "Set of Standards" standardisation work programme [4].

557 Additionally, the WG-CEP will receive input from and provide input on behalf of the CG-SEG to the European
 558 Commission's SGTF and associated Expert Groups (EG). Today's Expert Groups incl. scope and objectives based
 559 on their Terms of Reference are:

560 EG1 – Interoperability requirements and procedures

561 The main objective of this Working Group is to continue the preliminary work undertaken under EG1 towards a
 562 common (electricity and gas) data framework and the converging of procedures at European level. This is to be
 563 done bearing in mind that consumers, and other parties on their behalf, should have easy access to their energy
 564 data.

565 The aim is to ultimately achieve consensus among key stakeholders on best practices and propose what should be
 566 the scope and coverage of further and more specific secondary EU legislation (i.e. implementing act(s)) to set up
 567 such common arrangements ensuring interoperability.

568 The Working Group is expected to

- 569 • map existing national practices, as well as existing European and international standards and role models
 570 and initiatives, on data access and data management (including conditions for the use and re-use of data) in
 571 EU Member States in the field of electricity and gas market;
- 572 • identify current and anticipated obstacles (at national and/or EU level) for data access and data
 573 management, with due regards to the impact of a more harmonised framework, bearing in mind potential
 574 future developments in technology and markets;
- 575 • work towards framing a common framework for electricity and gas data handling, access and interchange.

576 The Working Group will investigate the extent to which consolidating the respective national arrangements into a
 577 common framework at EU level can help break silos and bring together currently diverging practices in Member
 578 States, facilitate interoperability and the uptake of new services, increase the internal market competition, and
 579 contribute to keeping administrative costs under control.

580 The final report of the EG1 '*Towards Interoperability within the EU for Electricity and Gas Data Access & Exchange*'
 581 has been issued in March 2019 as referenced in [4].

582 EG2 – Enhance capability and cooperation on cyber security

583 This working group stems from the Commission Communication "Clean Energy for All Europeans" announcing the
 584 set-up of such a group in spring 2017 and the delivery of final results by end 2018. This Communication emphasises
 585 that ensuring resilience of the energy supply systems against cyber risk and threats becomes increasingly important
 586 as wide-spread use of information and communications technology and data traffic is becoming the foundation for
 587 the functioning of infrastructures underlying the energy systems. Thus, as a direct action, the European Commission
 588 will establish in 2017 "stakeholder working groups under the Smart Grids Task Force to prepare the ground for
 589 network codes on demand response, energy-specific cybersecurity and common consumer's data format. The
 590 Commission will report on the structure, scope and planning of the groups in spring 2017 and final results by the end
 591 of 2018." This working group is dedicated to energy-specific cybersecurity.

592 The final report of the EG2 *'Recommendations to the European Commission for the Implementation of Sector-*
 593 *Specific Rules for Cybersecurity Aspects of Cross-Border Electricity Flows, on Common Minimum Requirements,*
 594 *Planning, Monitoring, Reporting and Crisis Management'* has been issued in June 2019 as referenced in [5].

595 EG3 – Deployment of demand response

596 The objective of the working group is to continue the work on the deployment of demand response at European level
 597 by identifying success stories and best regulatory practices across Europe. In this context, the group will also identify
 598 and analyse other issues linked to the wider concept of demand side flexibility. The aim should be the identification
 599 of remaining gaps that have to be addressed at EU level and propose what should be the scope of further and more
 600 specific EU action (i.e. network code) and which should be the areas that such EU actions will have to cover.
 601 Relevant outputs of the group, such as use cases, will be disseminated to the European Standardisation
 602 Organisations (ESOs), so that standardisation gaps can be identified and addressed.

603 The group will build on previous work of the Smart Grids Task Force, as well as on existing studies and market
 604 models for demand response in EU and worldwide. The existing and envisaged EU legislation - including network
 605 codes - shall be the main framework of the work.

606 The final report of the EG3 *'Demand Side Flexibility - Perceived barriers and proposed recommendation'* has been
 607 issued in April 2019 as referenced in [6].

608 WG-CEP will furthermore act as focal point of reference for any issues related to the abovementioned topics in order
 609 to align specific enquiries within the CG-SEG.

610 The WG-CEP's detailed tasks are to:

- 611 • Assess and clarify relevant standardisation requirements resulting from the Clean Energy Package
- 612 • Support the creation of use cases and draft related standardisation gaps
- 613 • Provide input to WG-STD and other WGs where appropriate in order to support the further processing of
 614 standardisation gaps and the programme of work
- 615 • Liaise with the SGTF new setup of Expert Groups for 2017-2018 in order to coordinate input from the CG-
 616 SEG on data formats, cybersecurity and demand response (according to the ToR from these groups)
- 617 • Advise CG-SEG on potential internal organisational changes which could help better addressing the
 618 proposed standardisation needs.
- 619 • Provide a suitable platform for discussion of all related issues within the CG-SEG

620 As decided and approved by the CG-SEG in July 2019, additional tasks from 2019 onwards are to:

- 621 • Coordinate input from the CG-SEG to the SGTF and vice versa, in particular via the SGTF EG
 622 representatives. This will depend on the SGTF decision on the follow-up organization beyond 2018 and also
 623 concerns CEP-related secondary legislation (e.g. new EU Network Codes)
- 624 • Update the 2018 final report after all negotiations are finalized in 2019, and provide further updates following
 625 to CEP-related secondary legislation based on requests from the CG-SEG
- 626 • Act as a point of reference to the European Commission for supporting future CEP-related secondary
 627 legislation, e.g. EU Network Codes etc.

628

629 **6 Methodology and assessment of priority topics**

630 Based on the legislation in scope of the Clean Energy Package for standardisation, the WG-CEP has identified the
 631 following legislation as those with highest possible impact on standardisation.

632 Key triggers for this identification were the technical requirements that could be derived from the M/490
 633 standardisation framework [3] and related systems, such as microgrids (referring to so-called Energy Communities
 634 (both CEC and REC) in the Clean Energy Package), smart metering, information exchange, demand response, etc.
 635 But also new standardisation requirements e.g. resulting from new future EU Network Codes as stated in the
 636 Electricity Market Regulation were at scope.

637 The legislative domains were assigned as follows.

| Legislative domains | Legislation | Reference header |
|--|---|------------------|
| Electricity market design and security of supply | (EU) 2019/943 - Revised Electricity Market Regulation (CELEX 32019R0943) [7] | EMR |
| | (EU) 2019/944 - Revised Electricity Market Directive (CELEX 32019L0944) [8] | EMD |
| Renewable energy | (EU) 2018/2001 - Revised Renewable Energy Directive (CELEX 32018L2001) [9] | RED |
| Energy efficiency and performance | (EU) 2018/2002 - Revised Energy Efficiency Directive (CELEX 32018L2002) [10] | EED |
| | (EU) 2018/844 - Revised Energy Performance of Buildings Directive (CELEX 32018L0844) [11] | EPBD |
| | Eco-design work plan | ECO |

638 *Table 4 – Assignment of legislative domains*

639 For each of the abovementioned legislation, WG-CEP has performed together with CG-SEG a more detailed
 640 assessment of priority topics for standardisation, including answering the relevant questions:

- 641 • How may it affect the industry and then potentially standardisation?
- 642 • Draft standardisation assessment?
- 643 • Standards coverage (CEN-CLC-ETSI)?
- 644 • Presence in the CG-SEG work plan?
- 645 • Further analysis required?
- 646 • Action required?

647 The detailed assessments can be found in annexes A – C and provide the basis for further processing within the
 648 WG-STD workstream, incl. gap analysis and ranking to be performed by stakeholder survey, followed by inclusion
 649 into the standardisation work programme.

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651 **Annex A Energy efficiency and performance**

652 **A.1 Energy Efficiency - New binding energy savings target at EU level by 2030**

653 Legal Proposal: Energy Efficiency Directive (EED)

654 Priority topic: Energy Efficiency – 32,5% binding energy savings target at EU level by 2030

| Ref: CEP-EED-1 | WG-CEP Assessment |
|---|--|
| How may it affect the industry and then potentially standardisation? | <p>The broad “energy efficiency” can be considered as general or umbrella topic. Even if the grid is not considered as main scope of this item, it has potential effects on grid efficiencies and should involve active customer participation, storage, data management, etc. This means that all standardisation might be affected that relates to these actors and topics.</p> <p>Where energy savings performance is affected, this aspect is beyond standardisation and relates to functionalities.</p> |
| Draft standardisation assessment | <p>CIM covers the possibility to evaluate the losses of the grid equipment by having a proper information model expressing the losses related to the grid, aggregating information and reporting on performance indicators which is restricted to the grid.</p> |
| Standards coverage (CEN-CLC-ETSI) | <p>IEC 61970, IEC 61968</p> |
| Presence in the CG-SEG work plan | <p>CIM evolvement is already covered by different gaps and respectively covered in the work plan, especially connected to harmonisation with IEC 61850</p> |
| Further analysis required? | <p>Yes - information model (CIM) expressing the losses related to the grid, aggregating information and reporting on (grid) performance indicators should be checked. Further analysis on the methodology and standards methods to evaluate the losses where required.</p> |
| Action | <ul style="list-style-type: none"> - Forward to CLC/TC 57 for checking information model expressing the losses related to the grid, aggregating information and reporting on (grid) performance indicators - Forward to CLC/TC 8 with the support of TC 85 for the methodology and standards methods to evaluate the losses where required - Promote role of standardisation in supporting the reporting |

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658 **A.2 Development of new Smart Readiness Indicators (SRI)**

659 Legal Proposal: Energy Performance of Buildings Directive (EPBD)

660 Priority topic: Development of new Smart Readiness Indicators (SRI)

| Ref: CEP-EPBD-1 | WG-CEP Assessment |
|---|--|
| How may it affect the industry and then potentially standardisation? | New Smart Readiness Indicators (SRI) could support the contribution of buildings to making power systems more flexible and so to raise energy performance of buildings, e.g. by providing the ability of the building for demand response or peak load shifting which is mostly relevant in the design phase. It would therefore give a measure of a building's ability to connect and cooperate with the surrounding smart grid / energy ecosystem and might comprise domestic systems such as smart metering systems, building automation and control systems, heating appliances, smart recharging points for electric vehicles and energy storage based on functionalities, rather than specific technologies. Smartness indicators might also influence Energy Performance Certificates (EPCs) and financing of buildings in a positive way. The definition of such indicators shall be supported by standards, where e.g. measurement and calculations might be in scope of different TCs. |
| Draft standardisation assessment | From current point of view, relevant stakeholders and EC shall define the indicators e.g. based on the results of the study https://smartreadinessindicator.eu . When there is more clarity standards work can be supported. Standardisation can be involved from different aspects: <ul style="list-style-type: none"> - Impact of relevant identified technical domains such as <ul style="list-style-type: none"> - Heating and cooling incl. domestic hot water - HVAC systems - Lighting - Dynamic building functions, e.g. window and shutter control - Domestic DER management - Demand side management incl. local systems and storage - EV smart charging - Metering and monitoring - Functionalities of technical building systems according to EPBD and required interoperability to energy ecosystems - General building requirements and system boundaries - Low-voltage electrical installations focusing on electrical energy efficiency and integration of renewables, e.g. PV - User information including data protection and access by the user to relevant data - Promote the generation and consumption of 'green energy' by providing adequate data models - Ability to manage energy systems in order to monitor in near real time their environmental footprint (CO2 emissions) |
| Standards coverage (CEN-CLC-ETSI) | EN 15232, prEN 16947, EN ISO 52000-1, IEC 60364-8-1, IEC 60364-8-2, IEC TS 62898-1, EN ISO 16484, EN 12098, CEN/TS 15810, prEN 50631-x, IEC 15118, IEC 61851-1, EN 50470-3, IEC 62056, EN 13757, IEC 50491, ETSI TS 104 001 |
| Presence in the CG-SEG work plan | Not yet |
| Further analysis required? | Yes – It should be checked whether SRIs are already well supported by standards |
| Action | Forward to CLC/TC 205 (WG 18) CEN/TC 294 and TC 13 to check whether SRIs are well supported by standards |

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662 **A.3 Eco-design Work Plan**

| | |
|---|--|
| Ref: CEP-ECO-1 | WG-CEP Assessment |
| How may it affect the industry and then potentially standardisation? | <p>The Ecodesign Working Plan contributes to the Commission's new initiative on the Circular Economy, which series of measures covering the whole lifecycle of products and materials. Within the scope of CG-SEG, it might impact new products such as</p> <ul style="list-style-type: none"> - Displays for profiling information to users (larger than 1 dm²) - Building Automation and Control Systems (BACS) - Solar panels and inverters - Gateways as part of home network equipment |
| Draft standardisation assessment | Standardisation should potentially include specific requirements for above mentioned products |
| Standards coverage (CEN-CLC-ETSI) | <p>Specific product standards and ontologies for products covered by the Eco-design directive, such as:</p> <ul style="list-style-type: none"> - ETSI TS 103 264 (SAREF) - ETSI TS 103 410-1 (SAREF4ENER) - ETSI TR 103 476 "Circular Economy (CE) in Information and communication Technology (ICT); Definition of approaches, concepts and metrics" |
| Presence in the CG-SEG work plan | Not yet |
| Further analysis required? | <p>Yes</p> <ul style="list-style-type: none"> - Clarification of requirements with Eco-Design Coordination Group of CEN/CENELEC and the EC - The creation of the "Three logo standard ontologies" and align ontologies for energy management in order to avoid competing ontologies |
| Action | Report eco-design related attributes back to IEC TC57 for CIM / IEC 61850 support and CEN/CENELEC for other ontology developments |

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666 **Annex B Renewable energy**

667 **B.1 DER management and connection to the grid**

668 Legal proposal: Renewable Energy Directive (RED)

669 Priority topic: DER management and connection to the grid

| Ref: CEP-RED-1 | WG-CEP Assessment |
|---|--|
| How may it affect the industry and then potentially standardisation? | <p>Achieving a high ratio of 32% binding renewable energy source share at EU level by 2030 will lead to increasing RES solutions into the IT systems of market actors. The ratio change does not have real impact on standardisation, but potentially changes the way of operating the grid, e.g. in terms of managing voltage.</p> <p>This might have substantial impact on the IT part of the EU Network Codes. The IT part should also be considered from an information model perspective to integrate these types of DERs as part of all the DERs that should be managed. Currently nothing has been engaged on this issue. This should be taken into consideration to avoid having troubles to integrate new solutions into the IT systems of utilities.</p> |
| Draft standardisation assessment | CIM is embracing DER management, and all types of DER shall be supported by CIM and IEC 61850. |
| Standards coverage (CEN-CLC-ETSI) | IEC 61970, IEC 61968, IEC 61850, IEC 62361-102 (harmonization of CIM and 61850), TC205 standards, smart home and buildings (auto consumption), ETSI ES 202 336 series "Monitoring and Control Interface for Infrastructure Equipment (Power, Cooling and Building Environment Systems used in Telecommunication Networks) |
| Presence in the CG-SEG work plan | Partly - DER management has been already considered by gap analysis but more effort to be done on the IT part of the EU Network Codes |
| Further analysis required? | Yes – Standardisation should consider the different types of DER implemented in EU to address capacity market constraints and to provide adequate data models and services, e.g. to register a new DER including storage, grouping of DER |
| Action | Forward to TC 13 and TC 57 to consider different types of DER and to provide adequate data models and services, e.g. to register a new DER including storage and integration in smart energy grid |

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672 **B.2 Phase-out of priority dispatch for RES**

673 Legal proposal: Renewable Energy Directive (RED)

674 Priority topic: Phase-out of priority dispatch for RES (removal of Art. 16 of current Directive)

| Ref: CEP-RED-2 | WG-CEP Assessment |
|---|---|
| How may it affect the industry and then potentially standardisation? | The phase-out of priority dispatch for RES would primarily mean that all renewable generation shall be marketed within the single market for electricity with potential impact on market places, including wholesale and retail market. This will impact the standardisation for retail and bulk market information exchange. |
| Draft standardisation assessment | Standardisation is affected for wholesale and retail market information exchange, e.g. more specific the data format model to exchange information available by CIM. |
| Standards coverage (CEN-CLC-ETSI) | IEC 61970, IEC 61968, IEC 62325 |
| Presence in the CG-SEG work plan | Not yet for retail markets |
| Further analysis required? | Yes – Analysis required on market information exchange for the complete chain from the market down to the device utilising the smart metering and CIM infrastructure |
| Action | Forward to CLC/TC 57 in charge of providing market information exchange |

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677 **Annex C Electricity Market design and security of supply**

678 **C.1 Data management and interoperability**

679 Legal Proposal: Electricity Market Directive (EMD)

680 Priority topic: Interoperability requirements and procedures for access to data (Art. 23/24 – also refers to Art. 19)

| Ref: CEP-EMD-1 | WG-CEP Assessment |
|---|--|
| How may it affect the industry and then potentially standardisation? | <p>Having an open, standardised, easy and secure access to any information (meter data, market data, grid data) which is necessary and useful for any eligible party (including consumers, flexibility providers, ESCOs, grid operators etc.) is an important pre-requisite for distributed resources to actively participate in the market. This will also include cross-border data exchange, cross sector data exchange and role of data exchange platforms (data hubs).</p> <p>Interoperability of different systems, data formats and platform is concerned rather than Standardisation of data formats and processes. It requires the identification and description of use cases, roles, ontologies, data models and reference architectures.</p> <p>Latest amendments by the Parliament leave it open to Member States to either use a European Data Format or use “Interoperability Standards”.</p> |
| Draft standardisation assessment | <p>It refers to the previous ‘My energy data’ initiative according to which Member States might benefit from a common standard (data format) for access of consumption data by consumers and parties designated by consumers (art 24). Some data formats already exist in some Member States and should be taken well into consideration.</p> <p>EG1 of the SGTF now takes care of energy data interoperability where it is important to have a strong link between EG1 and CEN-CENELEC-ETSI. Despite of any format, standardisation should ensure that the appropriate use cases will be taken into account (EG1 provided 2 basic use cases already; Horizon2020 projects like Flexiciency, EU SysFlex and TDX Assist are developing further use cases).</p> |
| Standards coverage (CEN-CLC-ETSI) | ETSI TS 103 264 (SAREF), ETSI TS 103 410-1 (SAREF4ENER), IEC 62056, IEC 61970, IEC 61968, IEC 62325, ETSI TS 104 001 |
| Presence in the CG-SEG work plan | <p>Committee Draft (CD) Edition 1 of 62325-451-10 (My Energy Data – Download My Data Use case) was circulated in summer 2018 and comments received from National Committee. An Edition 2 of the CD will be circulated by end of 2018 before having a CDV in 2019.</p> <p>Flexiciency provided a proposal to manage My Energy Data. This was discussed in TC57 WG16 and a new proposal was made by WG16 experts using Time Series (profile EUMED-MARKET).</p> |
| Further analysis required? | <p>Yes</p> <p>For download my data and share my data:</p> <ul style="list-style-type: none"> - Mapping between SAREF and data models (e.g. DLMS COSEM, CIM, ETSI ISG CIM) - Mapping between CIM and DLMS COSEM completed by JWG 16 - harmonisation already took place in the past between CIM and DLMS-COSEM and 61850 and 62056 (DLMS-COSEM), these standards documents should be reviewed and updated based on use cases |

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| | <p>For supplier switching and customer billing process (from EG1):</p> <ul style="list-style-type: none"> - Mapping between CIM and national implementations of retail market (including EBIX implementations) processes: - Continue the already started adoption of CIM to meet retail market requirements <p>In addition, consent management procedures will be needed and shall be assessed with use cases of customer consent and revocation that have been proposed using IEC 62559-2 and 62913-1 'use case methodology'.</p> |
| <p>Action</p> | <p>General:</p> <ul style="list-style-type: none"> - Follow-up with EG1 developments and promote the current standardisation work to make sure that all relevant developments and use cases are well aligned with EG1 - Follow-up and coordinate with Horizon2020 projects (Flexiciency, EU SysFlex, TDX Assist) to identify missing standards based on identified system use cases (gap analysis) - Alignment with ETSI on SAREF with support from the EC - Assess conformity with the EC Communication "BUILDING A EUROPEAN DATA ECONOMY" from 10.01.2017 - Set up a separate meeting with all internal stakeholders CEN-CENELEC-ETSI - The CEN/CENELEC/ETSI coordination groups should explain the SGAM interoperability layers again and stress the importance of using formal standard data models and the value of relying on European core standards, at least for the access of consumption data by consumers and parties designated by consumers. <p>For cross-border interoperable data exchange multi-level approach is needed:</p> <ul style="list-style-type: none"> - Harmonise business processes as far as possible and necessary from data exchange perspective – e.g. cross-border flexibility trading, supplier switching, etc. - Agree functionalities which are necessary for (cross-border) exchange of data and energy services – e.g. authentication of the users, consent management, management of system logs, etc. - Ensure data availability by creating necessary data infrastructure – data exchange platforms connecting data hubs and other data sources. - Harmonise data formats and protocols to the extent feasible and necessary. - Ensure access solutions portability of consumption data by consumers and parties designated by consumers across EU. <p>In addition, close cooperation with EG1 and EG2 is needed.</p> |

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683 **C.2 Near real-time access to consumption data and connectivity to the smart metering**
684 **infrastructure**

685 Legal Proposal: Electricity Market Directive (EMD)

686 Priority topics:

- 687 • Near real-time access to consumption data (Art. 20) for energy efficiency and demand response
688 functionalities
689 • Near real-time connectivity to the smart metering infrastructure (Art. 21)
690

| Ref: CEP-EMD-2 | WG-CEP Assessment |
|---|--|
| How may it affect the industry and then potentially standardisation? | <p>This legal proposition has a clear focus on smart metering infrastructure, especially on the H1/H2 interfaces connecting the smart meter gateway in-home with the meter(s) and the customer energy management (CEM) gateway. Near-real-time consumption data can be accessible from local devices (e.g. the certified smart meter) but also from smart metering systems (e.g. the smart metering head-end systems and data hubs) and is currently defined by seconds (max 10 s according to CG-SM).</p> <p>It also refers to the same interface as article 19 (connection to CEM) and article 21 to deliver the desired connectivity of the metering infrastructure with consumer energy management systems in near-real time, so standardisation should be treated in combination.</p> |
| Draft standardisation assessment | <p>A gap was identified in the CG-SEG and CG-SM, alignment between the standards of TC57, TC13, TC294 and TC205 is already complete and corresponding standards are available.</p> <p>NOTE: - The MID currently only covers consumption, not generation. Electricity meters are assumed to be accurate in both directions but the MID has no requirements for export accuracy.</p> |
| Standards coverage (CEN-CLC-ETSI) | Mainly standards for H1/H2 interface on smart meter reference architecture including standards of TC57, TC13, TC294 and TC205 |
| Presence in the CG-SEG work plan | Yes, but check for potential new use cases |
| Further analysis required? | <p>Yes, especially for the new use cases:</p> <ul style="list-style-type: none"> - Switch aggregator - Connect smart building data to central platforms |
| Action | <ul style="list-style-type: none"> - Forward to the Coordination Group on Smart Meters (CG-SM) - Dissemination to the market with emphasis on market design - Consideration of new use cases (including based on Horizon2020 projects like EU SysFlex, TDX Assist) - Specification and verification of near real time according to corresponding use cases |

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693 **C.3 Interoperability with Consumer Energy Management systems**

694 Legal Proposal: Electricity Market Directive (EMD)

695 Priority topic: Interoperability with Consumer Energy Management systems (Art. 19, 21)

| Ref: CEP-EMD-3 | WG-CEP Assessment |
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| How may it affect the industry and then potentially standardisation? | <p>When considering interoperability, different layers should be taken into account, e.g. connection to grids, household and market. This will include the technical design of the CEM, e.g. what are the interfaces to the household devices, to DSOs, TSOs and data exchange platforms.</p> <p>Interoperability with consumer energy management systems also relates to mapping of data definitions for the H2 interface, where Member States might make different choices depending on their own situation (e.g. wired or wireless connection).</p> <p>Within the area of standardisation, CEM are commonly referred to Customer Energy Management systems, covering e.g. domestic small-scale generators and prosumers as well.</p> |
| Draft standardisation assessment | CLC/TC 205 in combination with IEC/TC 57 WG21 are already looking into the modular architecture for CEM and how to connect the different home automation interfaces. |
| Standards coverage (CEN-CLC-ETSI) | Mainly standards for H2 interface on smart meter reference architecture including standards of TC57, TC13, TC294 and TC205 |
| Presence in the CG-SEG work plan | A gap was already identified in the CG-SEG and CG-SM: alignment is needed between the standards of TC57, TC13, TC294 and TC205. |
| Further analysis required? | Yes – Analysis regarding results of Horizon2020 projects (EU SysFlex, Flexiciency) to identify missing standards based on identified system use cases (gap analysis) |
| Action | <ul style="list-style-type: none"> - Follow the ongoing work within TC 205 - Follow-up and coordinate with Horizon2020 projects (EU SysFlex, Flexiciency) to identify missing standards based on identified system use cases (gap analysis) - Align corresponding IEC TC 57 activities |

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699 **C.4 Demand Response, congestion mechanism and market solutions for balancing**

700 Legal Proposal: Electricity Market Directive (EMD) and Electricity Market Regulation (EMR)

701 Priority topics:

- 702 • Electricity Market Directive - Demand Response (Art. 17) – Member States shall ensure access to and foster
703 participation of demand response, including through independent aggregators in all organised markets.
704 • Electricity Market Regulation - Congestion mechanism
705 • Electricity Market Regulation - Market solutions for balancing
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| Ref: CEP-EMD-4 Ref: CEP-EMR-1 | WG-CEP Assessment: |
| How may it affect the industry and then potentially standardisation? | <p>These provisions will offer ways to aggregate grid user’s capabilities to support the balancing of supply and demand, congestion management on both transmission and distribution level, and other ancillary services. The focus on market solutions for balancing and congestion management will also require shorter market closing times, resulting in a need for faster and more powerful IT solutions both on grid and market operators’ side and at the market participants.</p> <p>This will need to include the retail market and all types of ancillary services provided over coordinated flexibility platforms, identifying standard flexibility products and coordination rules.</p> <p>SGTF EG3 is currently identifying use cases and best regulatory practices across Europe for checking gaps that have to be addressed at EU level and propose what should be the scope of further and more specific EU action (i.e. network code) and relevant areas. The work covers also the access and use of flexibility for all market actors as well as framework arrangements between consumer, aggregator and supplier/BRPs, involving system operators on measurement and validation and balancing responsibility.</p> |
| Draft standardisation assessment | Standardisation of products requirements (technical specificities of flexibility products for TSOs/DSOs), and possibly of some market coordination rules |
| Standards coverage (CEN-CLC-ETSI) | IEC 61850, IEC 62746, current work of TC 57 WG 16 on market places (IEC 62325) |
| Presence in the CG-SEG work plan | Yes |
| Further analysis required? | Yes |
| Action | <ul style="list-style-type: none"> - Check existing provisions in WG STD and follow up - Follow-up and coordinate with Horizon2020 projects (EU SysFlex, TDX Assist) to identify missing standards based on identified system use cases (gap analysis) - Close alignment with EG3 especially on use cases and resulting gaps - Feed coming TC 57 WG21 activities to enhance ongoing work on IEC 62746-2 |

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709 **C.5 Microgrid management – Energy communities (CEC and REC)**

710 Legal Proposal: Electricity Market Directive (EMD) and Renewable Energy Directive (RED)

711 Priority topic:

- 712 • Microgrid management – Citizen energy community (EMD Art. 16)
- 713 • Microgrid management – Renewable energy community (RED Art. 22)
- 714

| Ref: CEP-EMD-5 Ref: CEP-RED-3 | WG-CEP Assessment |
|--|--|
| <p>How may it affect the industry and then potentially standardisation?</p> | <p>Both new energy community types (CEC and REC) raise requirements identified in previous gaps and use cases related to microgrids, such as</p> <ul style="list-style-type: none"> - Provide harmonised data model and any other communication standards to manage DER, in aggregated mode or not, and to integrate them to the operation and enterprise levels of Utilities, etc. where different groups of DER are involved - Provide data model to enable to remote monitoring and controlling a micro-grid and especially to manage its status related to its connection to the grid (islanding detection, islanding modes, connection, disconnection, reconnection, these modes are not fully covered today) - Provide a standard way to manage in security the different steps of a smart grid system, with dynamics reconfiguration and remote access features, from start-up to a secured energized and operational stage, and to keep these operational capabilities all along its life cycle, still with the same level of security - Provide standardised solutions to enable collective self-consumption incl. appropriate data models <p>New standardisation requirements might derive from the new situation that single entities are involved in distributed generation and in performing activities of a distribution system operator, supplier or aggregator at local level, including controlling, pooling and aggregating of local generation, storage and e-mobility, heating and local energy management systems.</p> <p>Integration of active customers (Article 15) especially in terms of P2P aggregation and demand response and opting in/out of members and customers is also at stake and require new ways of managing automated processes (referring to ‘My energy data’ as well).</p> <p>EU Network codes (also future DSO level) are involved when energy communities act as one large customer towards the network.</p> |
| <p>Draft standardisation assessment</p> | <p>Standardisation require following functionalities:</p> <ul style="list-style-type: none"> - Demand response and P2P market exchange / aggregation - Data Models and communication - Architecture description and Management description (i.e. algorithm, orchestration) - Microgrid design and performance monitoring in operation incl. storage and local generation - Electrical connection standards (LV and MV) - procedures for demonstrating network code compliance for connection to DSO or TSO networks - Behavior as one large customer towards network codes (especially RfG, DCC and SO Guideline) - Transactions description, securing and traceability using digital solution (i.e. Blockchain) |
| <p>Standards coverage (CEN-CLC-ETSI)</p> | <p>IEC TS 62898, IEC 61850, EN 50438, EN 50549, IEC 62786, IEC 62746, IEC 60364, IEC 62325, IEC 61968, IEC 61970</p> |
| <p>Presence in the CG-SEG work plan</p> | <p>Partly, definition of new use cases required</p> |

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| Further analysis required? | Yes, especially for new use cases building up on the microgrid management gaps and related work. |
| Action | <ul style="list-style-type: none"> - Boosting the microgrid “gaps” previously identified in the gap ranking - Check new microgrid use cases and identify main use cases from CEP - Check new interactions between microgrids and DSOs and provide expertise to IEC TC 57 WG 17 |

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717 **C.6 Dynamic electricity price contract for customers**

718 Legal Proposal: Electricity Market Directive (EMD)

719 Priority topic: Dynamic electricity price contract for customers, provided by suppliers (Art. 11)

| Ref: CEP-EMD-6 | WG-CEP Assessment |
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| How may it affect the industry and then potentially standardisation? | <p>Consumers may have the opportunity to deal with multiple tariffs, not only consumption (kWh) but also capacity (kW) and CO₂ emissions (CO₂/MWh) in the future.</p> <p>Tariffs as defined by CLC/TC 13 within the meters.</p> |
| Draft standardisation assessment | <p>IEC/TC 13 WG 15 has proposed a NWIP for functions and processes for smart metering including payment. (This did not receive sufficient participating countries to proceed but the proposal could be re-submitted if required.)</p> |
| Standards coverage (CEN-CLC-ETSI) | <p>SAREF and harmonisation of data model definition, including those relating to CO₂ emissions.</p> |
| Presence in the CG-SEG work plan | <p>Yes, ongoing work and almost finished</p> |
| Further analysis required? | <p>Yes</p> <ul style="list-style-type: none"> - Analysis related to work outcomes of SAREF - Recommendation for CO₂ emission monitoring - GOOs quality assessment and rating harmonization proposal - Analysis of complex model tariffs including all type of products available on energy market |
| Action | <p>Follow-up with work outcomes of SAREF, further gaps to be processed by the CG-SM and CG-SEG</p> |

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722 **C.7 Neutrality and transparency of grid operators**

723 Legal Proposal: Electricity Market Directive (EMD)

724 Priority topic: Neutrality of grid operators (Art. 31-36)

| Ref: CEP-EMD-7 | WG-CEP Assessment |
|---|--|
| How may it affect the industry and then potentially standardisation? | <p>Grid operators need to be neutral, i.e. independent from market actors and not involved in commercial activities in order to effectively fulfil its regulated tasks and ensure equal treatment of stakeholders. In case of some unbundling models (ISO, ITO) very clear rules are needed in order to demonstrate in a transparent way the neutrality. Regulation foresees compliance programme and independent compliance officer as necessary measures.</p> <p>Furthermore, transparency is at stake which implies for instance for DSOs to publish more data as TSOs do through transparency platforms (i.e. outages, DER forecasts, TYNDP or FYNDP for DSOs).</p> <p>It might be necessary to introduce standard practices for compliance programme, compliance officers and other neutrality measures, including guidelines to reach the required transparency.</p> |
| Draft standardisation assessment | It presumably relates more to harmonised processes (good practices) involving relevant information exchange between DSO – Compliance Officer – Regulator, etc. rather than (technical) European standards |
| Standards coverage (CEN-CLC-ETSI) | None |
| Presence in the CG-SEG work plan | No |
| Further analysis required? | Yes - especially assessment of the different services provided by the TSO, DSO across EU |
| Action | Identify good standard practices ensuring neutrality and transparency for grid operators and identify whether and which harmonised processes on European level would be needed for this. |

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726 **C.8 Management of storage and integration into the grid**

727 Legal Proposal: Electricity Market Regulation (EMR)

728 Priority topic: Management of storage and integration into the grid (similar to DER)

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| Ref: CEP-EMR-2 | WG-CEP Assessment |
| How may it affect the industry and then potentially standardisation? | <p>Storage plays a central role in the provision of flexibility and in the operation of future energy systems incl. Local Energy Communities, and is therefore a major issue for the EC. In addition, the CEP may allow transmission and distribution system operators to own, develop, manage or operate storage facilities under specific conditions.</p> <p>Work started already at IEC (physical part), but still in discussion how to integrate such features into the grid and to manage it properly. Different use cases may also apply by TSOs and DSOs.</p> |
| Draft standardisation assessment | <p>Storage have already been considered by IEC, but support by CIM need to be checked. TC 57 is working on a data model in IEC 61850-7-420 as DER with storage specific properties, but it is also important to identify the related use cases for specific application.</p> <p>In addition, contribution of storage management in term of CO₂ emission impact should be assessed.</p> |
| Standards coverage (CEN-CLC-ETSI) | IEC 61970, IEC 61968, IEC 61850, IEC 62913-2-3, IEC 62786, EN 50549 |
| Presence in the CG-SEG work plan | Partly, but CIM may not be fully in scope |
| Further analysis required? | <p>Yes – Analysis related to</p> <ul style="list-style-type: none"> - New storage related use cases resulting from the CEP - Operation of storage by grid operators and their specific systems - Impact on CO₂ emissions - Grid code requirements - Communication across grid operators - Reference to Osmose project (led by RTE) |
| Action | Check for new use cases that have been drafted in 62913-2-3 (IEC system committee WG 6: Generic Smart Grid Requirements) |

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731 **C.9 Operational data exchange between grid operators and grid users**

732 Legal Proposal: Electricity Market Regulation (EMR)

733 Priority topic: Operational data exchange between grid operators and grid users on national and regional level

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| Ref: CEP-EMR-3 | WG-CEP Assessment: |
| How may it affect the industry and then potentially standardisation? | <p>Power systems with high shares of locational constrained renewable energies do require more trans-national cooperation. This will include the implementation of the System Operation Guideline (KORRR) as part of the EU Network Codes. Affects also aggregators as virtual grid users.</p> <p>Specific arrangements of the different control centers between utilities might be necessary, relying on CIM and control center to control center communication. Grid users need easy solutions for providing data – both technically and organizationally and in the other way to access to their consumption and energy profile included near-real time CO₂ emissions (i.e. entsoe.eu data).</p> |
| Draft standardisation assessment | |
| Standards coverage (CEN-CLC-ETSI) | IEC 61970, IEC 61968, IEC 61850 in relation to NC SO Guideline and KORRR [12] |
| Presence in the CG-SEG work plan | Partly, Control center communication is already covered |
| Further analysis required? | Yes – Check how standards can facilitate data exchange between system operators and grid users |
| Action | <p>Check requirements with NC SO Guideline and KORRR (key organizational requirements, roles and responsibilities), especially how network code supporting documents like</p> <ul style="list-style-type: none"> - CGMM (Common Grid Model Methodology) [13], - GLDPM (Generation and Load Data Provision Methodology) [14] and - CSAM (Coordinating Operational Security Analysis Methodology) [15] <p>are taken into account</p> <p>Check whether and how a central data exchange platform could facilitate data exchange between system operators and grid users.</p> <p>Follow-up and coordinate with Horizon2020 projects (EU SysFlex, TDX Assist) to identify missing standards based on identified system use cases (gap analysis)</p> |

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736 **C.10 Compliance to new network codes (also on DSO level)**

737 Legal proposal: Electricity Market Regulation (EMR)

738 Priority topic: New areas of network codes which might also directly apply on DSO level (Art. 59)

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| Ref: CEP-EMR-4 | WG-CEP Assessment: |
| How may it affect the industry and then potentially standardisation? | <p>Network codes can be considered as a set of obligations related to the connection to the transmission and/or distribution grid incl. significant grid users. It can be of any type: electrotechnical functions, observability and controllability functions or cybersecurity requirements. The CEP extends the currently available EU network codes by</p> <ul style="list-style-type: none"> - curtailment of generation and redispatch of generation and demand - rules for non-discriminatory, transparent provision of non-frequency ancillary services, including steady state voltage control, inertia, fast reactive current injection, black-start capability and islanding - demand response, including aggregation, energy storage, and demand curtailment rules - rules concerning regional operational centres <p>which might be also directly applicable on DSO level. Thus, these codes have a huge impact on mass-market and a huge number of potential stakeholders, so further work is expected to be anticipated through a mandate to support not only the writing but also the deployment of the codes.</p> <p>Potential similar issues may arise as with the current network codes, i.e.</p> <ul style="list-style-type: none"> - needed but not available on time - having appropriate definitions and test methods within the standards - Electrical aspects with demonstration of compliance to the code - “IT part” with communication between market participants - Check with governance <p>Regarding the new requirements related to demand side flexibility, SGTF EG3 is currently working on formulating concrete recommendation to the European Commission for future work on demand side flexibility, including priorities for a network code.</p> |
| Draft standardisation assessment | Standards will be required to demonstrate compliance to new areas of network codes also on DSO level. |
| Standards coverage (CEN-CLC-ETSI) | TC8x for compliance tests |
| Presence in the CG-SEG work plan | Partly |
| Further analysis required? | Yes, especially assessment of the different services provided by the TSO, DSO across EU |
| Action | <p>To be explored with the EC (mandate decision), incl.</p> <ul style="list-style-type: none"> - Development of use cases and gaps for specific areas - Development of implementing acts and application guidelines - Promote conformance testing processes |

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741 **C.11 Compliance to new cybersecurity network codes**

742 Legal proposal: Electricity Market Regulation (EMR)

743 Priority topic: New cybersecurity network codes (Art. 59)

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| Ref: CEP-EMR-5 | WG-CEP Assessment: |
| How may it affect the industry and then potentially standardisation? | <p>Network codes can be considered as a set of obligations related to the connection to the transmission and/or distribution grid incl. significant grid users. It can be of any type: electrotechnical functions, observability and controllability functions or cybersecurity requirements. The CEP proposes to extend the currently available EU network codes by specific rules on cybersecurity which might be also directly applicable on DSO level.</p> <p>These codes have a huge impact on mass-market and a huge number of potential stakeholders, so further work is expected to be anticipated through a mandate to support not only the writing but also the deployment of the codes.</p> <p>Potential similar issues may arise as with the current network codes, i.e.</p> <ul style="list-style-type: none"> - needed but not available on time - having appropriate definitions and test methods within the standards - Cyber Security and privacy is mentioned, task to elaborate further requirements - Electrical aspects with demonstration of compliance to the code (EU compliance tests) - "IT part" with communication between market participants - Check with governance <p>SGTF EG2 is currently working on preparing the ground for a possible network code on cyber security, incl. objectives, key areas, instruments and minimum level on cybersecurity. The already identified key areas relate to</p> <ul style="list-style-type: none"> - European Cybersecurity Maturity Framework - Supply Chain Management - European Early Warning System for Cyber Threats - Cross-Border and Cross-Organisational Risk Management and Risk Scenarios |
| Draft standardisation assessment | Standards will be required to demonstrate compliance to specific areas of cybersecurity |
| Standards coverage (CEN-CLC-ETSI) | IEC TC 57, TC 13, TC 65, CLC JTC 13 in charge of cybersecurity, ISO / IEC JTC 1 SC 27 |
| Presence in the CG-SEG work plan | Partly |
| Further analysis required? | Yes |
| Action | <p>To be explored with the EC (mandate decision), incl.</p> <ul style="list-style-type: none"> - Development of use cases and gaps for specific areas - Development of implementing acts and application guidelines - Promote existing cybersecurity conformance tests - Promote conformance testing processes |

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