Innovation Action

inteGRIDy

integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization & Storage Technologies

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WP2 – Standardization Analysis, Regulation & Privacy Policy

D2.3 – inteGRIDy Data Management Plan (Initial)

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V 1.1	28/07/2017	Final version addressing comments from PO

Executive Summary

inteGRIDY is a H2020 innovation action European demonstration project and aims to integrate cutting-edge technologies, solutions and mechanisms in a scalable Cross-Functional Platform connecting energy networks with diverse stakeholders, facilitating optimal and dynamic operation of the Distribution Grid (DG) fostering the stability and coordination of distributed energy resources and enabling collaborative storage schemes within an increasing share of renewables.

This report is an initial Data Management Plan (DMP), and is part of the 'Pilot on Open Research Data in Horizon 2020', comprising the following:

i. Handling of research data during and after the project.
ii. What data will be collected, processed or generated.
iii. What methodology & standards will be applied.
iv. If data will be shared /made open access/ how data will be curated and preserved.

In order to ensure that the above criterias are fulfilled, a data set template has been created and distributed to all work package (WP) tasks leaders. The description of project datasets is classified according to the work package and specific tasks. It is anticipated that this classification will be updated for each work package according to data type.

This report has been developed following the Horizon 2020 guidelines [ECD17] with additional guidance from the UK's Digital Curation Centre [DCC17], via the web resource DMP Online https://dmponline.dcc.ac.uk/, and the joint OpenAIRE and EUDAT webinar "How to write a Data Management Plan" [OAE16].

The DMP will be implemented across other WPs, based on data delivered. Additionally, the forth-coming updated DMP report, D2.4, will include all pilot sites templates on cyber security & privacy issues in the context of each of the demonstration sites countries, taking into account guidelines for appropriate security measures for smart grids published by European Network and Information Security Agency.

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List of Acronyms and Abbreviations

Term	Description
AEPD	Spanish Data Protection Agency
ANSSI	Agence nationale de la sécurité des systèmes d'information
CC	Common Criteria
CC0	Creative Commons No Rights Reserved licence
CC-BY	Creative Commons Attribution International licence
CCN	National Cryptologic Center
CERTs	Computer Emergency Response Teams
CESTI	Centre d'évaluation de la sécurité des technologies de l'information
CLEF	Commercial Evaluation Facilities
CMP	inteGRIDy's Cross Modular Platform
CNRI	Corporation for National Research Initiatives
CNIL	Commission Nationale de l'Informatique et des Libertés
COFRAC	Comité français d'accréditation
CSIRTs	Computer Security Incident Response Teams
DCC	Digital Curation Centre
DG	Distribution Grid
DMP	Data Management Plan
DRAS	Demand Response Automation Server
ECCDIS	Electronic Chart Display and Information System
EECSP	Energy Expert Cyber Security Platform
ENISA	European Network and Information Security Agency
GDPR	General Data Protection Regulation
HDPA	Hellenic Data Protection Authority
MQTT	Message Queue Telemetry Transport

NDA	Non-Disclosure Agreement
NIS	Network and Information Systems
NRAs	National Regulatory Authorities
OA	Open Access
UKAS	United Kingdom Accreditation Service
WP	Work Package

1.Introduction

The report begins by outlining its purpose, intended audiences, and the process for ongoing development. Section 2 outlines approaches to data managements in terms of data storage and sharing as well as cyber security and privacy. The former describes the concepts of open access publishing and open access data in scientific research and the latter analyse privacy and cyber security. Related issues such as a classification for project datasets and an overview of copyright licensing for open access are then discussed. Each project dataset is then described in detail in Section 3 using a standardised template. Finally, conclusions are drawn and references presented.

1.1 Aims and objectives

InteGRIDy is a H2020 funded innovation action project. InteGRIDy aims to integrate cutting-edge technologies, solutions, and mechanisms in a scalable Cross-Functional Platform connecting energy networks with diverse stakeholders, facilitating optimal and dynamic operation of the Distribution Grid (DG), fostering the stability and coordination of distributed energy resources and enabling collaborative storage schemes within an increasing share of renewables. This Data Management Plan (DMP) outlines how data collected or generated by the inteGRIDy project will be organised, stored, and shared. It specifies which data will be open access and which will be confidential within the consortium, as far as it is possible to do so at this stage. Additionally, abidance to regulation for privacy and cyber secuirity will be analysed in the context of each of the demonstration sites countries taking into account guidelines for appropriate security measures for smart grids published by European Network and Information Security Agency.

1.2 Intended Audience

The first audience for this report is internal; there are thirty partner organisations participating in inteGRIDy working on ten demonstrations sites in eight countries across Europe. The DMP will establish consistent practices between partners to increase the efficiency and robustness of data handling during delivery of the project.

The second audience for this report is the community of researchers, engineers, and facility managers interested in energy use in the built environment, particularly at its intersection with the wider energy system. The DMP will describe the standard formats, meaningful metadata and open repositories to share data and enable other users to build on the knowledge gained during the project.

1.3 Relations to other activities in the project

The DMP is a component of WP2 Task 2.3 and as the leader of this WP; Teesside University has drafted and elaborated this document with input from the other partners.

All WPs directly contribute to the implementation of the DMP with partners responsible according to their relevant activities. For instance, WP4, Distribution Grid Optimization Framework, led by ENG, will deploy an optimisation-based energy management based on the specifications and pilot site-specific requirement analysed in WP1, Domain Analysis, Specification and Architecture. Work Packages 4, 5, and 7 have general datasets templates and will be later updated to specific task datasets. Furthermore, the update report will identify secondary datasets once a sketch of dependencies among the different parts of the inteGRIDy WP's are identified in WP1 D1.5 "inteGRIDy Architecture & Functional/Technical Specifications" due for M10.

1.4 Updating the Data Management Plan

This report is an initial version of the DMP, prepared at the outset of the project. It will be updated as the project progresses since not all data or potential uses are clear from the start. New versions of the DMP will be created whenever there are significant changes to the project due to inclusion of new data sets, changes in consortium policies or external factors.

A further public version will be released in month 12, prior to the project review. The DMP will be continously updated until the end of the project.

Following the Horizon 2020 guidelines [ECD17] and recommendations of the UK's Digital Curation Centre [DCC17], this mid-term review will pay particular attention to enabling reuse of the datasets. Specifically, it will consider in detail:

- the identification and discoverabillity of datasets,
- what licenses and/or restrictions are applicable to the accessible datasets,
- whether or not the datasets are intelligible to third parties for scrutiny and peer review,
- if the datasets will be useable by third parties for the indefinite future,
- to what extent the datasets are formatted to community standards to be interoperable between researchers, institutions and organisations.

The final review, at the close of the project, will fine-tune the DMP to fully reflect the final project outputs, and the relevant communities, standards and uses identified by the consortium during the project.

1.5 Data Availability and Open Access

Open access (OA) refers to the free, online provision of re-useable scientific information to other users. There are many good reasons to make the data and findings from publically funded research openly available to the research community, the commercial sector, and civil society.

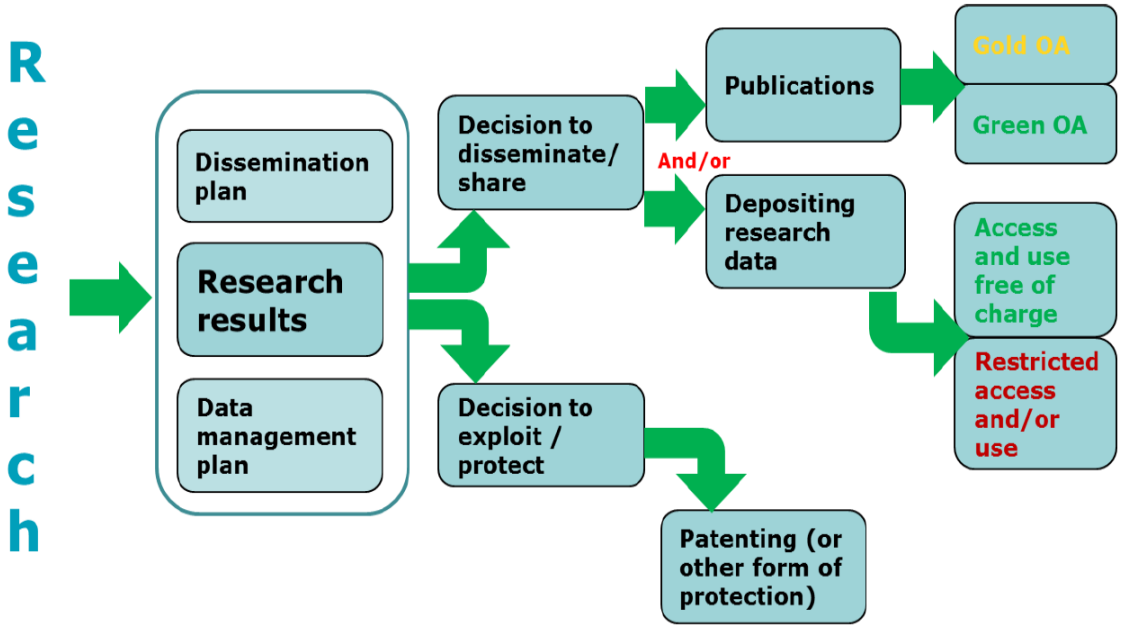

Figure 1. Open access to scientific publication and research data in the wider context of dissemination and exploitation (Reproduced from ECD (2017) H2020 programme guidlines on Open Access to scientific publication and research data in Horizon 2020)

As the "Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020" [ECD17] outline, more open access to scientific publications and data serves a number of purposes. It will i) improve the quality of research by building on a stronger body of existing work, ii) increase efficiency of research by reducing duplication of effort, iii) bring innovations to market quicker by reducing barriers to information flow, and iv) enhance the transparency of scientific progress. There is also the economic and ethical principle that information that has been paid for with public money should not have to be paid for again when it is required for use by other researchers, industry, or citizens.

As outlined above, the first decision to be made in research dissemination is whether to publish research findings or to protect some aspects for commercial exploitation. The Draft IPR Management Report (D9.6), led by SIEMENS to be delivered in M18, updated M30 and M48, will outline the key datasets, outputs and processes that will determine the path for different aspects of the inteGRIDy project.

Then the process will for each exploitable result, guide ER managers and any jointly involved partners through the steps outlined in Figure 1. Where necessary, patent searches and the clarification of each partners' legitimate interests in relation to the project outputs will be performed, and IPR agreements between partners, prior to dissemination of findings, will be introduced. The Exploitation Plan (interim version) D9.6, M18, will clarify these findings and ultimately lead to the final Exploitation Plan, D9.7, at the close of the project in M30.

1.5.1 Classification of Data Availability

Data availability is therefore categorised at this stage in one of three ways:

- **OpenData,** that is shared for re-use or that underpins a scientific publication.
- **Consortium,** Confidential data that is accessible to all partners, but retained within the consortium and subject to the project Non-Disclosure Agreement (NDA).
- **Private,** data that is maintained by an individual partner for their own purposes.

Much of the data gathered by the project is for the purpose of project management and delivery rather than new knowledge creation; it is therefore likely that much of the data is categorised as Consortium. However, the project will seek to openly disseminate its research findings, except in cases where there are defined exploitable outcomes, privacy concerns or there will be a high administrative burden for a dataset or limited worth to other users. The two main aspects of this dissemination approach are open access to scientific publications and open access to research data. Each is considered in the following sections.

1.5.2 Open Access publishing

Open access publishing is essentially defined as the free availability of peer-reviewed scientific publications for any user. There is no single legal definition in the context of H2020 but the inteGRIDy Grant Agreement specifies that each beneficiary must ensure open access (free of charge online access for any user) to all peer-reviewed scientific publications realting to its results. In particular, it must:

a) As soon as possible and at the latest on publication, deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications;

   Moreover, the beneficiary must aim to deposit at the same time the research data needed to validate the results presented in the deposited scientific publications.

b) Ensure open access to the deposited publication - via the repository - at the latest:

i) on publication, if an electronic version is available for free via the publisher, or
ii) within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.

c) Ensure open access - via the repository - to the bibliographic metadata that identify the deposited publication.

The bibliographic metadata must be in a standard format and must include the following:

- the terms *"European Union (EU)" and "Horizon 2020"*;
- the name of the action, acronym and grant number;
- the publication date, and length of embargo period if applicable, and
- a persistent identifier.

To achieve this, we will use both "green" and "gold" open access routes. "Green" open access, or self-archiving, is the release of a final peer reviewed manuscript through an online repository, possibly after an embargo period, whereas "gold" open access relates to open access publishing.

Atos is committed to ensuring that the outputs of its research are readily accessible and will provide the Atos online repository and portal (inteGRIDy.atosresearch.eu). Atos proposes to host all the scientific publications arising from inteGRIDy project, with the consent of the authors and in compliance with other publishers' policies.

All deposits in Atos repository will be assigned a persistent identifier registered with the Handle System, run by the not-for-profit Corporation for National Research Initiatives (CNRI) and authorized by the DONA Foundation.

Manuscripts will be deposited by authors in a timely manner, within three months of acceptance to a journal, and released to public access within one month, although in some cases publishers request an embargo period.

Gold open access is via traditional academic journals but shifts the fees for publishing from readers to researchers. One off charges, of the order of €2000 per paper, are usually levied at the time of acceptance.

inteGRIDy will make other public deliverables, such as technical reports, working papers and conference papers, which are not scientifically peer reviewed, openly accessible via the project website, www.integridy.eu, and other online research dissemination platforms such as ResearchGate and OpenAIRE's Zenodo repository.

1.5.3 Open Data

inteGRIDY project has not been mandated to participate in the 'Pilot on Open Research Data in Horizon 2020' but has committed to do so voluntarily. The rationale is to open access of scientific publications; research integrity will be increased through transparency, impact will be greater through re-use, duplication of efforts will be reduced, and civil society will benefit from better value from its financial contribution.

There are four main aspects of open data summarised in the acronym FAIR [FOR16]:

- **F**indable: data has a unique, persistent ID, located in a searchable resource, and documented with meaningful metadata.
- **A**ccessible: data is readily and freely retrievable using common methods and protocols, metadata is accessible even if the data is not.

- **I**nteroperable: data is presented in broadly recognised standard formats, vocabularies, and languages.
- **R**e-useable: data has clear licences, and accurate meaningful metadata conformito relevant community standards and identifying its content and provenance.

The data management plan establishes how this approach will be realised in practice with the initial plan presenting an overview and greater detail will be provided in the interim and final reports as the work packages proceed.

Project datasets for dissemination will be open access by default, as a minimum to validate scientific publications. However, not all of the project work packages will produce datasets that are intended for public dissemination; much of the data created and stored during the project is for internal management and communication within the consortium only. Of the datasets intended to be open access some, such as those that identify residential users, may also require aggregation or anonymization for security or commercial reasons prior to release. The updated versions of the DMP will clearly state where this is required.

1.5.4 Copyright Licenses

When material is, widely shared, copyright licences protect the authors of work and grant specific rights to publishers and others to use this work. The European Commission encourages authors to retain their copyright whilst disseminating it as open access. Creative Commons provides legal tools to enable open access in these circumstances, with CC-BY (Creative Commons Attribution International licence) and CC0 (Creative Commons No Rights Reserved licence) enabling re-use by third parties [CC16].

Where research findings are published in a journal or other scientific outlet there should be consideration of the copyright agreement with the publishers, which may involve an embargo period. Submission in Atos repository requires the author to agree to a non-exclusive distribution licence, and a Creative Commons licence may be added at this stage.

At this initial stage it is not possible to define the copyright arrangement for each project dataset. The most appropriate licencing arrangements for each of the project datasets will be investigated as they are better characterised by their respective work packages and the Management of Exploitable Results WP9. The mid-term and final data management plans will be updated to that effect.

2.Approach to Data management

This report has been developed following the Horizon 2020 guidelines [ECD17] with additional guidance from the UK's Digital Curation Centre (DCC), via the web resource DMP Online https://dmponline.dcc.ac.uk/, and the joint OpenAIRE and EUDAT webinar "How to write a Data Management Plan" [OAE16].

2.1 Data Storage & sharing

The project has five main data storage and sharing facilities according to the type of data and its intended accessibility.

- **Private**. Stored locally on organisational networks and assets, subject to institutional back up practices.
- **Consortium**. ATOS IT services will host a common space which is secure, robust and accessible to all partners. Consortium data will be uploaded to this cloud storage for simple, secure access for all partners from within a web browser. Data is maintained with regular offsite backups.
- **Open**. Three facilities will be used during the project.
    - The project website http://integridy.eu/ managed by Atos, will be the first point of contact for public dissemination. It will host project technical reports and other materials such as events listings, blog articles, images, videos, links to partner organisations and related projects.
    - Atos repository will make scientific publications indefinitely accessible and discoverable in the mode of "green" open access publishing.
    - Large, re-useable data sets will be deposited in an open data repository, e.g. Zenodo, selected by the task leaders during the delivery of the relevant work packages.

2.2 Cyber Security and Privacy

The digital transformation or smartening of the EU energy grid is a result of significant EU initiatives on this matter, such as the 2015 Digital Single Market Strategy and the European Agenda on Security 2015 – 2020, which were built upon the 2013 Cyber Security Strategy of the European Union [EUR17, ENI1]. The decentralized and digitalized nature of smart grids reflects the ever-growing introduction of decentralized generation from renewable sources, electricity storage and electric vehicles into the energy distribution system under the support of ICT systems, which results in many opportunities within energy markets, as it includes consumer across the energy value chain and increases the efficiency, reliability, flexibility and adaptability of the grid [DEC14]. This new scenario, which is deeply reliant on ICT systems and on the cyberspace, deepens the connections – hence the dependencies – of energy networks of the 28 EU Member States. Nonetheless, this growing dependency also makes the energy networks more prone to cybersecurity incidents, either intentional or not – e.g. the ones cause by natural disasters or by hacking attacks [[ECD17]]**.** On the other hand, the developments on data mining and machine learning have raised increasing concerns about the (mis)use of "sensitive" data derived, in particular, from energy usage consumption habits.

Until recently cybersecurity has been overlooked by the different energy network and market operators. Although most organizations now recognize the need to protect their assets (infrastructure) and respond to their client concerns there is still a long way to go. First of all,

organizations have to understand that a security policy is not limited to complying with standards. The evolving technological landscape and the human factor involved make it mandatory to put in place a true security strategy, backed by a detailed plan and assessing tools, which have to be reviewed periodically.

This reality stems in part from the newness of regulatory frameworks that try to bring harmonized perspectives of the field but also from some technical challenges. The majority of infrastructure operators have to deal with legacy systems that have little or no provision at all for security protocols. On the other hand of the spectrum, some of the more recent (Internet of Things) devices are also less than secure due to faulty implementations of the security mechanisms or inadequate deployment procedures.

2.2.1 Policy Development

Given that cybersecurity incidents within the energy sector can impact vital energy services – e.g. electricity provision -, the tailoring of cybersecurity legislation within the EU is an essential matter at present [MEN17].

In light of this, the Commission has been diligently working to include cybersecurity within its new policy agenda, focusing on the collaboration between public and private sectors to enable information exchange and the creation of national cybersecurity agencies. Illustratively, in 2016 the EU adopted two key legislations towards a safer online environment, namely the Directive on Security of Network and Information Systems (NIS Directive) and the General Data Protection Regulation (GDPR), aimed at creating a homogenized cyber security and data protection framework across the 28 EU Member States [EUR17, ENI1, [ECD17]].

Specifically, the NIS Directive represents the first EU-wide legislation targeting the security of information networks and systems, encompassing in this way “operators of essential services”, such as search engines, cloud computing services, online marketplaces/businesses, and digital and financial market infrastructures, among others. Alongside, the GDPR – to be adopted in 2018 – relates to the protection of personal data, thus reinforcing citizen´s rights and facilitating companies´ business within the online environment. In this way, both legislations provide support to the implementation of the EU Digital Single Market [ENI1, [ECD17]].

Complementarily, some organizations were established to provide further support on the implementation of these legislations. Illustratively, the European Network and Information Security Agency (ENISA) and the Computer Emergency Response Team for the EU institutions (CERT-EU), were created to ensure the smooth implementation of the NIS Directive. Additionally, the EU, together with DG Energy, through the Energy Expert Cyber Security Platform (EECSP) Expert Group, envisioning a strategy on cyber security for the energy sector in 2015 as a reinforcement to the NIS Directive [ENI17].

In conclusion, developments on cyber security and data protection within the EU still present a high degree of market fragmentation, given the variation in how policies are implemented and technologies are developed in each of the 28 EU Member States. Nonetheless, it is expected that the NIS Directive, together with the entering into force of the GDPR in 2018,

are going to address key points regarding this matter. Specifically, the new legislations are aimed at fostering information exchange and cooperation on cyber security problems at cross-border level, thus preventing cyber incidents, homogenizing the cybersecurity space and increasing the resilience of its cyber environment.

2.2.1.1 EU Member-States' Regulations and Legislations

Under the broad umbrella of the NIS Directive [EP16] and GDPR enacted by the EU, each Member State has adopted different procedures to address cybersecurity and data protection issues related to the energy sector. In this sense, Table 1 provides a comparative overview on the diverse ways in which the 8 EU Member States that are part of the InteGRIDy consortium have organized, adopted and executed their distinct standards on cybersecurity (i.e. security mechanisms and frameworks that focus on interoperability or certification aspects), guidelines (i.e. good practices, technical reports, worksheets, etc.) and regulatory documents to tackle cyber threats [PAT17]. To this regard, the information presented was directly extracted and adapted from the comprehensive study performed by the BSA EU Cybersecurity Dashboard, who assessed national approaches within the EU on cybersecurity policies under five different perspectives [BSA15]:

- Legal/policy frameworks on cybersecurity: it relates to national cybersecurity strategies which, in an optimal scenario, should be dynamic – i.e. constantly updated – and designed and implemented in partnership with private stakeholders.
- Sector-specific plans: it relates to the establishment of sector-specific approaches towards cybersecurity.
- Partnership between public and private stakeholders: it relates to formal cooperation between public and private stakeholders – i.e. non-governmental entities that operate vital infrastructures such as energy, health, etc. – under the forms of dialogue and information sharing facilitation.
- Operational capability: it relates to the establishment of National Regulatory Authorities (NRAs) to set cybersecurity baselines and certifications, and Computer Emergency Response Teams (CERTs) and Computer Security Incident Response Teams (CSIRTs) to provide incident response or information sharing services, thus reinforcing network and information security.
- Public awareness and appropriate public input: it relates to education and awareness raising on cybersecurity.

Table 1: Comparative overview on the cybersecurity environment of 7 EU Member States

Question	Portugal	Spain	UK	France	Italy	Greece	Romania	Cyprus
LEGAL FOUNDATIONS								
National cybersecurity strategy?	Draft	Yes (2013)	Yes (2011)	Yes (2011)	Yes (2014)	No	Yes (2014)	Yes (2013)
Critical Infrastructure Protection (CIP) strategy/plan?	No	Yes	Yes	No	Yes	Yes	Yes	No

Question	Portugal	Spain	UK	France	Italy	Greece	Romania	Cyprus
Legislation/policy that requires the establishment of a written information security plan?	No	Yes	Partial	No	No	Partial	No	No
Legislation/policy that requires an inventory of "systems" and the classification of data?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partial
Legislation/policy that requires security practices/ requirements to be mapped to risk levels?	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Legislation/policy that requires at least an annual cybersecurity audit?	Partial	Partial	No	No	No	No	No	No
Legislation/policy that requires a public report on cybersecurity capacity for the government?	Partial	No	Partial	No	Yes	No	No	No
Legislation/policy that requires each agency to have a chief information officer (CIO)/ chief security officer (CSO)	No	No	No	Yes	No	No	No	No
Legislation/policy that requires mandatory reporting of cybersecurity incidents?	No	No	No	No	No	No	Partial	Yes
Legislation/policy include a definition for CIP?	No	Yes	Yes	No	Yes	Yes	Yes	No
Cybersecurity solutions fully based on international accreditation or certification	N/A	Yes	Partial	Partial	Yes	Yes	Partial	No

Question	Portugal	Spain	UK	France	Italy	Greece	Romania	Cyprus
schemes without local requirements?								
OPERATIONAL ENTITIES								
CERT or CSIRT?	Yes (2008)	Yes (2008)	Yes (2014)	Yes (2008)	Yes (2014)	Yes (2009)	Yes (2011)	No
National competent authority for network and information security (NIS)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partial
Cybersecurity incident reporting platform?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Conduction of national cybersecurity exercises?	Partial	Partial	Yes	Yes	Yes	Yes	Partial	Partial
National incident management structure (NIMS) to respond to cybersecurity incidents?	Partial	Yes	Yes	No	Yes	No	Partial	No
PUBLIC PRIVATE PARTNERSHIPS								
Cooperation between public and private entities?	Partial	Yes	Yes	No	Partial	No	No	Partial
Industry cybersecurity councils?	No	Yes	Yes	No	Partial	No	Partial	No
Plans for new public private partnerships?	No	-	-	Partial	Partial	No	Yes	No
SECTOR SPECIFIC CYBERSECURITY PLANS								
Joint public private sector plan on cybersecurity?	No	Yes	Yes	Yes	No	No	No	Partial
Definition of sector specific security priorities?	No	Partial	Partial	No	No	No	No	No
Conduction of sector cybersecurity risk assessments?	No	No	No	No	No	No	No	No
EDUCATION								
Education strategy to raise cybersecurity awareness among	No	No	Yes	Yes	Yes	No	Yes	No

Question	Portugal	Spain	UK	France	Italy	Greece	Romania	Cyprus
public from a young age?								

Furthermore, Table 2 presents the national legislations on data protection implemented by each EU Member State aforementioned that transposed the EU Data Protection Directive 95/46 EC, besides the respective Data Protection Authorities [PRI17, RAU15].

Table 2: National legislations on data protection that transposed the EU Data Protection Directive 95/46 EC

EU Member State	Applicable legislation on data protection	Data Protection Authority
Portugal	• Law No. 67/98 of 26 October 1998 (Data Protection Act) • Law No. 103/2015 • Law No. 2/94 • Law No. 68/98 • Law No. 36/2003 • Law No. 43/2004 • Law No. 46/2012, of 29 August 2012 (ePrivacy Act) • Constitution of the Portuguese Republic (Articles 34 and 35)	Portuguese Data Protection Authority (CNPD) (1991) (http://www.cnpd.pt/)
Spain	• Organic Law 15/1999, of 13 December of Personal Data Protection • Royal Decree 1720/2007, of 21 December • Final provision Fifty-six of Sustainable Economy Law 2/2011	Spanish Data Protection Agency (AEPD) (1993) (https://www.agpd.es/)
UK	• Data Protection Act 1998 • Privacy and Electronic Communications (EC Directive) Regulations 2003	UK Information Commissioner (https://ico.org.uk)
France	• French Data Protection Act n°78-17 of 6 January 1978 (French DPA) – revised in 2004 • Postal and Electronics Communications Code	Commission Nationale de l'Informatique et des Libertés (CNIL) (http://www.cnil.fr/)
Italy	• Legislative Decree n. 196 of 30 June 2003 (Privacy Code 2003)	Italian Data Protection Authority (http://www.garanteprivacy.it/)
Greece	• Law 2472/1997 • Law 3471/2006 • Law 3873/2009 • Law 3917/2011 • Law 3943/31.3.2011 and • Ministerial Circular 1185/1.9.2011 • HDPA´s opinion no. 4/14.10.2011 • Law 4170/2013 • Ministerial Circular 1258/6.12.2013 • HDPA´s opinion no. 5/2013	Hellenic Data Protection Authority (HDPA) (http://www.dpa.gr/)
Romania	• Law no. 677/2001 • Law no. 506/2004	National Supervisory Authority for Personal

	• Law no. 298/2008	Data Processing (http://www.dataprotection.ro/)
Cyprus	• Processing of Personal Data (Protection of Individuals) Law of 2001´ (138(1)/2001) • Data Processing (Permits and Fees) Regulations 2002 • Regulation of Electronic Communications and Postal Services Law of 2004 • Constitution of the Republic of Cyprus	Commissioner for the Protection of Personal Data (http://www.dataprotection.gov.cy)

2.3 Certification

The implementation of cybersecurity certification schemes represents a step further in the deployment of smart grids, given that it creates trust and confidence along the smart grid chain. However, at present smart grid cybersecurity certification initiatives are still fragmented and uncoordinated among EU Member States, lacking EU-wide supervision. In this sense, efforts should be put in the creation of a common and harmonized reference model for cybersecurity that covers the entire EU smart grid chain, in line with existent standardization efforts, such as the M/490 SG-IS20 [CEN14].

In 2014 **ENISA** published a thorough study [ENI14] that comprises an inventory of existing good practices and standards on smart grid cybersecurity certification that are widely recognized in the EU, including the following:

- **ISO 9001:** it is a high-level quality management system certification for manufacturing and service industries, thus not specifically targeting smart grids. Nonetheless, it can be used as a starting point to the implementation of smart grid cybersecurity certification schemes [ISO15a].
- **ISO/IEC 27001 & ISO/IEC27019:** ISO/IEC 27001 is an information security management certification, used to certify the existence of policies and procedures for smart grid systems/components within a given organization. System operators in Germany and UK must comply with this standard. In turn, ISO/IEC27019 (which is based on ISO/IEC 27002) provides guiding principles for information security management applied to process control systems [ISO15b].
- **ISO/IEC 15408 Common Criteria (**CC): it is a component security certification scheme that evaluates the technical implementation claims of the security functions of a given product, relying on independent laboratories that are accredited by national standardization entities for this, as follows [CCRA17]:
  - **France** : the Comité français d'accréditation (COFRAC) accredited the Centre d'évaluation de la sécurité des technologies de l'information (CESTI), which follows norms set by the Agence nationale de la sécurité des systèmes d'information (ANSSI) ;
  - **UK**: the United Kingdom Accreditation Service (UKAS) accredited Commercial Evaluation Facilities (CLEF);
  - **Spain**: the National Cryptologic Center (CCN) accredited Common Criteria Testing Laboratories operating in the Spanish Scheme

- **IASME**: it is an UK-based standard for information security management certification based on ISO/IEC 27001 that targets SMEs [IASME17].
- **CPA**: it is an UK-based component security certification standard, used to complement or substitute other standards, such as the Common Criteria [NCSC17].
- **CSPN**: it is a French component security certification standard developed by ANSSI that certifies IT security products, having common features with Common Criteria and CPA [ANS17].
- **ISO/IEC 19790:** it is a certification standard for cryptographic modules [ISO12].
- **IEC 62443**: IEC 62443 is a standard that focus on the functional security properties – i.e. industrial automation and control systems – of an entire smart grid system. Nonetheless, its certification services are only available in Japan or in the US [IEC13].

Given that each certification standard presented has specific properties, [ENI14] further categorizes them by application field as follows:

- **Operation certification**: it focusses on the certification of the operation of a given process in relation to an established standard, based on documentation or audits.
- **System (functional) certification**: it focusses on the certification on an entire smart grid system in relation to an established standard. In this sense, components – e.g. hardware, software -, people and related procedures of a system are integrated into one system.
- **Development certification**: it focusses on the certification of a given process – i.e. a given method to develop a given smart grid system, product or component – in relation to an established standard.
- **Component certification**: it focusses on the certification of a given component or product in relation to an established standard.

2.4 Pilots

A survey was prepared and sent to each pilot manager to gather information regarding cybersecurity and privacy. The received surveys are presented on the next tables. The final version of this deliverable will contain the full set of Pilot tables, which are being produced by all other pilots.

Table 3: St Jean pilot cybersecurity template

Pilot & Data Manager	Pilot : St Jean de Maurienne, France Data Manager: Sylvain Berlioz (INNED)
Dataset description: *(brief description of the dataset and data flows)*	Pilot Energy Management Data including aggregated **energy consumption** and forecast, **PV and Hydro power plants** energy production and forecast. Measurement data is collected and stored locally and transferred to a platform server using a broadband connection.
Data security (acquisition,	EU defined security policies in accordance with

transmission/storage/access): *(mechanisms/protocols used or available to ensure secure data handling; certifications)*	best practices of the country concerned.
Personal data: *(ways in which the collected or processed data can becomes personal or "sensitive" considering the recently adopted EU General Data Protection Regulation)*	In France, the National Commission of Informatics and Civil Liberties (CNIL) is in line with EU recent regulation. We will follow then these requirements and practices. https://www.cnil.fr/fr/plus-de-droits-pour-vos-donnees
Data privacy (acquisition, transmission/storage/access): *(mechanism/protocols used or available to ensure data privacy including encryption, anonymization, aggregation)*	EU defined privacy policies in accordance with best practices of the country concerned.
Auditing: *(mechanisms used or available to record data processing and handling operations)*	System detailed operation is maintained on text log files.
Certification: *(applicable standards, regarding both privacy and cybersecurity, and sought certifications already in place or expected in the near future)*	REGULATION (EU) 2016/679 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) The Regulations, contrarily to the Directives, are directly applicable into the Member States. This Regulation shall apply from 25 May 2018

Table 4: Nicosia pilot cybersecurity template

Pilot & Data Manager	Pilot: Cyprus demonstration site (two different sites: 1) Microgrid at University of Cyprus, 2) dispersed prosumers within Cyprus) Data Manager: EAC (DSO) with FOSS (University of Cyprus)
Dataset description: *(brief description of the dataset and data flows)*	University Microgrid: Pilot Energy Management Data including the energy consumption of the several buildings within UCY, production from the rooftop and ground PV installations, state of charge of the storage, energy forecasting data, signals from DSO (e.g. energy prices, signals for DR, etc.), several control signals, etc. The

	data is collected and stored locally (at FOSS server). Within the university, the existing broadband connectivity is utilized for the data exchange. The communication with EAC is carried out through the current communication infrastructure. Dispersed Prosumers: Pilot Energy Management Data including the energy consumption and PV production at each prosumer premises. The data will be collected and send to EAC, which will provide them to FOSS in an anonymized way for further editing.
Data security (acquisition, transmission/storage/access): *(mechanisms/protocols used or available to ensure secure data handling; certifications)*	Each prosumer will have access to its own data by getting a security code to the data monitoring system. From EAC side, only authorized persons will have access to the data. Web management systems are secured according to the best practices. Regarding cyber security, the governing law 22(III)/2004 should be respected (referring to cyber-attacks).
Personal data: *(ways in which the collected or processed data can becomes personal or "sensitive" considering the recently adopted EU General Data Protection Regulation)*	The processing of personal data is governed by the Processing of Personal Data (Protection of the Individual) Law, which is harmonized with the Data Protection Directive of the EU (95/46). A written statement has been submitted to the Commissioner for the Protection of Personal Data in order to ensure that every individual's right to privacy is protected when personal data is processed.
Data privacy (acquisition, transmission/storage/access): *(mechanism/protocols used or available to ensure data privacy including encryption, anonymization, aggregation)*	Data is acquired by the DSO using its metering devices and is transmitted using a secure protocol. A data anonymization process takes place as soon as data is received by the Electricity Authority of Cyprus. Then, data is transmitted to the partners anonymously. According to Data Protection in Cyprus, the Law 138(I)/2001 should be respected.
Auditing: *(mechanisms used or available to record data processing and handling operations)*	Data processing can be performed with various types of files, the most commonly used being .csv and .sql files. System detailed operation is maintained on text log files.
Certification: *(applicable standards and sought certifications already in place or expected in the near future)*	A certification from the Commissioner for Data Protection is to be acquired regarding the data editing from the prosumers on the basis of the submitted application. EAC, being a public company, has already all the required certifications for data handling.

Table 5: Lisboa pilot cybersecurity template

Pilot & Data Manager	Pilot: Lisboa microgrid demonstration site at Campo Grande City Hall building Data Manager: ENOVA (Administration) with VPS (Technology)
Dataset description: *(brief description of the dataset and data flows)*	Pilot Energy Management Data including aggregated and disaggregated energy consumption and forecast, PV energy production and forecast. Measurement data is collected and stored locally (concentrator) and transferred to a cloud server using a broadband connection. Commands follow a symmetric path.
Data security (acquisition, transmission/storage/access): *(mechanisms/protocols used or available to ensure secure data handling; certifications)*	Monitoring network, essentially a wired solution, uses a secure protocol (https) to transfer data to the cloud server. Local access protected by basic authentication (username/password). Web based management system services secured in accordance with best practices. User's accesses limited by functionality (profile) and basic authentication.
Personal data: *(ways in which the collected or processed data can becomes personal or "sensitive" considering the recently adopted EU General Data Protection Regulation)*	Monitoring data may be susceptible to be considered personal, in particular disaggregated electrical energy consumptions, although it is being collected on a public building. For this reason, this matter will be analysed in detail and the necessary development to protect the privacy of the works and users of the building will be done in accordance with the EU Directive on Data Protection.
Data privacy (acquisition, transmission/storage/access): *(mechanism/protocols used or available to ensure data privacy including encryption, anonymization, aggregation)*	Disaggregated data is available only to authenticated end users; no anonymization is in place yet.
Auditing: *(mechanisms used or available to record data processing and handling operations)*	System detailed operation is maintained on text log files.
Certification: *(applicable standards and sought certifications already in place or expected*	.At this time, we are not looking for any particular certification but that might change during the course of the project.

in the near future)	

3.Description of Project Datasets

This section contains the dataset description per task in inteGRIDy. Datasets are numbered according to their primary work package and task number, as laid out in the project Description of Action. There is a dataset template describing the data collected for each task within a specific work package. However, it is anticipated that these dataset templates for each WP will be modified and classified according to data types. These will be included in the forthcoming updated DMP due in M12.

Dataset descriptions for WP4, 5, and 7 are general and not specific to each task, as they were not active by the time this report was being produced. For WP4 and WP5, these work packages focus on delivery of the innovative solution in terms of DG optimisation framework (WP4) and framework integration and pilot deployment (WP5); whereas, WP7 deals with large scale pilot and use case realisation which is dependent on WP4 and WP5.

Next versions of DMP deliverables will provide more detailed information and task oriented details for aforementioned WPs, together with refined descriptions and information for all other WPs and tasks.

3.1 Template: Dataset

Information about each dataset has been collated by Task Leaders in the format presented below.

Table 6: Dataset Template

WP / Task & Data Manager	Work Package and/or Task numbers related to the dataset, and the Data Manager who takes responsibility.
Dataset reference / name	Dataset number and name
Availability	Private, Consortium or Open, as defined in section 1.5.1
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA 731268
Dataset Specific Metadata	Keyword(s) that categorize data to make it linked/searchable
Data set description	Data description, origin, nature, scale, if it underpins a publication, who useful to, existence of similar data, possibilities for reuse.
Standards	Reference to existing standards in topic area governing data collection, aggregation, storage and sharing.
Data sharing	How the data will be shared, identification of repository, existence of embargo period if any, identification of software or tools necessary for reuse.
Archiving and preservation (storage/backup):	The procedure for long-term preservation, length of preservation, an estimation of costs and how this will be covered.

3.2 Datasets Domain Analysis, Specification and Architecture (WP1)

Table 7: Dataset T1.1

WP / Task & Data Manager	Denisa Becheru (SIVECO)
Dataset reference / name	Literature
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Relevant literature, barriers, obstacles, innovation, assessment of innovation, smart meter roll-out, emergent structures in energy sector, ESCOs, aggregators, clusters, think tanks
Data set description	It contains reference information used to produce D1.1, comprising a collection of literature and their related impact analyses.
Standards	Standards governing copyright, literature database licensing / subscription agreements and common ethical principles
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS
Archiving and preservation (storage/backup)	Data will be stored on the instance of OwnCloud managed by Atos.

Table 8: Dataset T1.2

WP / Task & Data Manager	Luigi D'Oriano (Energy@Work)
Dataset reference / name	Stakeholders needs report
Availability	Public
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy **731268**
Dataset Specific Metadata	Energy Market needs, Elicitation of Stakeholders, Project

	Scope Summary, Implementation Priorities of DSO and Aggregators, on-line survey
Data set description	This data set is related to WP1 task 1.2. It contains a project scope summary based on an internal collection of stakeholders needs. It contains an elicitation analysis fulfilled by involved partners. It contains an on-line survey for stakeholders needs analysis
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project repository based on owncloud. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, .vsdx and .pdf formats. An online survey will be deployed.
Archiving and preservation (storage/backup)	Several partners will back-up the owncloud files in a local permanent memory support

Table 9: Dataset T1.3

WP / Task & Data Manager	Marco Merlo (POLIMI)
Dataset reference / name	Pilot sites surveys
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Pilot Sites Surveys
Data set description	This data set is related to WP1 task 1.3. It contains the survey of Pilot Sites and the definition of requirements for all Use Cases. Each survey includes an assessment of pilot facilities and infrastructures, as well a technical description of functionalities with corresponding equipment.
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project repository based on owncloud. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.

Archiving and preservation (storage/backup)	Several partners will back-up the owncloud files in a local permanent memory support

Table 10: Dataset T1.4

WP / Task & Data Manager	Dimitris Drakopoulos (TREK)
Dataset reference / name	Definition of Key Performance Indicators (KPIs) & Evaluation Metrics. InteGRIDy terminology.
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	KPI, TERMINOLOGY, LEXICON, EVALUATION, METRICS,
Data set description	This dataset includes: i. A list of terms, definitions and related bibliography sources constituting altogether the InteGRIDy Common Terminology ii. A list of Key Performance Indicators with their definition, algebra and bibliography resources. The data included in this dataset are aiming to document in a common and comparable fashion the performance of the large and small scale pilots of InteGRIDy. Hence they will be useful to the final stakeholders of InteGRIDy
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Data will be stored on the instance of OwnCloud managed by Atos, an enterprise level cloud platform, covering efficiently backup and disaster recovery issues.

Table 11: Dataset T1.5

WP / Task & Data Manager	Marilena Lazzaro (ENG)
Dataset reference / name	inteGRIDy architecture documentation
Availability	Public

Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	architecture design, functional and technical specification, components integration.
Data set description	Data will consist in proper documentation that will explain how the inteGRIDy architecture is able to satisfy both functional and business requirements according to the specific pilot site. The mapping between the architectural components and pilot sites will be provided. Indeed, the analysis of use cases defined in Task1.3 will allow to identify the main functionalities that the inteGRIDy framework architecture will be able to provide in each pilot site. Moreover, data (stakeholders and market needs) coming from task 1.2 will be analyzed to describe the commercial architecture of inteGRIDy and consequently to provide the list of business services that the inteGRIDy platform is able to provide/offer to the different stakeholders indentified in D1.2 deliverable. Information (e.g. selection of some standards for data model and data exchange) coming from task2.1 will support this activity.
Standards	Specific standards like UML will be adopted to produce the documentation.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. It could be evaluated the possibility to use results of Task1.5 for Conferences and/or Journal for publications.
Archiving and preservation (storage/backup)	Data will be stored on the instance of OwnCloud managed by Atos

3.3 Datasets Standardisation Analysis, Regulation & Privacy Policy (WP2)

Table 12: Dataset T2.1

WP / Task & Data Manager	Lorenzo Corghi (UNE)
Dataset reference / name	Analysis of Current Standards & Interoperability Issues against the Pilot Use Cases
Availability	Public

Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Legislation, standards, EU Directives, pilot cases, compliance, smart grid development and intoperability, demand response, energy storage, electric mobility
Data set description	List and description of the main EU Directives, standards and recommendations concerning common rules for the internal market in electricity, about smart grid development and intoperability, demand response, energy storage and related technologies. Analysis of the compliance in each pilot use cases to the current standards, national & EU regulatory developments Deliverable 2.1. Current standards & interoperability issues applicable to the inteGRIDy pilot cases
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS Uploaded files will be in Microsoft Office in doc, xls, pdf formats
Archiving and preservation (storage/backup)	Standard daily offsite backup of OwnCloud

Table 13: Dataset T2.2

WP / Task & Data Manager	Dr Vladimir Vukovic (TEES)
Dataset reference / name	Literature
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Relevant literature, standards and regulations
Data set description	This data set is related to WP2 task 2.2. It contains reference information used to produce D2.2,

	comprising a collection of standards / legislation / literature and their related impact analyses. As such, the data contained within D2.2 could be reused, including use in publications and reports.
Standards	Standards governing copyright, literature database licensing / subscription agreements and common ethical principles will be honoured.
Data sharing	Project beneficiaries may use the inteGRIDy data sharing platform, owncloud, to share data. However, any such use will be subject to the possibility of sharing the reference information and literature, depending upon the individual database licensing agreements and subscriptions with relevant external data providers. Even when sharing source files among the project beneficiaries is not possible due to licensing, information content from D2.2 will be shared, being a public deliverable.
Archiving and preservation (storage/backup)	Subject to established owncloud storage / backup procedures.

Table 14: Dataset T2.3

WP / Task & Data Manager	Huda Dawood (TEES)
Dataset reference / name	Data Management Plan
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Project Data management Plan; Templates
Data set description	This data set is related to WP2 task 2.3. It contains data and templates on data management plan (DMP) for the participation to the 'Pilot on Open Research Data in Horizon 2020', comprising of (i) handling of research data during & after the project (ii) what data will be collected, processed or generated (iii) what methodology & standards will be applied and (iv) whether data will be shared /made open access/ how data will be curated and preserved. The DMP will be implemented across other WPs, based on data

	delivered.
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Sharepoint space hosted by TU. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of Sharepoint.

Table 15: Dataset T2.4

WP / Task & Data Manager	Otilia Bularca (SIVECO)
Dataset reference / name	Abidance to Regulations for Smart Grid Deployment, Infrastructures & Industrial Policy
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Relevant literature, regulations, policies, smart-meters, connectivity, interoperability, compliance, CEN-CENELEC-ETSI standards
Data set description	• reference information used to produce D2.5 (collection of standards / legislation / literature and their related impact analyses) • Industrial policies applicable to pilot cases. • List of technologies, specific interfaces, their connectivity and interoperability (e.g. smart meters, data aggregators) • Compliance of technologies with EU directives and recommendations and CEN-CENELEC-ETSI standards As such, the data contained within D2.5 could be reused in publications and reports.
Standards	Standards governing copyright, literature database licensing / subscription agreements and common ethical principles
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS

Archiving and preservation (storage/backup)	Data will be stored on the instance of OwnCloud managed by Atos.

3.4 Datasets analysis of Environmental, Business Models & Financial Mechanisms (WP3)

Table 16: Dataset T3.1

WP / Task & Data Manager	Nikolaos Nikolopoulos (CERTH)
Dataset reference / name	LCA & LCC methodology
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Life Cycle Analysis data Life Cycle Cost Assessment data
Data set description	This data set relates to WP3 Tasks 3.1 (& 3.2) to be transferred to WP8, concerning the implementation of KPI analysis. It contains primary & secondary indicators selected for the techno-economic evaluation of the individual and interconnected technologies selected to be tested during inteGRIDy WP8 activities will be paid for the selected solutions in the pilot cases of Barcelona & Cyprus: (i) Energy and materials consumptions (ii) Infrastructure, installation & operation (iii) Direct costs for acquisition, operation & maintenance and disposal of systems (iv) Indirect costing data (environmental and health related externalities) This data set can refer to all pilot cases; though focus will be paid on (SP & CY) demo sites. Similar KPIs can be tracked in the reports of EU and National funded projects, along with reports from EU RES and Smart Cities roadmaps.
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.

Archiving and preservation (storage/backup)	Standard daily offsite backup of OwnCloud

Table 17: Dataset T3.2

WP / Task & Data Manager	James Stevenson (ATK)
Dataset reference / name	Indicators & Benefit categories
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Indicators & Benefit Categories
Data set description	This data set related to WP3 Tasks 3.2 (&T3.1). It contains primary and secondary indicators for the selected solutions in the pilot cases of Barcelona, Nicosia and St-Jean (tbc), such as: (v) Energy & materials consumptions (vi) Infrastructure, installation & operation (vii) Direct costs for acquisition, operation & maintenance and disposal of systems (viii) Indirect costing data (environmental and health related externalities) This data refers to 3 pilot cases (SP, CY& FR)
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of OwnCloud

Table 18: Dataset T3.3

WP / Task & Data Manager	John Lindup (ATK)
Dataset reference / name	Energy Markets and Business Models
Availability	Consortium
Mandatory Metadata	European Union H2020

	integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Project Energy Markets and Business Models
Data set description	This data set is related to WP3 Tasks 3.3 (& T3.4). It contains data on smart grid business models for the inteGRIDy platform: (ix) Value propositions (x) Customer segments definitions (xi) Stakeholders (xii) Expected costs & revenues streams (xiii) Markets framework (xiv) Regulatory aspects This data will be shed particularly by implementation in the inteGRIDy pilots.
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of OwnCloud

Table 19: Dataset T 3.4

WP / Task & Data Manager	Filipa Amorim (UCP)
Dataset reference / name	Business Models Configuration Patterns
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Business Model, Aggregation, DSO, Distribution network, B2B, B2C, Energy Retailer, Prosumer, Smart Grid, Storage, Demand Side Response, DR, ESCOs,
Data set description	This data set is supported by the contributions related to WP3 Tasks 3.4. It contains data on smart grid business models for the inteGRIDy platform, including: (xv) Value propositions

	(xvi) Customer segments definitions (xvii) Stakeholders, (xviii) Expected costs & revenues streams (xix) Markets framework (xx) Regulatory aspects To this above-mentioned data, T3.4 will add configuration patterns of Business Models on 2 levels: 1) the platform BM; and 2) the enabled Business Models (all described along the 9 Business Model Canvas dimensions).
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of OwnCloud

3.5 Datasets Distribution Grid Optimization Framework (WP4)

Table 20: Dataset WP4

WP / Task & Data Manager	Diego Arnone (ENG)
Dataset reference / name	Project technological core documentation
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	technical reports, software accompanying reports, integration plan, interconnection plan
Data set description	Data will consist in proper documentation that will explain how to integrate and interconnect the different tools of the project. This technical documentation will be created by the members of the consortium starting from already existing documentation describing already existing models and software tools that will be properly extended and integrated to implement the functionalities required by the project. Reports on models and simulations could be published on papers that could be useful for companies interested in the optimisation of the distribution grid.

Standards	Specific standards could be adopted to describe models and software (to be defined during the work package lifetime)
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. In case of scientific relevance, part of the documentation could be submitted to Conferences and/or Journal for publications
Archiving and preservation (storage/backup)	Data will be stored on the instance of OwnCloud managed by Atos.

3.6 Datasets Framework Integration & Pilot Deployment (WP5)

Table 21: Dataset WP5

WP / Task & Data Manager	Otilia Bularca (SIVECO)
Dataset reference / name	Project technical documentation (deployment, integration, testing, experimentation, large scale and small scale pilots deployment, project prototype)
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	• Software packages • Integration plan • test plan, test cases, regression test plan • testing reports • progress reports • deployment plan • small scale and large scale pilots (plan, test, evaluate) • prototype experimentation report
Data set description	Data will consist in proper documentation that will explain how to develop interconnect, deploy, test and demonstrate the project prototype. This technical documentation will be created by the members of the consortium and will describe the tools used, the multiple integration options assessed and tested against the functionalities required by the project. Reports on simulations and experimentation could be

	published on papers that could be useful for companies interested in the optimisation of the distribution grid.
Standards	Specific standards could be adopted to describe models and software (to be defined during the work package lifetime)
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. In case of scientific relevance, part of the documentation could be submitted to Conferences and/or Journal for publications
Archiving and preservation (storage/backup)	Data will be stored on the instance of OwnCloud managed by Atos.

3.7 Datasets Small Scale Demonstration and Performance Monitoring At Pre-Pilot Cases (WP6)

Table 22: Dataset T6.1

WP / Task & Data Manager	Carlos Raposo (ENOVA)
Dataset reference / name	Demand/Response in Industrial Buildings with PV powered Microgrid & Energy Storage (Lisboa, PT)
Availability	Public
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Energy storage, EV charging, PV production, Smart metering, Smart DR management
Data set description	T6.1 oversees: • Data from energy production, consumption and storage from Lisbon's Pilot building • Demonstration of the use cases **Deliverable:** *D6.1 Lisbon (PT) Pre Pilot Use Cases Realisation Report*
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls,

	.xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of OwnCloud

Table 23: Dataset T6.2

WP / Task & Data Manager	Chrysovalantou Ziogou (CERTH)
Dataset reference / name	Optimum Distributed Control of RES-enabled Islanded Grids Local Storage (Xanthi, GR)
Availability	Public (upon request)
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	RES Production profiles, RES Consumption profiles, Energy storage, Utilization profiles, EV charging
Data set description	T6.2 is in charge of the demonstration of Optimum Distributed Control of RES-enabled Islanded Grids with Local Storage The data set collected will be used to apply optimum distributed control of RES. The data set will comprise of: • RES production profiles (PVs , WG, FC) • Consumption and DR profiles taking place in the smart microgrid network • Energy storage profiles (in batteries and/or Hydrogen generation- upon availability) • Energy distribution between the nodes of the smart microgrid network • EV charging profiles • Individual measurements from each system for post-processing and analytics More details will be provided on the deliverable *D6.2 Xanthi (GR) Pre Pilot Use Case Realisation report*
Standards	OPC, IEC61850 for communication between central and local systems Battery-related standard to be defined. MQTT or Restful services for communication with inteGRIDy's CMP platform (to be defined by the

	developments of the architecture-related activities)
Data sharing	Data are currently stored at the local Energy Information Management System and will be made available through specific inteGRIDy interfaces, after applying specific aggregation processing. The static and persistent data along will a set of dynamic data will be collected within activities of WP6 and more specifically within activities of T6.2. The dynamic data will be updated during WP6 and more specifically at T6.2. The full dataset will be confidential and only the members of the consortium will have access on it. The usage of the dataset by members of the consortium will be allowed upon request from CERTH/CPERI. In case of research activities using the specific dataset then CERTH/CPERI and SUNLIGHT need to be informed and will collaborate with the interested members to derive a joint work. Furthermore, if the dataset or specific portions of it (e.g. metadata, statistics, etc.) are decided to become of widely open access, a data management portal needs to be created that should provide a description of the dataset and link to a download section. The format will be defined (e.g. simple .csv files)
Archiving and preservation (storage/backup)	Standard offsite backup (local archiving system at daily basis)

Table 24: Dataset T6.3

WP / Task & Data Manager	WP6 T6.3 Otilia Bularca (SIVECO)
Dataset reference / name	Intelligent Energy Demand and Supply Matching feat Innovative Simulation & Command-Control for Energy Grids (Ploiesti, RO)
Availability	Public
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Intelligent energy demand and supply, Demand Response, DRAS, ECCDIS, energy grid, innovative simulation, Command-Control for Energy Grids

Data set description	T6.3 is in charge of the demonstration of Demand Response Pilot in Ploiesti, Romania i.e. • Intelligent demand and supply matching feat. Innovative Simulation • Command Control for energy grids The dataset collected will comprise of: • Energy smart-meter readings from residential buildings • DR profiles • Proposal models of DR load shifting off peak-hour.
Standards	Specific standards will be defined during the work package lifetime)
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of OwnCloud

Table 25: Dataset T6.4

WP / Task & Data Manager	Konstantinos Arvanitis (WVT)
Dataset reference / name	Flexible DR at Residential and Tertiary Building with Local Storage (Thessaloniki, GR)
Availability	Public
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Energy smart-meter readings, Consumption profiles, DR profiles, DR flexibility models, energy storage models, battery charging models
Data set description	T6.4 is in charge of the demonstration of DR profiling and forecasting techniques in both residential and commercial buildings. The dataset collected will comprise of: • Energy smart-meter readings from residential buildings (5-minute measurements)

	• Consumption and DR profiles (from both residential and commercial buildings) • DR flexibility models generated to allow dynamic DR forecasting • Home energy storage models and battery charging models, for optimisation of battery charging/discharging cycles based on peak-hour, allowing maximum self-consumption • Water-Heating models for commercial buildings, to allow pre-heating DR load shifting off peak-hour. More details will be provided on the deliverable *D6.4 Thessaloniki (GR) Pre Pilot Use Case Realisation report*
Standards	OpenADR for communication between central and local systems. Battery-related standard to be defined.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Data are currently gathered from the proprietary billing and data management system of WVT and will be made available through specific inteGRIDy interfaces, after applying specific anonymity/aggregation processing for privacy/confidentiality issues. The format will be defined (e.g. simple .csv files).
Archiving and preservation (storage/backup)	Standard daily offsite backup of OwnCloud

3.8 Datasets Large Scale Pilot Use Case Realisation (WP7)

Table 26: Dataset WP7

WP / Task & Data Manager	Maurizio Delfanti (POLIMI)
Dataset reference / name	Large Scale Pilot Use Cases Realisation
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Pilots Deployment

Data set description	This data set is related to WP7 It contains data and templates on large scale pilot use cases deployment devoted to test the inteGRIDy framework in the different use cases considered and to monitor the performance of the inteGRIDy Framework
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project repository based on owncloud. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Several partners will back-up the owncloud files in a local permanent memory support

3.9 Datasets Overall Evaluation & Impact Assessment (WP8)

Table 27: Dataset T8.1

WP / Task & Data Manager	Sylvain Berlioz (INNED)
Dataset reference / name	Pilot Evaluation
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Overall Pilot Evaluation
Data set description	This data set is related to WP8 task 8.1. It contains data and templates on Detailed Pilot Evaluation for (i) Pilot evaluation objectives, followed methodology, evaluation phases, timing & expected results per activity. (ii) Refinement of the demonstration scenarios as firstly defined in WP1 and (iii) Instantiation of the evaluation metrics and KPIs (T1.4) and alignment to the demonstration and evaluation scenarios. It contains online questionnaires, data collection forms, impact check-lists and data forms
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Share point space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.

Archiving and preservation (storage/backup)	Standard daily offsite backup of Sharepoint.

Table 28: Dataset T8.2

WP / Task & Data Manager	Sylvain Berlioz (INNED)
Dataset reference / name	Overall Evaluation of the project Framework & Tools Performance
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Evaluation Framework Tools Performance
Data set description	This data set is related to WP8 task 8.2. It contains data and templates on Framework & Tools Performance utilizing the criteria and indicators defined in T1.4 and following the stepped approach defined in T8.1.
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Share point space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of Sharepoint.

Table 29: Dataset T8.3

WP / Task & Data Manager	Massimo Fiori (ASSEM)
Dataset reference / name	Framework Impact to Energy Distribution Network's Stability, Flexibility & Balancing
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268

Dataset Specific Metadata	Framework Impact to Energy Distribution Network's Stability, Flexibility & Balancing
Data set description	This data set is related to WP8 task 8.3. It contains data and templates on Energy Distribution Network's Stability, Flexibility & Balancing. The evaluation will include grid topology, sectionalizing and tie-switches conditions, voltage values, faults number, active users power injections, feeder power flows, the capability to control the peripheral units, storage and generators on the grid. Quantity and quality of the stored operational data acquired on the network (e.g., measurements, events, etc.) and the logs of all the commands assigned to the apparatuses on field will be analysed in each pilot.
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Share point space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of Sharepoint.

Table 25: Dataset T8.4

WP / Task & Data Manager	John Lindup (ATK)
Dataset reference / name	Cost Analysis & Environmental Impact
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	CBA/CEA & Environmental Impact
Data set description	This data set is related to WP8 task 8.4. It contains data and templates on Cost Analysis & Environmental Impact for a) the definition of business oriented assessment criteria, and b) the development of customer-oriented cost-effectiveness assessments for each exploitable product. Also questionnaires for socio-economic data gathering with data for SWOT analysis, intangible benefits and costs estimation will be prepared. It contains Data Inventory from T3.1 and extracted pilot values for the environmental assessment.

Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Share point space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of Sharepoint.

Table 30: Dataset T8.5

WP / Task & Data Manager	Eva Álvarez (GNF)
Dataset reference / name	Validation of New Business Models, Replication Feasibility Analysis
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Validation New Business Models, Replication Feasibility Analysis
Data set description	This data set is related to WP8 task 8.5. It contains data and templates on Validation of New Business Models, Replication Feasibility Analysis for cost, performance, efficiency, energy balance, lifetime, investment costs.
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Share point space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of Sharepoint.

3.10 Datasets Dissemination, Exploitation and Outreach (WP9)

Table 31: Dataset T9.1

WP / Task & Data Manager	María Guadalupe Rodríguez Díaz (ATOS)
Dataset reference / name	Dissemination, Exploitation & Communication Plan
Availability	Consortium; other parties upon request.

Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Exploitation, dissemination, communication, website.
Data set description	This data set relates to T9.1, the dissemination, exploitation & communication plan. It includes information on stakeholders, and target audiences, individual partner's exploitation plans, project promotional material and social media channels, basic market analysis. Other than project partners it is useful to other H2020 projects for the purposes of reusing.
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats. If it is deemed necessary to share any data with an external party the process for doing so will comply with conditions set down in the Data Protection Act (UK) or equivalent European/national legislation; as well as the inteGRIDy Consortium Agreement.
Archiving and preservation (storage/backup)	Standard regular offsite backup of OwnCloud.

Table 32: Dataset T9.2

WP / Task & Data Manager	María Guadalupe Rodríguez Díaz (ATOS)
Dataset reference / name	Dissemination Activities, Web Portal & Social Media Presence
Availability	Consortium; other parties upon request.
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268

Dataset Specific Metadata	Dissemination, communication, website, social media, Twitter, Facebook, Flickr, Instagram.
Data set description	This data set relates to T9.2, dissemination activities, web portal & social media presence. It includes information on partner communication channels, the inteGRIDy website, social media handles, project results (high level). Other than project partners it is useful to other H2020 projects for the purposes of reusing.
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats. If it is deemed necessary to share any data with an external party the process for doing so will comply with conditions set down in the Data Protection Act (UK) or equivalent European/national legislation; as well as the inteGRIDy Consortium Agreement.
Archiving and preservation (storage/backup)	Standard regular offsite backup of OwnCloud.

Table 33: Dataset T9.3

WP / Task & Data Manager	Simon Burgess (Siemens)
Dataset reference / name	Exploitation Strategy of inteGRIDy Products & IPR Management
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Exploitation, IPR protection, intellectual property, consortium agreement.
Data set description	This data set relates to T9.3, the exploitation report and IPR protection plan. It includes information on main users, individual partner's exploitation plans, IPR background and exploitable project results (IPR foreground).

Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats. If it is deemed necessary to share any data with an external party the process for doing so will comply with conditions set down in the Data Protection Act (UK) or equivalent European/national legislation; as well as the inteGRIDy Consortium Agreement.
Archiving and preservation (storage/backup)	Standard regular offsite backup of OwnCloud.

Table 34: Dataset T9.4

WP / Task & Data Manager	Dumitru Federenciuc (Electrica)
Dataset reference / name	Policy Recommendations & Best Practices for Internal Electricity & Retail Market
Availability	Consortium.
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Policy, best practice, retail energy market, retail electricity market, competition.
Data set description	This data set relates to T9.4, policy recommendations & best practices for internal electricity & retail market. It includes information on retail energy market analysis, exploitable project results, policy recommendations, information on utilities structures and property markets across impacted EU states, market structures that offer the best opportunity for the development of inteGRIDy solutions. Other than project partners it may also be useful to other H2020 projects for the purposes of reusing/reinterpreting.
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls,

	.xlsx, and .pdf formats. If it is deemed necessary to share any data with an external party the process for doing so will comply with conditions set down in the Data Protection Act (UK) or equivalent European/national legislation; as well as the inteGRIDy Consortium Agreement.
Archiving and preservation (storage/backup)	Standard regular offsite backup of OwnCloud.

Table 35: Dataset T9.5

WP / Task & Data Manager	Simon Burgess (Siemens)
Dataset reference / name	Stakeholder Engagement & Knowledge Sharing
Availability	Consortium.
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Stakeholder, knowledge, dissemination, business cases.
Data set description	This data set relates to T9.5, stakeholder engagement & knowledge sharing. It includes information on dissemination channels, the inteGRIDy website, potential partner business cases, feedback from stakeholder analysis. Other than project partners it may also be useful to other H2020 projects for the purposes of reusing.
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats. If it is deemed necessary to share any data with an external party the process for doing so will comply with conditions set down in the Data Protection Act (UK) or equivalent European/national legislation; as well as the inteGRIDy Consortium Agreement.
Archiving and preservation (storage/backup)	Standard regular offsite backup of OwnCloud.

3.11 Datasets Project Management (WP10)

Table 36: Dataset T10.1

WP / Task & Data Manager	Javier Valiño (Atos)
Dataset reference / name	Effort allocation (Plan vs real)
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Planned Effort versus real effort, Project management,
Data set description	T10.1 is in charge of collecting the following data derived from inteGRIDy and store it in form of deliverables: • Effort plan for all partners • Real plan collected each semester • Technical achievements per partner and per WP • Financial information from partners • Payment records
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of OwnCloud

Table 37: Dataset T10.2

WP / Task & Data Manager	Thanasis Tryferidis (CERTH)
Dataset reference / name	Quality and risk asessment
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies

	inteGRIDy GA- 731268
Dataset Specific Metadata	Risks, Quality, Contingency Plans
Data set description	T10.2 is in charge of collecting the following data derived from inteGRIDy and store it in form of deliverables: • Risks detected and contingency plans • Quality actions planned and taken • Objective mapping • Technical & scientific results
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of OwnCloud

Table 38: Dataset T10.3

WP / Task & Data Manager	Maurizio Delfanti (POLIMI)
Dataset reference / name	Pilot management, ethics and privacy
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	Pilots, Privacy, Ethics
Data set description	T10.3 is in charge of collecting the following data derived from inteGRIDy and store it in form of deliverables: • Ethics and privacy assessments • Data protection training • Legal documentation
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls,

	.xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of OwnCloud

Table 39: Dataset T10.4

WP / Task & Data Manager	Tracey Crosbie (TEES)
Dataset reference / name	Collaborations with other projects
Availability	Consortium
Mandatory Metadata	European Union H2020 integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies inteGRIDy GA- 731268
Dataset Specific Metadata	collaborations with other projects
Data set description	T10.4 is in charge of collecting the following data derived from inteGRIDy and store it in form of deliverables: • List of other projects funded under the same call (H2020 LCE-2-2016) • List of relevant target events
Standards	No specific standards for these data.
Data sharing	Data will be stored on the project Shared Platform space hosted by ATOS. Uploaded files will be in Microsoft Office in .doc, .docx, .xls, .xlsx, and .pdf formats.
Archiving and preservation (storage/backup)	Standard daily offsite backup of OwnCloud

4. Conclusions

This document has introduced the plan that the inteGRIDy project will take to data management, identified the datasets that will be collected or generated, and described how they will be stored and shared. It has specified which data will be open access and which will be confidential within the consortium, as far as it is possible to do so at this stage. In addition, repositories and resources for sharing data are identified.

It is anticipated that the most significant datasets are the quantitative and qualitative datasets produced by the Overall Evaluation and Impact assessment (WP8). The datasets related to WP8 will validate both the impact of the project and the conclusions drawn in scientific publications arising. It is intended that where possible these data will be made available through open access repositories and starting from September 2017, all project deliverables which are flagged with the dissemination level **'PUBLIC'** will be published on **CORDIS** portal. The mid-term update of the Data Management Plan (DMP) will focus on classifying datasets according to data type within each WP and determine the most appropriate formats and standards to enable re-use by other researchers and stakeholders. In addition, the updated DMP will include the complete analysis section on privacy and cyber security issues in the context of each of the demonstration sites countries.

5.References

[ANS17] Agence Nationale de la Sécurité des Systèms d'Information (2017). Certification CSPN. ANSSI portal. Retrieved from: https://www.ssi.gouv.fr/administration/produits-certifies/cspn.

[BSA15] BSA – The Software Alliance (2015). EU Cybersecurity Dashboard – A Path to a Secure European Cyberspace.

[CC17] Creative Commons (2016) Creative Commons Licensing Types, https://creativecommons.org/share-your-work/licensing-types-examples/, accessed 7th March 2017.

[CCRA17] CCRA (2017). Common Criteria portal. Retrieve form: http://www.commoncriteriaportal.org.

[CEN14] CEN-CENELEC-ETSI (2014). SG-CG/M490/Methodology & New Applications. Annex B - Concepts, Elements and Tools for the Smart Grid Methodology.

[DEC14] Department of Energy & Climate Change, UK Government (2014). Smart Grid Vision and Routemap.

[DCC17] DCC (2004-2017) Horizon 2020 DMP Template and Guidance, https://dmponline.dcc.ac.uk/, accessed 8th Febuary 2017.

[ECD17] EC DG R&I (21 March 2017) European Commissions Directorate-General for Research and Innovation, Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020, Version 3.2, Brussels, https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf

[ENE17] Energy Expert Cyber Security Platform (2017). Cyber Security in the Energy Sector – Recommendations for the European Commission on a European Strategic Framework and Potential Future Legislative Acts for the Energy Sector.

[ENI14] European Union Agency for Network and Information Security (ENISA) (2014). Smart grid security certification in Europe – Challenges and recommendations.

[EP16] European Parliament (2016). Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union.

[EUR16] European Commission (2016). Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) Official Journal L119(1).

[EUR17] European Commission (2017). EU cybersecurity initiatives – working towards a more secure online environment.

[IEC13] IEC (2013). IEC 62443-3-3:2013 Industrial communication networks - Network and system security - Part 3-3: System security requirements and security levels.

[IASME17] IASME Consortium (2017). IASME Consortium portal. Retrieve from: https://

www.iasme.co.uk.

[ISO12] ISO/IEC (2012). ISO/IEC 19790:2012 Information technology -- Security techniques -- Security requirements for cryptographic modules.

[ISO15a] ISO (2015). ISO 9001:2015 Quality management systems – Requirements.

[ISO15b] ISO/IEC (2005). ISO/IEC 27001:2005 Information technology -- Security techniques -- Information security management systems – Requirements.

[FOR 16] Force11 (2016) The FAIR Data Principles, https://www.force11.org/group/fairgroup/fairprinciples, accessed 27/02/2017.

[MEN17] Mendonza, M. (2017). Challenges and implications of cybersecurity legislation. Retrieved from: https://www.welivesecurity.com/2017/03/13/challenges-implications-cybersecurity-legislation

[NCSC17] National Cyber Security Centre (2017). NCSC portal. Retrieved from: http://www.cesg.gov.uk.

[OAE16] OpenAIRE and EUDAT (26/05/2016) How to write a Data Management Plan, webinar and powerpoint resource, https://b2drop.eudat.eu/index.php/s/pQIUcmLVPb8dcD4, accessed 7th March 2017.

[PAT17] Patel, S. (2017). Europe Tackles Cybersecurity. Power Magazine, Electric Power. Retrieved from: http://www.powermag.com/europe-tackles-cybersecurity

[PRI17] Privacy Policies (2017). Privacy Policy Legislation & Requirements by Country. Retrieved from: http://privacypolicies.com/blog/privacy-law-by-country/

[RAU15] Raul, L., editor (2015). The Privacy, Data Protection and Cybersecurity Law Review – Portugal Chapter. Law Business Research Ltd, London, United Kingdom.

[TKI17] The Kosciuszko Institute (2017). 2017 Global Cybersecurity Policy: Challenges & Highlights. Retrieved from: https://cybersecforum.eu/en/2017-global-cybersecurity-policy-challenges-highlights

http://www.integridy.eu