STRUCTURE AND REQUIREMENTS

OF THE FEASIBILITY STUDY FOR THE IMPLEMENTATION OF

THE NATIONAL ENERGY MANAGEMENT PLATFORM (PNME)

1. INTRODUCTION

[In this section, the authors of the feasibility study will present the purpose and rationale for preparing the study, the general context of the initiative and the overall description of the National Energy Management Platform (PNME). The introduction will highlight the role of the PNME as an integrating digital solution for the collection, consolidation and analysis of data on energy imports, production and consumption, as well as the need to carry out the feasibility study in view of the institutional, technical and investment complexity involved. It will also briefly present the expected benefits, the phased implementation approach and the main objectives of the study, the target audience and the key questions the study is to answer.]

1.1. Abbreviations

[In this section, the authors of the feasibility study will include the list of abbreviations.]

1.2. Actors involved

1.2.1. Institutions involved

[In this section, the authors of the feasibility study will present the public institutions and entities with a role in policy, regulation, coordination, reporting, data governance and institutional support. The list presented is a minimum reference and is to be validated, completed and extended, as appropriate, by the service provider that will prepare the study.]

- Ministry of Energy – owner of PNME policies/indicators, coordination.
- National Agency for Energy Regulation (ANRE) – regulation, reporting, licensing.
- Public Institution e-Governance Agency – interoperability and data exchange with public and private institutions (MConnect, MLog, MNotify, MPass, MSign, etc.).
- National Bureau of Statistics – energy balance, official statistical series.
- National Centre for Sustainable Energy – data on energy consumption in the public sector (relevant for efficiency).
- Customs Service – imports (including energy products), excise duties, etc.
- State Tax Service – tax/excise data (useful as a secondary/validation source, as appropriate).
- Public Institution Information Technology and Cyber Security Service (STISC) – holder of the common Government technology platform (MCloud), technical administration and maintenance of State information systems, hosting, infrastructure security and continuity.
- Public Services Agency and the Cadastral authority – the Real Estate Register, the State Register of Administrative-Territorial Units and Addresses, the State Register of Population and the State Register of Legal Units, as reference sources for identification and correlation.
- Ministry of Labour and Social Protection – energy-vulnerability and social-protection mechanisms, as a user of consumption-related reference data.
- National Centre for Personal Data Protection and the Cybersecurity Agency – supervisory authorities for personal data protection and for cybersecurity respectively.
- The institution that will be designated holder of the RNLC, once determined by the feasibility assessment carried out under Pillar A. The study shall not presume that determination, it shall take it as an input where it is available at the time of drafting and, where it is not, shall model the consequences of each candidate outcome for the PNME.

1.2.2. Energy operators

[In this section, the authors of the feasibility study will present the operators of the energy system of the Republic of Moldova. The list presented is a minimum reference and is to be validated, completed and extended, as appropriate, by the service provider that will prepare the study.]

- Electricity (transmission): S.E. Moldelectrica – TSO/SO (transmission, dispatching).
- Electricity (distribution): ICS Premier Energy Distribution, RED-Nord S.A.
- Gas (transmission): Vestmoldtransgaz S.R.L. – gas transmission.
- Gas (supply): Energocom S.A. – active as a licensed gas and electricity supplier.
- Gas (historical/organisational): Moldovagaz S.A. – mentioned in the context of licensing/DSO changes.
- District heating (Chisinau): Termoelectrica S.A. – generation (cogeneration), heat distribution/supply in Chisinau municipality.
- District heating (Balti): CET-Nord S.A. – Balti heating system.

2. CONTEXT, OBJECTIVES, SCOPE, EXPECTED RESULTS

2.1. National context

[In this section, the authors of the feasibility study will describe the national context relevant to the initiative under analysis, focusing on the strategic framework, public policies and normative acts applicable in the energy and digital transformation fields. The analysis will take as its reference point the Programme for the Digital Transformation of the Energy Sector of the Republic of Moldova for 2026–2030, approved by Government Decision No. 652/2025, as well as other relevant strategic documents and initiatives. The presentation of the context will highlight the need for and the role of the National Energy Management Platform as an integrating digital solution for the collection and management of consolidated data on energy imports, production and consumption at national level.]

2.2. Purpose and objectives of the PNME feasibility study

[In this section, the authors of the feasibility study will describe the purpose and key objectives of the PNME feasibility study and will clarify which decisions must be capable of being taken on the basis of this study.]

This section will also define the boundaries of the study (what falls within and what falls outside its scope):

E.g. In scope: inventory of systems and datasets, as-is/to-be modelling, architecture and governance options, feasibility-level cost/benefit analysis, roadmap, risks and dependencies, governance instruments and proposals for regulatory adjustments.

E.g. Out of scope: detailed design (HLD/LLD), software development, technical implementation, procurement/tendering, full data migration, operationalisation of SOC/SIEM, definition/implementation of technical integration standards at message level.]

The study shall in addition state expressly that the drafting of the Concept of the information system, of the Regulation of the information resource and of the Technical Specification falls outside its scope

and will be procured separately on the basis of its conclusions, while the annotated outlines and the drafting instructions for those documents fall within it.

2.3. Expected results

[In this section, the authors of the study will describe the concrete deliverables/results of the study, correlated with the purpose and key objectives established in accordance with the Terms of Reference. The success criteria of the study will also be reflected.]

Example:

- Option evaluation matrix + final recommendation (preferred option) with justification and the trade-off accepted.
- Inventory of data sources and systems (by energy type), including owner/steward, periodicity, maturity, access restrictions, level of aggregation.
- High-level conceptual/to-be model (PNME capabilities, integration flows, roles and responsibilities).
- Proposal of governance instruments: draft Government Decision/Order (if applicable), access and classification rules, templates for sharing agreements, audit procedures.
- Phased roadmap (1-3 years) with phases, deliverables, dependencies, time and cost estimates, including the MVP and acceptance criteria per phase.
- Cost and sustainability estimate (TCO: CAPEX/OPEX) + financing options.
- KPI plan and monitoring mechanism, including the data source for each KPI and the reporting frequency.
- Cost estimate (CAPEX/OPEX) and identification of the financing/sustainability model.
- Definition of the data governance framework and of the necessary instruments (normative acts, sharing agreements, procedures).
- Confirmation of the level of effort and of the integration approach for critical data sources (API, periodic export, event-based);
- Delimitation matrix PNME–SINEE–RNLC–operators' systems, identifying the functions and data that are reused, integrated or kept separate;
- RACI matrix on institutional roles and responsibilities in the recommended PNME model;
- Business Analysis and Legal Gap Analysis report, with actionable recommendations;
- Inventory of existing reporting obligations and flows, including towards external platforms, with recommendations on automation, reuse and elimination of redundant reporting.
- Digital readiness assessment per institution and operator, stating for each the data it can actually supply, at what granularity, quality and frequency, through which interface, at what cost to itself, and what would have to be remedied;
- Actor × scenario interaction matrix for the PNME, validated individually with each institution and operator;
- Government platform and shared service reuse assessment, stating for each functional requirement whether it is met by an existing Government service and, where new development is proposed, the reason;

- Hosting, technical administration and infrastructure cost assessment, established in consultation with STISC and based on the applicable service catalogue, service levels and tariffs;
- Consolidated legal gap register, with the normative interventions required expressed at provision level, together with the sequenced legislative roadmap;
- Annotated outlines and drafting instructions for the Concept of the information system, the Regulation of the information resource and the Technical Specification;
- Implementation-readiness classification of GO, CONDITIONAL GO or NO-GO, with the preconditions, remediation actions and readiness gates supporting it.
- Procurement strategy for the implementation of the platform, constructed on Law No. 325/2025, together with a total cost of ownership model structured so that it can be reused as the life-cycle costing method in the subsequent award.

3. METHODOLOGY, SOURCES, ASSUMPTIONS AND LIMITATIONS

3.1. Methodologies.

[In this section, the authors of the feasibility study will describe the methodologies applied in the feasibility study, such as:

- Desk review (analysis of public documents and internal documents held by institutions);
- Interviews and workshops with public institutions and operators;
- Inventory of systems and datasets (by energy type);
- "Data readiness" assessment (availability, quality, granularity, access);
- Analysis of options (centralised/decentralised/hybrid) and multi-criteria scoring
- Business Analysis of existing processes, use cases, information flows and future PNME requirements;
- Legal Gap Analysis, including of institutional mandates and of the legal bases for the collection, exchange, reuse and publication of data;
- Individual interviews with the relevant institutions and operators, with a view to validating existing processes, data sources, constraints, needs and possible responsibilities within the PNME model.]
- Digital readiness assessment of each authority and operator, conducted against the systems, interfaces, identifiers, data quality, staffing and integration capacity actually in place, and distinguishing capabilities available now from those dependent on developments under way;
- Construction and individual validation of the actor × scenario interaction matrix;
- Assessment of the reuse of Government platforms and shared services, and consultation with STISC on hosting, technical administration, sizing, service levels and tariffs;
- Cost-benefit analysis at feasibility level, including the recurrent institutional operating cost and the integration cost borne by each participant.

3.2. Information sources used in preparing the study

[In this section, the authors of the feasibility study will present the information sources used in preparing the analysis, including relevant institutional, statistical, operational and open data sources. The list of sources presented below is a mandatory minimum reference set and is to be validated, completed and extended, as appropriate, by the service provider that will prepare the study:

A. Institutional sources (governance/reporting/indicators)

- Ministry of Energy: policies, indicators, sectoral reports, datasets requested from operators (aggregated);
- ANRE: reporting/licences/tariffs; public datasets and/or aggregated reporting (where available);
- e-Governance Agency: interoperability requirements, data cataloguing, principles of integration through government platforms (where applicable).

B. Official statistics and national series

- National Bureau of Statistics: energy balance, historical series of consumption/production/imports, classifications and methodologies (including dissemination through the statistical portal).

C. Energy efficiency / public sector

- CNED: consumption of energy resources in the public sector (at institution/building level where available), relevant indicators and reports.

D. Open data

- National open data portal (dataset.gov.md): publishable datasets (energy, tariffs, licences, indicators, aggregated series) + metadata (where available).

E. Foreign trade and fuels (for the "balance" and energy security)

- Customs Service: imports by category/code, volumes/values (aggregated), useful for liquid fuels and other energy products.
- (Optional, as a secondary validation source) Tax Service: aggregated tax/excise data (to the extent available and permitted by the legal framework).

F. Operators' operational sources (by energy type) – through direct inventory

- Electricity: transmission (SCADA/EMS – selected aggregate), distribution (HES/MDM for smart metering where available), billing/CRM (aggregated).
- Gas: transmission (telemetry/flows – selected aggregate), distribution/supply (aggregated consumption, readings/MDM where available), balancing/nominations (if available in aggregated form);
- Heat: production, losses, aggregated consumption, interruptions/failures, billing (aggregated), metering at substations/heating points (where available);
- RES: installed capacity, production (aggregated/interval), grid connection (aggregated).

G. Registers/identifiers for correlation (if legally accessible)

- RNLC and/or operators' internal registers (place of consumption / consumption point / technical identifiers) to allow data to be linked to geography and assets (without exposing personal data in the PNME).]

H. Normative framework governing State information resources and systems

- The acts governing the creation, holding, administration, hosting, interoperability and security of State information resources and systems, and their analysed, not merely listed application to the PNME: Law No. 467/2003 on informatisation and State information resources, including the roles of owner, holder, keeper, technical administrator and user and the three mandatory documents of a State information system, Law No. 71/2007 on registers, so far as the PNME relies on or interacts with State registers, Law No. 142/2018 on data exchange and interoperability, Law No. 234/2021 on public services, Law No. 133/2011 and Law No. 195/2024 on the protection of personal data, Law No. 48/2023 on cybersecurity, and the sectoral acts, including Law No. 174/2017 on energy, Law No. 139/2018 on energy efficiency and Law No. 282/2023 on the energy performance of buildings.
- The Government decisions governing the common Government technology platform, the consolidation of public-sector data centres and the transfer of technical administration, the interoperability platform, the Government authentication, electronic signature, journaling, notification, payment, delegation-of-powers, delivery and document platforms, the integrated Government portal and application and the Unitary Design Model, the Register of State Information Resources and Systems, and the coordination of information and communication technology procurement, which applies irrespective of the source of financing.
- The technical documentation published by the e-Governance Agency for developers, including the architecture and development principles, the application programming interface design guide, the code standards, the architecture decision records and the integration guides for each Government shared service.
- The public procurement framework, which is in transition during the period of the study: Law No. 131/2015 on public procurement, applicable until 31 December 2026, Law No. 325/2025 on public procurement, which partially transposes Directive 2014/24/EU, enters into force on 1 January 2027 and repeals Law No. 131/2015, procedures under way at that date being completed under the law in force when they were initiated, Government Decision No. 695/2025 approving the Regulation on the planning of public procurement, and Government Decision No. 544/2019, as amended, approving the Methodology for the coordination of procurement in the field of information and communication technology, which applies irrespective of the type of procurement, the method and the source of financing, and expressly extends to technical assistance projects implemented under donor or international organisation procedures where initiated and carried out by the entities it lists.
- The Programme for the Digital Transformation of the Energy Sector 2026–2030 approved by Government Decision No. 652/2025, and in particular measure 53 and action 1.1.2 of its Action Plan, which fix the indicative investment envelope, the delivery dates, the module and operator-integration targets and the institutional responsibilities for the PNME, together with the provisions of that Programme requiring the PNME to integrate with the common Government infrastructure and shared services and to be hosted on the common Government technology platform.

I. Documentation of SINEE

- Government Decision No. 144/2025 approving the Concept of the national information system in the field of energy efficiency, together with the technical documentation and technical designs prepared for SINEE and its subsystems, whether completed or in progress, to be obtained from CNED. The study shall assess this documentation directly and shall not rely on second-hand descriptions of SINEE.

3.3. Assumptions and limitations

[In this section, the authors of the feasibility study will list the assumptions and limitations applied in preparing the study, such as:

- Which data can be obtained in aggregated form vs confidential/operational form.
- How much of the integration can be automated (API/event) vs periodic export.
- Availability of common identifiers (place of consumption, geographic units, assets).
- Security and confidentiality constraints (impact on architecture and costs)]

3.4. International benchmark and applicable lessons

In this section, the authors may consider the following:

[Comparative and benchmarking analysis is a core research method for this assignment and is not the responsibility of any single expert. The Contractor will set out in the inception report how comparators are identified, how they are compared and how the transferability of each arrangement to the Republic of Moldova is assessed by reference to the national legal, institutional, technical and energy-market context. The value sought is not familiarity with foreign models as such, but a reasoned judgement on which of their features can operate within the national framework and which cannot, and every member of the team is expected to apply that judgement within their own area of responsibility.]

- Models of national/regulatory energy data platforms (data platform / data hub / data visibility).
- Key lessons:

- clear governance (owner/steward/operator);
- phasing (MVP → expansion);
- metadata & data catalogue;
- separation of operational data from analytics and publication;
- access and anonymisation rules.]

The benchmark shall state, for each arrangement examined, the size and maturity of the market concerned and shall assess the transferability of that arrangement to a market of Moldova's size, liquidity and institutional structure. It shall distinguish functional comparators, from which principles may be drawn, from institutional templates, which are not to be copied. It shall conclude expressly on which functions of a mature energy data platform the PNME should not attempt to reproduce in its initial phases, and why.

4. "AS-IS" ANALYSIS

[This chapter will describe the current ("as-is") state of the data ecosystem, systems and processes relevant to the PNME. The study team will document, on verifiable grounds (documents, interviews, reports, access to systems/datasets), what data exist, where they are held, who manages them and how they are collected, validated and used in reporting and analysis.
The analysis will seek to identify constraints and gaps (legal, technical, operational), quality and interoperability problems and critical dependencies, so as to substantiate the PNME requirements and the To-Be scenarios.
The team will use standardised templates (inventory of systems and datasets, access/confidentiality matrix, data maturity assessment) and will explicitly indicate the limitations (unavailable data, restricted access, incomplete periods) and their impact on subsequent analyses.]

4.1 Actors and roles

[This section will describe the current institutional and operational context for the management of energy data (key actors, roles, responsibilities, reporting obligations). It will highlight the main constraints and dependencies that may influence the PNME (e.g. access to data, confidentiality, procedures, lack of standards).
At least the following key actors will be considered:
Public institutions (data users/administrators):

- Ministry of Energy (policies, monitoring, indicators)
- The energy regulator (reporting, licensing, tariffs)
- e-Governance Agency (interoperability, digital standards)
- National Bureau of Statistics (statistical series, energy balance)
- CNED (energy efficiency, public sector)
- Customs / Tax Service (imports, excise duties – for fuels)
- Operators (providers of operational and commercial data):
- Electricity transmission and distribution
- Gas transmission and distribution/supply
- District heating systems (generation, transmission, distribution)
- Producers (including RES) and suppliers (electricity/gas)
- Institutions/entities with significant consumption (public, industrial sector)]
- For each institution and operator the study shall in addition assess digital readiness: whether it holds the data attributed to it, in what system, at what granularity and quality, with what identifiers, through what interface it could supply that data, whether it has the staffing and integration capacity to establish and sustain the supply, what that would cost it, and what would have to be remedied before it could participate. Declared willingness shall be distinguished from demonstrated capability, and the consequences of any shortfall for the scope, phasing and cost of the platform shall be stated.

For each institution and operator analysed, the study will document at least: the current mandate and responsibilities, the data and systems managed, reporting and publication obligations, the role in existing information flows, institutional and technical capacity, as well as potential roles and responsibilities within the PNME.

Future roles will not be presumed in advance, but will be substantiated through the business analysis, the legal analysis and the individual consultations. On the basis of the results, the study will propose a RACI matrix for the recommended institutional model of the PNME.

4.2 Inventory of systems and identification of datasets

[This section will contain the inventory of existing information systems, registers, platforms and datasets relevant to the PNME, in a comparable format, preferably tabular. For each system or data source, at least the following will be presented: the owning/holding institution and the administrator, the purpose, the main functionalities, the categories of data managed, the update frequency, the level of granularity, the format and standards used, the method of access and data exchange, the level of quality and maturity, the restrictions on use, as well as any associated reporting obligations.

The inventory will expressly include SINEE and its relevant subsystems, the RNLC, the information systems and platforms of the energy operators, including operational, metering, reporting and analysis systems, portals and personal accounts, as well as other existing digital infrastructures and services that may be relevant for the future PNME.

For each system or source analysed, the possibility of reusing, integrating, extending or keeping separate the existing functionalities, data and services will be assessed. The analysis will identify overlaps, gaps, dependencies and the interfaces required, and will substantiate the functional delimitation between the PNME and existing systems, so that the implementation of the platform avoids unjustified duplication of data, functions, databases and reporting flows.

The result of the inventory will form the basis for the AS-IS analysis, the definition of use cases and the evaluation of the architectural and interoperability options for the PNME.]

The inventory shall expressly include the Government platforms and shared services, and shall record for each whether it is already in use by the institution or operator concerned, on what terms, and whether it could carry a function otherwise proposed for new development within the PNME.

A) Electricity

Main operators: transmission (TSO), distribution (DSO), suppliers, producers.

Typical systems/datasets:

- SCADA/EMS and other operational network systems (transmission): flows, voltages, power, equipment states (mainly aggregated and/or a subset selected for the PNME)
- HES/MDM (smart meters): interval consumption (e.g. 15/30 min), events, reading quality
- ERP/Billing systems of suppliers and distributors: consumption by category, tariffs, invoicing
- Events/interruptions, losses, service quality indicators
- Register of places of consumption / identifiers (including linkage with the RNLC where relevant)

B) Natural gas

Main operators: transmission, distribution, supply.

Typical systems/datasets:

- Network telemetry/monitoring (if available): flow rates, pressures, entries/exits
- Aggregated consumption by category and area, daily/monthly balances

- Supply data: deliveries, customer categories (aggregated), regulated prices (where applicable)
- Reading/MDM systems (if available) or manual/digital collection processes
- Register of consumption points and location (correlation with the RNLC, as appropriate)

C) Heat (district heating system – SACET)

Main operators: Chisinau/Balti district heating and other local operators, local public authorities.
Typical systems/datasets:

- Heat generation (and electricity generation in cogeneration): volumes, fuel, efficiency
- Heat consumption by area/category (aggregated), network losses
- Failures, interventions, planned shutdowns
- Metering at heating points/substations and billing (where available)

D) Liquid fuels / petroleum products

Main institutions: customs, statistics, possibly tax sources (aggregated).
Datasets:

- Imports by category (petrol, diesel, liquefied gas, etc.), volumes and values
- Consumption estimates by sector (from the balance)
- Indicators for energy security (dependence, trends)

E) Renewable energy (RES) and flexibility

Actors: RES producers, electricity operators, regulator, ministry.
Datasets:

- Installed capacity by type, location, connection level
- Aggregated/interval production (where available)
- (If available) data on flexibility: storage, demand response, aggregators (at feasibility level: what exists and what can be integrated)

F) Energy efficiency / public sector

Actors: CNED, public authorities, budget-funded institutions.
Datasets:

- Monthly consumption by institution/building, resource type, costs (where available)
- Building inventory and energy performance indicators (if available)
- Linking consumption to geography/identifiers (possibly the RNLC)]

4.3. "AS-IS" processes (reporting and use flows)

[This section will document the current collection–validation–consolidation–reporting flows, including the production and consumption of reports (who, what, when, to whom). It will include at least 1–2 flow diagrams for the critical flows and will identify duplications, manual interventions and bottlenecks. The authors may consider the following:

- Operators' reporting to the regulator / ministry (format, frequency, validation)
- Reporting for official statistics (collection, verification, publication)
- The current data publication process (open data / reports)
- Critical points: duplications, lack of standardisation, slow access, lack of traceability

The analysis will also inventory the existing obligations to report and publish data to national or external platforms, systems and institutions. For each relevant flow, the legal basis, the recipient, the dataset, the format, the periodicity, the source, the validation mechanism and the system used will be identified.

The study will assess the extent to which the PNME can reuse, automate or consolidate these flows, avoiding the creation of parallel reporting, the repeated entry of the same data and the emergence of contradictory values between the PNME and existing platforms.]

4.4. Data readiness assessment

[This section will summarise the gaps, problems and constraints identified and will assess their impact on the PNME. For each major element, the team will indicate the type of gap, the probable cause, the priority and the implications for requirements, integration, governance, security, costs and timeline. The authors may consider the following:

- Availability and granularity (interval vs aggregated)
- Quality and consistency (validation rules, reconciliations)
- Identifiers and the possibility of correlation (place of consumption, geography)
- Access and confidentiality (public/restricted/confidential)]

4.5. Digital readiness of the authorities and operators

[This section will consolidate, in comparable form, the digital readiness assessment carried out under section 4.1 for each authority and operator. For each it will state: the systems in place and their maturity, the identifiers used and their compatibility with correlation, the interfaces available and those that would have to be built, the data quality demonstrated on the evidence available, the cybersecurity posture, the staffing and integration capacity, the dependency on developments under way, including the head-end and meter data management platforms and the subsystems of SINEE, the one-off and recurrent cost that participation would impose on the entity, and the readiness classification assigned, with the evidence supporting it. The section will conclude on whether the data foundation on which the platform depends actually exists today, on what proportion of it exists, and on what must be remedied before each phase of the roadmap can be delivered. This conclusion is a principal input to the implementation-readiness classification required under Chapter 12.]

5. PNME NEEDS: PRIORITY USE CASES AND INTEGRATION REQUIREMENTS

[This chapter will define the requirements for the PNME, derived from the As-Is analysis, from the objectives of the study and from the constraints identified (legal, institutional, technical). The study team will formulate the requirements in a clear and verifiable manner, so that they can subsequently be used to compare the To-Be options, to estimate costs and to plan implementation.

The requirements will be prioritised (e.g. must/should/could) and will include, where possible: justification/source, dependencies and acceptance criteria. The team will explicitly highlight the preconditions (e.g. access to data, sharing agreements, minimum standards) without which the requirements cannot be met.]

5.1. Priority use cases

[Section 5.1 will describe the business and use requirements of the PNME: which decisions and processes the platform will support, who the main beneficiaries/roles will be and what information products will be needed (reports, indicators, dashboards). The team will define the minimum set of functional capabilities and will indicate the expected results/benefits, together with their prioritisation. The authors may consider the following:

- Operational multi-vector energy balance (imports/production/consumption)
- Monitoring of electricity consumption and peaks (aggregated + interval where available)
- Analysis of losses, interruptions and service quality (electricity/heat)
- Monitoring of gas consumption and balancing (aggregated)
- Monitoring of RES (capacity, production) and system impact
- Electricity market – assessment of the need for a dedicated capability for monitoring and analysing the electricity market, including users, the decisions supported, indicators, data sources, update frequency and the relationship with the existing systems and processes of ANRE, system operators, market operators and other relevant participants.
- Public sector: consumption and efficiency monitoring (dashboards)
- Standardised reporting for institutions + anonymised publishable datasets
- Reuse and consolidation of existing statutory reporting, so that the platform automates or replaces an existing flow rather than adding a parallel one – identifying for each flow whether it is to be reused, automated, consolidated or left unchanged, and the reduction in reporting burden that follows.
- Energy-efficiency and building-energy use cases required by the transposition of the European framework, and their allocation as between the PNME, SINEE and the register of consumption points.

The study will determine whether this capability justifies a distinct PNME module or whether it can be delivered through common platform services and components.]

5.2. For each use case (template)

[Section 5.2 will describe the high-level information and technical requirements needed to deliver the capabilities defined: minimum data categories, level of granularity and update frequencies, quality and traceability rules, integration/interoperability requirements, as well as essential non-functional requirements (security, availability, performance, audit/monitoring). The team will mention the critical dependencies and constraints that may influence the To-Be options and costs. The authors may consider the following:

- Data required (vectors) + source (operator/institution)
- Periodicity (monthly, daily, interval)
- Level of aggregation (national/regional/local)
- Sensitivity (public/restricted/confidential)
- Dependencies (registers, identifiers, technical capacity of the operator)
- The business process and the decision supported
- The beneficiary/business owner of the use case

- Existing systems and reporting that fully or partially cover the need
- The added value sought and the measurable benefit
- The legal basis for access to, exchange and use of the data
- The roles and responsibilities of the institutions involved
- The possibilities of reusing existing services, data and infrastructures.]

5.3. Actor × scenario interaction matrix

[This section will establish, for each actor identified in Chapter 4 and each priority use case, an explicit end-to-end interaction scenario with the platform. For each scenario the matrix will state: the triggering event, the initiating actor and the actor responsible for the outcome, the legal basis for the interaction and the instrument that establishes it, the channel and the specific service used, distinguishing interaction through the Government interoperability platform from interaction through a user interface, the data transmitted and the data returned, by attribute, the authoritative source of each attribute, the validation, reconciliation and error-handling rules applied, whether the exchange is unidirectional or bidirectional and at what frequency or on what event, what is logged and where, the response time or service level expected, the party responsible if the interaction fails, and what changes in each participant's own systems and internal processes in order to support it.]

[The matrix will be delivered in editable tabular form and will be validated with each institution and operator individually before the validation workshop. It is the instrument through which the institutions and operators are expected to understand, and to accept or contest, what participation in the platform would require of them, and it will be drafted to that standard. Scenarios will be developed at a minimum for: the periodic supply of aggregated consumption, production and import data by each operator, the supply of validated interval data where available, the reporting flows the platform is intended to reuse or consolidate, the correlation of platform data with the register of consumption points and with SINEE, the reconciliation of platform outputs with official statistical series, the publication of aggregated indicators, and the access of an authorised institutional user to a restricted dataset.]

6. THE "TO-BE" VISION: IMPLEMENTATION OPTIONS AND OPERATING MODEL (CONCEPTUAL)

[This chapter will describe the "to-be" vision for the PNME, by defining and comparing implementation scenarios/options and by outlining the corresponding conceptual operating model. The study team will use the results of the As-Is analysis and the requirements/objectives in order to propose realistic, comparable options that are applicable in the institutional, technical and regulatory context of the Republic of Moldova.

The options will be described clearly enough to allow them to be evaluated against common criteria and a preferred option to be selected, with justification. At this stage, the descriptions will remain at conceptual level (not detailed specifications), but will include the essential elements: capabilities covered, data integration approach, implications for governance and operation, dependencies, risks and preconditions.

The authors will consider the following:
The To-Be vision will not start from the presumption that a predetermined technical architecture exists. The study will analyse and compare the relevant alternatives for organising the PNME, including centralised Data Warehouse/Data Lake models, federated Gateway-type models, as well as hybrid architectures.
For each alternative, the following will be analysed: the location of and responsibility for the data, access and integration mechanisms, the latency and frequency of data exchange, security and confidentiality, traceability, costs, the capacity of the sources, operational complexity and the possibility of reusing existing infrastructures.
The recommended architecture will need to allow the modular development of the PNME and interoperability between components, as well as with SINEE, the RNLC, the operators' systems and the relevant government infrastructures.
The comparison of options will include, as an explicit and separately assessed scenario, the extent to which SINEE would need to be re-engineered, extended or partially superseded in order to serve the purposes attributed to the PNME. That scenario is to be validated by the study, not presumed: no decision has been taken on it, and the study is to place the Beneficiary in a position to take one. The assessment will be conducted against the technical documentation and technical designs of SINEE obtained from CNED and will consider each of the ten subsystems provided for by Government Decision No. 144/2025, determining which could carry part of the PNME function, which could be reused as a shared service and which must remain separate. For each variant of the scenario the study will state the amendment to Government Decision No. 144/2025 that would be required, the effect on the subsystems already under development and on the contractual commitments attaching to them, the cost of change, and the effect on the implementation timescale.]
[Every option will in addition be tested for compliance with the national framework governing State information resources and systems. An option that presupposes a dedicated server and storage infrastructure outside the common Government technology platform, a bespoke authentication service in place of the Government authentication service, direct system-to-system interfaces bypassing the Government interoperability platform, proprietary identifiers for natural or legal persons in place of the State identifiers, or the duplication of data already held in another State information resource, will be presented as non-compliant and the consequences of that non-compliance stated. Where an option would require a normative amendment in order to become compliant, that amendment will be identified at provision level and carried into the legal gap register.]

6.1. Solution options (minimum 3)

[This section will present at least three distinct implementation options for the PNME, in a comparable format. For each option, the team will describe: the principles and purpose, the capabilities covered (correlated with the requirements), the collection/integration approach (types of data exchange, frequencies), the implications for data quality and security, the dependencies/preconditions, the advantages/disadvantages and the major risks, as well as which elements will be left for subsequent stages. The authors may consider the following:

1. Centralised model – Data Warehouse/Data Lake;
2. Federated model – Gateway / access to data at source;

3. Hybrid model – central storage for certain data categories and federated access for others.]

6.2. Criteria and method for evaluating the options

[This section will define the evaluation criteria and the methodology for comparing the options, so that the selection is traceable. The team will establish a list of criteria (e.g. functional coverage, interoperability, implementation time, total cost, risk, operational complexity, compliance/security, institutional dependencies) and will apply a scoring mechanism (with weightings, where appropriate). The result will be presented in a criteria × options matrix, with brief justifications for the scores. The authors may consider the following:

- Short-term feasibility (MVP)
- Cost and complexity of integration
- Security/confidentiality risks
- Data maturity and the capacity of the operators
- Institutional and interoperability dependencies]

6.3. Recommendation of the preferred option and preconditions

[This section will formulate the recommendation of the preferred option, based on the results of the evaluation matrix, and will briefly explain the reasoning (why this option best meets the requirements and constraints). The team will explicitly list the mandatory preconditions for implementation (e.g. governance decisions, data sharing agreements, regulatory clarifications, minimum resources, standards/identifiers) and will mention the residual risks to be managed during the implementation stage.]

6.4. Conceptual operating model (operation and governance)

[This section will describe the conceptual operating model for the PNME: roles and responsibilities (product owner, platform operator, data owners, security, support), minimum operating processes (data sources, quality management, access management, maintenance, audit and publication), as well as the data governance arrangements (access/confidentiality rules, transparency/publication, institutional responsibilities). The team will highlight the minimum institutional capacity requirements and the premises for operational sustainability. The authors may consider the following:

- Technical operator (who provides hosting/operation)
- Data governance (who decides on access, quality, publication)
- Processes: source onboarding, validation, change management, audit, support

For the recommended option, the study will propose a conceptual modular structure for the PNME, based on the validated capabilities and use cases. For each module or component, the purpose, the users, the data, the common services used, the interfaces with other modules and the external dependencies will be defined.

The modular structure will not lead to the duplication of data or functions already managed in SINEE, the RNLC or the operators' systems. The study will identify the services and components that can be reused and the mechanisms through which interoperability between the modules and external systems will be ensured.]

6.5. Reuse of Government platforms and shared services

[This section will assess, for each functional requirement of the platform, whether that requirement is already met by an existing Government platform or shared service, and will justify in writing any proposal to develop an equivalent function. The assessment will cover at a minimum: the common Government technology platform for hosting, the interoperability platform and its event service for data exchange and for event-driven processes, the Government authentication and access-control service, the Government electronic signature service, the Government journaling service for audit, the Government notification service, the document generation, hosting and sharing platform, the Government payment service where any charged service is contemplated, the Government service for the delegation of powers of representation, the integrated Government portal and application together with the Unitary Design Model, which apply to any citizen- or business-facing interface including a public portal of the platform, the semantic catalogue for the registration of semantic assets, and the national open data portal for publishable datasets. Where reuse is not possible, the specific technical, legal or functional reason and the residual cost of the alternative will be stated.]

6.6. Hosting, technical administration and the role of STISC

[This section will establish, following consultation with STISC: the role STISC would exercise as technical administrator of the platform and how that role varies with the institution designated as holder, the applicable infrastructure service catalogue, service levels and tariffs, the sizing of the environment against the data volumes, transaction rates, retention periods and availability requirements derived from the use cases, including the storage implications of interval data at national scale, the resulting recurrent hosting and technical administration cost of each option, the segregation of development, testing and production environments and the backup, continuity and recovery arrangements available, together with any residual requirement not met by them, the technical compatibility requirements applicable to any equipment or software procured in support of the platform and the coordination procedure applicable to them, and the sequence and lead times of the coordination steps that must be completed before development may be procured. The recurrent costs so established will be carried into Chapter 9 and will not be omitted as an unquantified assumption.]

7. INSTITUTIONAL, LEGAL AND DATA GOVERNANCE FRAMEWORK

[This chapter will describe the institutional and regulatory framework relevant to the PNME and will identify the governance instruments needed for the collection, exchange, use and (where applicable) publication of energy data. The study team will inventory the applicable normative acts and will clarify the mandates/roles of the institutions involved (data owners, administrators, users), including responsibilities regarding data quality, security, confidentiality and transparency.

The study team will set out, in practical terms, which decisions and adjustments are necessary to enable the PNME to function: access rules and rights, confidentiality regime, reporting requirements, institutional responsibilities and coordination mechanisms. The team will explicitly indicate the gaps (ambiguities, conflicts, lack of a legal basis or lack of procedures) and will describe remedial options

(e.g. government decision/order, regulations, data sharing agreements, model contracts, internal policies, etc.).
Finally, the team will propose a data governance model for the PNME (at conceptual level): principles, roles, minimum processes (access management, quality management, audit), as well as the list of mandatory instruments that must be approved/signed before or in parallel with implementation. The recommendations will be formulated as actionable tasks, with responsible institutions and key dependencies.
The study will carry out a functional and institutional delimitation between the PNME and SINEE, by comparing the purpose, users, processes, data categories, sources, functionalities and responsibilities of each system. The analysis will identify the data and services that can be reused or accessed through interoperability and will formulate mechanisms for avoiding the duplication of functions, records and reporting flows.
The study will include a Legal Gap Analysis concerning institutional mandates, the collection and provision of data, interoperability, confidentiality, the publication and reuse of data, data protection, information security and reporting obligations. For the gaps identified, concrete remedial options will be formulated and, where appropriate, proposals to amend or supplement the regulatory framework.
The legal gap analysis will cover, in addition to the sectoral framework, the framework governing State information resources and systems and Government information technology, and will address in particular: which institution may lawfully be designated holder, keeper and technical administrator of the platform, and what amendments to the instruments governing that institution would be required, the statutory basis on which each operator and institution could be obliged to supply data to the platform, and the instrument by which that obligation would be created, distinguishing obligations that may be imposed by Government decision from those requiring primary legislation or a regulation of the sectoral regulator, the confidentiality and commercial-sensitivity constraints attaching to operator data and the mechanism for reconciling them with the platform's purposes, the relationship between platform outputs and official statistics, and the rule for resolving discrepancies, the lawful basis for each processing operation and the allocation of controller and processor responsibilities across the role-holders, and the cybersecurity classification of the platform. Remedial options will be expressed as specific amendments to identified provisions, with the initiating authority, the approval circuit and the realistic lead time for each, and will be consolidated in a legal gap register in editable tabular form.
The section will also establish the allocation of the statutory roles for the platform – holder, keeper, technical administrator, registrars where applicable, data providers and data recipients, stating for each the entity proposed, the legal basis on which the role would be conferred, the attributions carried, the attributions expressly excluded, the financial responsibility, the liability in the event of error, incident or breach, and the mechanism for resolving disputes between role-holders. The designation of the same entity as both holder and keeper without a delimitation of attributions is not acceptable and will not be proposed.
Finally, the section will deliver the annotated outlines and drafting instructions for the three documents required for a State information system – the Concept of the information system, the Regulation of the information resource and the Technical Specification, structured in accordance with the mandatory chapter structure applicable to such documents and clearly delimiting the matters that belong in each.

The drafting of those documents is not part of the study, the outlines are to be of a standard that permits a subsequent assignment to complete them without revisiting the analysis.

The section will in addition establish the procurement route for the implementation of the platform. Because the implementation procurement cannot realistically be initiated before 1 January 2027, it will be governed by Law No. 325/2025 and not by Law No. 131/2015, and every procurement-facing output of the study, the annotated outline of the Technical Specification, the qualification and selection criteria, the award criterion and evaluation factors, the choice of procedure, the estimated value and applicable threshold, the division into lots, and the contract-modification, subcontracting and acceptance provisions will be constructed on that law. The study will assess the procedure to be recommended against open tender, restricted tender, competitive negotiation, competitive dialogue, innovation partnership and the framework agreement, having regard to the fact that the more interactive procedures are available where the requirements cannot be met without adapting readily available solutions or where the technical specifications cannot be defined with sufficient precision at the outset, and that competitive dialogue is awarded exclusively on the best price-quality ratio. It will state whether and how the contract should be divided into lots and how any division would map onto the modular increments of the roadmap.

The study will establish whether and how the Methodology for the coordination of information and communication technology procurement applies under each institutional scenario, according to whether the contracting authority would be the Ministry of Energy, CNED, ANRE or a development partner acting on their behalf. Having regard to the indicative envelope recorded in the Action Plan of the Programme approved by Government Decision No. 652/2025, the implementation procurement falls within the highest risk category of that Methodology, which entails prior coordination of the opportunity of the procurement and of the entire procurement documentation with the e-Governance Agency, the mandatory participation of that Agency's designated representative in the procurement working group throughout the procedure including the evaluation of offers, final validation and approval of the evaluation and procurement documentation, joint monitoring of contract execution against deviations in time, budget, scope and planned benefits, and the recording of the deliverables – source code, complete technical documentation and user and administration guides, including through the repository administered by that Agency. Those deliverable, source code and documentation obligations will be reflected in the annotated outline of the Technical Specification, together with the requirement to use the reference technical specifications approved for that purpose.

The study will set out the measures required in respect of market consultation and the prior involvement of candidates. The law permits the contracting authority to consult the market before initiating a procedure and to use the opinions received provided competition is not distorted, and provides that a person who advised the contracting authority or contributed to the preparation of the award documentation is not automatically excluded but that appropriate measures must be taken to secure equal treatment, exclusion being available only where no other means suffices and after that person has had the opportunity to demonstrate that its involvement does not distort competition. Because the outputs of this study will be carried into the future award documentation, the study will identify the specific measures to be applied and the information to be disclosed to other bidders.]

8. IMPLEMENTATION PLAN AND PHASED ROADMAP (1-3 YEARS)

[This chapter will present the phased implementation plan (roadmap) for the PNME, so that it is clear how to move from the current situation (as is) to an operational platform (to be), in what order the capabilities and integrations are built, with which dependencies and which intermediate deliverables. The study team will propose a realistic timeline (in months/quarters), correlated with the option recommended in Chapter 6 and with the preconditions identified in Chapter 7.
The roadmap will be structured in phases and will include, for each phase: objective, key activities, deliverables, institutions involved/responsible, dependencies and criteria for moving to the next phase. Where possible, the team will also indicate the risks specific to the phase and mitigation measures (e.g. access to data, absence of APIs, delays in sharing agreements).

The authors may consider the following proposed structure:
In order to deliver the PNME within a short timeframe, the plan is designed around MVP, Expansion and Maturation:

Year 1: PNME operational (MVP) + minimum critical integration + first official dashboards.

Year 2: Full integration of the major sources + official reporting + public portal (aggregated data).

Year 3: Advanced ML/AI + extensions for the free market + operational and security maturation

The phase structure presented below is indicative and does not represent a predetermined architecture or technical sequence. The feasibility study will develop the final roadmap on the basis of the recommended To-Be option, the maturity of the data, the capacity of the source systems, the results of the cost-benefit analysis and the legal and institutional preconditions.
For each phase, the MVP or the set of capabilities targeted, the priority integrations, the dependencies, the responsible institutions, the indicative costs, the acceptance criteria and the criteria for moving to the next phase will be defined.
The phase structure set out below, and every technology named within it, including the common Government technology platform, data lake or data warehouse solutions, application programming interface gateways, the Common Information Model, machine learning and artificial intelligence components, security operations arrangements and the named integration sequences, is an illustrative hypothesis to be tested, not a predetermined requirement. Where it conflicts with the evidence-based, reuse-first and technology-neutral principles of the Terms of Reference, those principles prevail. The Common Information Model in particular shall not be prescribed at feasibility stage, its suitability shall be assessed only when the detailed architecture and the concrete interfaces are defined, and any recommendation shall identify the exact standard family, profile, version, business process and conformity test. Analytical components based on machine learning or artificial intelligence shall be justified by an approved use case, by the availability and quality of the data they would consume and by a measurable benefit, and shall be assessed against the requirements of ethical and transparent use, prior impact assessment, information of the beneficiary and the right to human re-verification and to contest.

The roadmap shall in addition model, as dated and sequenced gates with realistic lead times, the coordination and approval steps that condition implementation: registration of the intention to create the resource in the Register of State Information Resources and Systems and prior coordination with the e-Governance Agency, the rounds of examination and the issuance of the agency's opinion on the draft Concept and draft Regulation, followed by inter-ministerial endorsement, expert examination and approval by the Government, the coordination of information and communication technology budget proposals, procurement plans and procurement documentation, irrespective of the source of financing, the coordination with the technical administrator, the conformity assessment of the information system, and the multi-annual budget commitment required from the designated holder. A roadmap that assumes development can begin without these steps, or that treats them as instantaneous, will not be accepted. The roadmap shall be sequenced against the delivery dates and the module and operator-integration targets fixed by the Action Plan of the Programme approved by Government Decision No. 652/2025, and shall state expressly where those targets are no longer attainable and what revision of the Programme would be required.] The gates shall include the endorsement by the e-Governance Agency of the ICT budget proposal, without which the Ministry of Finance will not approve financing, the inclusion of the procurement in the provisional or annual procurement plan of the contracting authority and the confirmation of the availability of funds, without which no procedure may be initiated whatever its value, the approval of that plan within ten days of approval of the institution's budget and its publication within five working days, the prohibition on modifying the plan after 5 December of the budget year and on initiating a procedure on a plan modified after that date, together with the exemption from that prohibition enjoyed by autonomous public authorities and by authorities not financed from the national public budget, and the coordination of the opportunity and of the complete procurement documentation with that Agency. The roadmap shall show how these gates interact with the budget calendar, so that the Beneficiary can see in which budget year each increment can realistically be launched. The Regulation on the planning of public procurement currently rests on Law No. 131/2015 and will require alignment with Law No. 325/2025, the incompleteness of the secondary framework under the new law is a scheduling risk to be recorded in the risk register.

Each phase shall be expressed as a discrete, separately fundable increment with its own scope, cost, dependencies, entry and exit criteria and decision point, so that the Government may commit to the first increment without committing to the whole. The roadmap shall state the dependencies of the platform on the register of consumption points and on the head-end and meter data management platforms under deployment, and shall treat the smart-meter roll-out as a scaling input rather than as a precondition for creating the foundations.]

PHASE 0 – Initiation and preparation (0–4 months)

Objective: Governance and "ready-to-build": roles, requirements, ToR, integration plan.

Activities:

1. Designation of the holder, keeper and technical administrator in accordance with the conclusions of the study, the institutions named here are illustrative and are not predetermined.

2. Establishment of a coordination committee comprising the institutions and operators identified by the study, including the e-Governance Agency and the entity responsible for technical administration).
3. Definition of the MVP scope (indicators, sources, users, access).
4. Preparation of the ToR / technical specifications + procurement plan.

Expected results:

- Governance model + RACI;
- Functional/non-functional requirements (MVP);
- Integration plan (RNLC, MConnect, HES/MDM, SCADA, Billing).

PHASE 1 – Technical MVP and first integrations (4–10 months)[1]

Objective: PNME platform operational in MCloud, able to receive and report data.

Activities:

1. Implementation of infrastructure in MCloud (dev/test/prod);
2. Building the core components:

– Secure API Gateway (OAuth2/mTLS, rate limiting, audit);
– Data Lake (raw/curated) + reporting repository (initial DWH);
– ETL/ELT + quality validations (completeness, formats, deduplication).

3. Mandatory integration:

– RNLC (correlation of the "place of consumption" as a national identifier);
– pilot integration with HES/MDM (15-minute data for one segment);
– pilot integration with SCADA/EMS (subset of operational indicators)

4. MVP institutional dashboards:

– aggregated consumption (national/regional)
– production/imports (if the data are available)
– flow quality indicators (data quality)

Expected results:

- PNME MVP in production (institutional) ;
- Integration of the RNLC + 2 pilot sources (HES/MDM, SCADA/EMS);
- 5–10 basic dashboards + monthly reports

PHASE 2 – Expansion of integration and official reporting (10–18 months)

Objective: National coverage for the main data flows + automated official reporting.

Activities:

1. Extended integration:

[1] For the avoidance of doubt, architecture and technology references in this section – including MCloud, data lake or data warehouse solutions, API gateways, CIM and named integration sequences that are illustrative hypotheses to be tested and not predetermined requirements. Where such examples conflict with the evidence-based, reuse-first and technology-neutral principles of the Terms of Reference, those principles shall prevail.

- HES/MDM (progressive expansion towards full coverage);
- SCADA/EMS (standardised operational indicators, events);
- Billing/ERP of suppliers and distributors (commercially aggregated data).

2. Semantic standardisation:

- mapping to a common model (CIM – minimum for PNME entities/indicators);
- nomenclatures + single aggregation rules (national/regional/local).

3. Automation of reporting:

- downloadable monthly and annual reports;
- standard export (CSV/JSON) and API for authorised institutions,

4. Security & operation:

- full logging + SIEM/SOC (24/7 monitoring);
- incident management procedures + operational SLA,

Expected results:

- Full integration of the "major sources": HES/MDM + SCADA/EMS + Billing/ERP;
- Set of official reports (monthly/annual) generated automatically;
- Stable API for institutions + standard audit & monitoring.

PHASE 3 – Public portal and maturation (18–30 months)

Objective: Controlled public transparency + consolidation of analytical capabilities.

Activities:

1. Launch of the PNME Public Portal:

- aggregated indicators and anonymisation;
- integration with data.gov.md for Open Data sets (anonymised only)

2. Advanced analytics:

- dashboards by locality/region;
- seasonality analyses, consumption by type, YOY comparison

3. Improvement of data quality:

- quality scoring by source
- correction and validation mechanisms with the actors (workflow)

Expected results:

- PNME Public Portal + anonymised Open Data packages;
- Expansion of BI + mature data governance procedures,

PHASE 4 – ML/AI and strategic support (30–36 months)

Objective: The PNME becomes an energy intelligence instrument for strategic decision-making.

Activities:

1. Implementation of ML/AI:

- consumption forecasting (national/regional/local);
- anomaly detection (losses, interruptions, missing data);
- scenarios (impact of temperature, RES, price).

2. Integration with government processes:

- reports for public policies;
- indicators for strategies/plans (e.g. NECP, network planning).

Expected results:

- Operational ML/AI module + predictive dashboards;
- Package of reports for strategic decision support.

Summary timeline (1–3 years)

Period	**Objective**	**Result**
0–4 months	Initiation	governance + ToR + MVP scope
4–10 months	MVP	PNME operational + RNLC + 2 pilot sources
10–18 months	Expansion	full integration of HES/MDM, SCADA, Billing + reports
18–30 months	Public + maturation	public portal + open data + data governance
30–36 months	AI + strategy	forecasts/anomalies/scenarios + policy support

9. ESTIMATION OF COSTS, BENEFITS AND SUSTAINABILITY (FEASIBILITY LEVEL)

[This chapter will present a feasibility-level estimate of the costs and benefits of the PNME and will describe how the platform can be sustained financially and operationally over the medium term. The study team will use the option recommended in Chapter 6 and the roadmap in Chapter 8 in order to formulate indicative estimates, with explicit assumptions, ranges (min–max) and the main cost variables (e.g. number of integrations, frequencies, data volume, security requirements, hosting).]

9.1. Cost categories (CAPEX/OPEX): integration, platform, operation, governance, security

[In this section, the team will present an estimate of costs by CAPEX/OPEX category and will indicate what falls into each category (e.g. source/API integration, platform development/configuration, licences/services, hosting, support and maintenance, administration and monitoring, data governance activities, security measures). The estimate will be correlated with the roadmap phases and will include assumptions (unit costs, effort per integration, staffing needs, SLA level), as well as dependencies that may increase/decrease the cost.

The estimate shall include, as principal items and not as residuals: the recurrent hosting and technical administration cost established under section 6.5, calculated on the applicable service catalogue and tariffs and on the sizing derived from the use cases, the recurrent institutional operating cost falling on the holder, including the staffing required for data-quality management, exception handling, access administration, support and audit, the one-off and recurrent integration and adaptation cost falling on each participating operator and institution, stated separately for each, together with the mechanism by which regulated participants would have those costs recognised, the cost of the remediation identified

in the digital readiness assessment, and the cost of the normative work identified in Chapter 7. The total cost of ownership shall be presented over at least a ten-year horizon, with the cost drivers identified and a sensitivity analysis on the principal assumptions.
The benefits shall be linked to realistic market and institutional development milestones and to expected adoption, and shall not be assumed from the performance of mature platforms in larger jurisdictions. Each quantified benefit shall state its basis of calculation, its beneficiary and the milestone at which it begins to accrue.
The total cost of ownership model shall be structured so that it can be reused directly as the life-cycle costing method in the subsequent award. Law No. 325/2025 permits the contracting authority to evaluate cost on a life-cycle basis and requires it to indicate in the award documentation the data to be supplied by bidders and the method by which life-cycle cost will be established. The model shall therefore expose the cost categories, the data inputs, the calculation method and the assumptions in a form a contracting authority could adopt, and shall state which elements would have to be settled before the method could be applied.
The study shall in addition deliver a consolidated, itemised statement, addressed to the institution recommended as holder, of what the designation would require of it: the normative amendments to be initiated, the recurrent budget to be committed and the year from which, the staffing and competences to be established, the operational processes to be instituted, the service levels to be maintained, the reporting and audit obligations, the liabilities assumed, and the decisions to be taken within the first twelve months. That statement shall be capable of being placed before the management of the institution concerned without further elaboration.]

9.2. Financing options and sustainability model

[The team will propose financing options for implementation and operation and will describe a sustainability model (who finances the OPEX, who operates, which recurrent costs must be covered annually). The premises and risks of the model will be indicated (dependence on external financing, institutional capacity, hosting/licence costs) and measures will be recommended to ensure continuity (e.g. multi-annual budgeting, inclusion in programmes, institutional operating mechanisms).]

10. KPIs AND MONITORING MECHANISM

[This chapter will define the set of KPIs for the PNME and will describe the monitoring mechanism during the implementation and operation of the PNME. The study team will establish, for each KPI: the definition and calculation formula, the data source, the measurement/reporting frequency, indicative targets by phase (in line with the roadmap) and the party responsible for collection/validation.
The KPIs will cover at least four dimensions: coverage (integrated sources, coverage by energy type, update frequency), quality (completeness, consistency, publication time), use (active users, operational reports, institutional adoption) and impact (reduction of reporting time, reduction of manual requests, improvement of decision support – quantitative where possible, otherwise qualitative with an explicit method).

The monitoring mechanism will specify how the KPI values will be collected and aggregated (e.g. internal dashboard, periodic reports), who will review them and in what setting (e.g. committee/periodic meetings), as well as how deviations from targets will be managed (corrective actions, responsible party, deadline). If certain KPIs are not immediately measurable, the team will indicate the steps needed for instrumentation (logging, standardisation, procedures) and the related dependencies.]

11. RISKS, DEPENDENCIES AND MITIGATION MEASURES

[This chapter will identify the risks and dependencies critical to the implementation and operation of the PNME, on the basis of the As-Is findings, the institutional/legal framework and the recommended option. The study team will include a structured list of risks by category (e.g. data and quality, integration/technical, legal and confidentiality, governance and institutional capacity, financing and sustainability, timeline/procurement processes), as well as external dependencies that may affect delivery (decisions, agreements, availability of source systems, resources).
For each risk, the team will indicate at least: the description, the cause, probability and impact (score), the severity/priority level, the responsible institution/role, early warning indicators and mitigation measures (preventive and corrective). For dependencies, the team will specify the conditions for fulfilment, the responsible party and the effect of delay on the roadmap and costs.
The chapter will include a synthesis of the "top risks" and those "requiring mitigation" that must be initiated before implementation (Phase 0), as well as the residual risks to be monitored through the KPI/monitoring mechanism. Where relevant, the team will propose governance decisions/instruments that reduce risk (data agreements, minimum standards, regulatory clarifications, operational processes).]

12. CONCLUSIONS AND RECOMMENDATIONS (TO BE COMPLETED IN THE STUDY)

[This section will be completed after the analyses are finalised and will summarise the final recommendation of the study.]

12.1. Implementation-readiness classification

[The study shall support a formal implementation-readiness decision and shall classify the recommended way forward as GO, CONDITIONAL GO or NO-GO for implementation procurement. GO means that the legal, institutional, data, source-system, cybersecurity, funding and operating preconditions for launching implementation procurement are met. CONDITIONAL GO means that the recommended option is feasible but that specified deficiencies must be remedied before operational launch or before defined modules are procured, each deficiency being named, attributed and costed. NO-GO means that implementation procurement should not proceed at this stage, in which case the study shall identify the remediation actions, the responsible institutions, the readiness gates

and the decision pathway for a later determination. The classification shall be reasoned and shall state which findings it rests on and with what confidence.]

12.2. Synthesis of results by area

[This section will present a synthesis of the results for each area analysed:

- *Data (sources, quality, gaps, access, identifiers).*
- *Architecture and integration (options, complexity, interoperability).*
- *Governance and the institutional/legal framework (roles, mandates, instruments needed).*
- *Security and confidentiality (data classification, controls, audit).*
- *Costs and sustainability (CAPEX/OPEX, TCO, financing options).*
- *Institutional and operational capacity (resources, skills, processes).*
- *Risks and dependencies (major ones, with mitigation measures).*

12.3. Final recommendation (preferred option) and justification

[This section will present the final recommendation, based on the multi-criteria evaluation matrix:

- *The preferred option (A/B/C) will be indicated and briefly described in terms of what it entails.*
- *The results of the evaluation matrix (criteria, weightings, scores) will be included and the main trade-offs explained.*
- *The rejected options and the key reasons will be mentioned (cost, risk, access to data, time, capacity).]*

12.4. Mandatory conditions (preconditions) for implementation

[This section will explicitly highlight the conditions that must be met before implementation is initiated:

- *Mandates/decisions necessary for the collection and sharing of data (including the confidentiality regime).*
- *Agreements with the operators and the institutions providing data.*
- *Establishment of roles and governance processes (RACI).*
- *Provision of hosting/operating infrastructure and of the minimum security requirements (audit, logging, access).*
- *Availability of common identifiers for correlating data (e.g. RNLC/geographic identifiers) and aggregation rules.*

12.5. Steps recommended immediately after acceptance of the study

This section will present an action plan for the next 3-6 months:

- *Formal validation and approval of the recommendation (management / committee decision).*
- *Preparation of the technical specifications for the implementation procurement.*
- *Initiation of the negotiation/signing of data agreements and of the governance framework.*
- *Planning of the budget and resources (including internal roles and external support).*

13. ANNEXES

[This chapter will include annexes that support the traceability and verifiability of the study and that contain the detailed materials not included in the main body. The study team will list the annexes and will ensure that they are explicitly referenced in the relevant chapters (with number and title), so that the reader can follow the sources, assumptions and calculations.
The annexes will include, as appropriate: the inventory of systems and datasets (complete tables), descriptions of As-Is flows (diagrams), the option evaluation matrix (scoring and justifications), the cost assumptions and estimation calculations (CAPEX/OPEX), the list of normative acts analysed, the synthesis of interviews/workshops (participants, conclusions), the glossary/abbreviations and any templates used (e.g. system/dataset forms, RACI). The team will indicate the format of the annexes (Word/Excel) and will ensure consistency of names and versions.]