**Open public consultation - Questionnaire on the electrification action plan**

**I campi contrassegnati da \* sono obbligatori.**

**Part 1 - Cross-sectoral questions on the electrification action plan**

**1.A - Scope**

\* 1. What should be the general objective/s of an EU electrification action plan? (seleziona e ordina)

|  |
| --- |
| [ ]  Decarbonisation |
| [ ]  Competitiveness |
| [ ]  Energy affordability |
| [ ]  Energy efficiency |
| [ ]  Energy security |
| [ ]  Environmental protection |
| [ ]  Fairness, consumer protection and empowerment |
| [ ]  Other (please specify) |

Other (please specify): Specifica altro (max 100 caratteri)

**1.B - Barriers**

**\* 2. What are the key barriers hampering electrification decisions across all sectors? (scegli da 1 a 5)**

|  |
| --- |
| [ ]  High upfront transition costs for electrification of end-uses |
| [ ]  Insufficient policy signals at EU or national level, particularly in the form of targets |
| [ ]  Insufficient renewable electricity generation |
| [ ]  Lack of availability of fit-for-purpose electrically-powered equivalent technologies |
| [ ]  Lack of consumer acceptance or trust in electrification technologies |
| [ ]  Lack of or insufficient remuneration of demand flexibility, incl. via aggregators |
| [ ]  Lack of or insufficient roll-out of storage assets |
| [ ]  Lack of skilled professionals |
| [ ]  Length and/or complexity of administrative and permitting procedures |
| [ ]  High operational costs |
| [ ]  Uncertainty about the future price of electricity compared to fossil fuels |
| [ ]  Unfavourable retail price ratio between electricity and fossil fuels |
| [ ]  Unfavourable tax treatment of electricity compared to fossil fuels |
| [ ]  Weak implementation of the current regulatory framework |
| [ ]  High cost of network tariffs |
| [ ]  High upfront costs or delays to connect to the grid |
| [ ]  Insufficient capacity of the electricity grid |
| [ ]  Other (please specify) |
| [ ]  N/A |

**Other (please specify): Specifica altro**

**1.C - Policy options**

**3. What are the priority policy options for accelerating electrification of energy demand?**

**\*3.1 EU policy framework (seleziona 1-3)**

|  |
| --- |
| [ ]  Adaptation of current legislative framework (towards 2030) |
| [ ]  Additional policy initiatives (non-regulatory) |
| [ ]  Additional public financing |
| [ ]  Implementation of the current EU regulatory framework |
| [ ]  New legislative framework (towards 2040) |
| [ ]  Other (please specify) |
| [ ]  N/A |

**Other (please specify): Specifica altro**

**\*3.2 General policy design measures (seleziona 1-3)**

|  |
| --- |
| [ ]  Accelerate and simplify permitting procedures |
| [ ]  Adopt an EU target for electrification |
| [ ]  Adopt a target for non-fossil flexibility |
| [ ]  Introduce consumer-centric measures to increase flexibility of the system |
| [ ]  Propose decarbonisation pathways |
| [ ]  Remove non-energy related costs from electricity bills |
| [ ]  Revise energy taxation in favour of electricity |
| [ ]  Other (please specify) |
| [ ]  N/A |

Other (please specify): Specifica altro

**\*3.3 Access to grid and flexibility (seleziona 1-3)**

|  |
| --- |
| [ ]  Accelerate ncentivizeon of energy systems to support automation and system optimisation |
| [ ]  Accelerate roll-out of smart metering to facilitate demand response and active consumer participation |
| [ ]  Implement measures to ensure electricity system adequacy and reliability, incl. risk preparedness |
| [ ]  Implement network tariffs that promote flexibility and ncentivize consumer behaviour to reduce grid costs |
| [ ]  Improve access to participation and remuneration of flexibility services |
| [ ]  Increase grid capacity |
| [ ]  Enable timely grid connections |
| [ ]  Other (please specify) |
| [ ]  N/A |

**Other (please specify): Specifica altro**

**3.4 Financing and investment (seleziona 1-3)**

|  |
| --- |
| [ ]  Increase availability of financial instruments to cover upfront costs |
| [ ]  Measures promoting simultaneously electrification and access to renewables, including through PPAs |
| [ ]  Provide public grants or loans, including EU funds to leverage private funds |
| [ ]  Provide technical assistance to facilitate project financing |
| [ ]  Targeted funding for research and innovation |
| [ ]  Other (please specify) |
| [ ]  N/A |

Other (please specify): Specifica altro

**Part 2 - Flexibility: demand response and storage**

**2.A - Scope**

**\*1. Most relevant technologies and solutions for increasing flexibility (scegli 1-5)**

|  |
| --- |
| [ ]  Thermal storage (electrified heat) |
| [ ]  Electrochemical storage (incl. stationary batteries and mobile batteries, EV batteries) |
| [ ]  Mechanical storage (incl. pumped hydro storage, compressed air storage, flywheels and gravitational energy) |
| [ ]  Chemical storage (incl. hydrogen, ammonia, synthetic fuels) |
| [ ]  Electrical storage (incl. supercapacitors) |
| [ ]  Vehicle-to-grid (V2G) technologies |
| [ ]  Industrial process flexibility |
| [ ]  Demand response in buildings |
| [ ]  Smart consumption appliances |
| [ ]  District heating systems |
| [ ]  Other (please specify) |
| [ ]  N/A |

Other (please specify): Specifica altro

**2.B - Barriers**

**\*2. Key barriers to demand response (scegli 1-5)**

|  |
| --- |
| [ ]  Administrative/regulatory barriers |
| [ ]  Skills-related barriers |
| [ ]  High financing costs |
| [ ]  High initial investment |
| [ ]  High operational costs |
| [ ]  Insufficient awareness of or trust in solutions |
| [ ]  Insufficient digitalisation |
| [ ]  Lack of fit-for-purpose or easily available and affordable technologies |
| [ ]  Lack of renumeration for the provision of services |
| [ ]  Lack of interoperability of flexibility tools |
| [ ]  Technical barriers |
| [ ]  Other (please specify) |
| [ ]  N/A |

**3. Please elaborate on key specific barriers to demand response: Max 300 caratteri**

**\*4. Key barriers to the deployment of storage solutions (scegli 1-5)**

|  |
| --- |
| [ ]  Administrative/regulatory barriers |
| [ ]  Skills-related barriers |
| [ ]  Double taxation for storage |
| [ ]  Grid connection |
| [ ]  High financing costs |
| [ ]  High initial investment |
| [ ]  High operational costs |
| [ ]  Insufficient awareness of or trust in solutions |
| [ ]  Insufficient digitalisation |
| [ ]  Lack of fit-for-purpose or easily available and affordable technologies |
| [ ]  Lack of renumeration for the provision of services |
| [ ]  Length of permitting processes for storage |
| [ ]  Technical barriers |
| [ ]  Other (please specify) |
| [ ]  N/A |

**5. Please elaborate on key specific barriers to the deployment of storage solutions: Max 300 caratteri**

**2.C - Policy options**

**6. Priority policy options for increasing system flexibility**

**\*6.1 EU policy framework (seleziona 1-3)**

|  |
| --- |
| [ ]  Adaptation of current legislative framework (towards 2030) |
| [ ]  Additional policy initiatives (non-regulatory) |
| [ ]  Additional public financing |
| [ ]  Effective implementation of the current EU regulatory framework |
| [ ]  New legislative framework (towards 2040) |
| [ ]  Other (please specify) |
| [ ]  N/A |

Other (please specify): Specifica altro

**\*6.2 Policy design options (seleziona 1-3)**

|  |
| --- |
| [ ]  Abolish double charging for storage |
| [ ]  Accelerate and simplify permitting procedures for energy storage solutions |
| [ ]  Introduce an EU target for non-fossil flexibility |
| [ ]  Promote digitalisation, ensure interoperability, and facilitate data sharing to enable flexibility services and demand response |
| [ ]  Other (please specify) |
| [ ]  N/A |

Other (please specify): Specifica altro

**\*6.3 Access to grid and flexibility (seleziona 1-3)**

|  |
| --- |
| [ ]  Accelerate digitalisation of energy systems to support automation and system optimisation |
| [ ]  Accelerate roll-out of smart metering to facilitate demand response and active consumer participation |
| [ ]  Deploy non-fossil flexibility solutions, including electricity and thermal storage and demand response solutions |
| [ ]  Facilitate grid connection for flexibility assets |
| [ ]  Other (please specify) |
| [ ]  N/A |

**Other (please specify): Specifica altro**

**\*6.4 Financing and investment / Business models and innovation (seleziona 1-3)**

|  |
| --- |
| [ ]  Enable participation in support schemes for flexibility solutions |
| [ ]  Enable access to electricity markets for flexibility services |
| [ ]  Implement network tariffs that promote flexibility and incentivise consumer behaviour to reduce grid costs |
| [ ]  Incentives for system operators to use flexibility services |
| [ ]  Increase availability of financial instruments to cover upfront costs of flexibility solutions |
| [ ]  Support for innovation in flexibility solutions |
| [ ]  Other (please specify) |
| [ ]  N/A |

**Other (please specify): Specifica altro**

**Part 3 – Electrification of transport**

**3.A – Barriers**

**1. Please elaborate on one key barrier to the electrification of transport in the EU: Max 300 caratteri**

**2. Key barriers specific to the road sector (1-5 per colonna)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | For electric light-duty vehicles | For electric heavy-duty vehicles | For smart charging | For bidirectional charging |
| High operational costs linked to electricity | [ ]   | [ ]   | [ ]   | [ ]   |
| Complexity of permitting procedures for the installation of recharging points | [ ]   | [ ]   | [ ]   | [ ]   |
| Difficulties to secure an appropriate grid connection | [ ]   | [ ]   | [ ]   | [ ]   |
| Lack of financial incentives (specify level) | [ ]   | [ ]   | [ ]   | [ ]   |
| Lack of cost-reflective network charges | [ ]   | [ ]   | [ ]   | [ ]   |
| Lack of deployment of smart meters | [ ]   | [ ]   | [ ]   | [ ]   |
| Lack of interoperability (specify level) | [ ]   | [ ]   | [ ]   | [ ]   |
| Low technological maturity | [ ]   | [ ]   | [ ]   | [ ]   |
| Lack of consistent standards in both the charging infrastructure and the vehicles | [ ]   | [ ]   | [ ]   | [ ]   |
| Lack of certified metering dedicated to vehicle-to-grid (V2G) | [ ]   | [ ]   | [ ]   | [ ]   |
| Lack of access to markets for small and mobile assets/local flexibility markets | [ ]   | [ ]   | [ ]   | [ ]   |
| Need for common technical requirements for grid connection | [ ]   | [ ]   | [ ]   | [ ]   |
| Double taxation for storage | [ ]   | [ ]   | [ ]   | [ ]   |
| Insufficient in-vehicle data sharing | [ ]   | [ ]   | [ ]   | [ ]   |
| Lack of awareness and behavioural resistance/social acceptance | [ ]   | [ ]   | [ ]   | [ ]   |
| Other (please specify) | [ ]   | [ ]   | [ ]   | [ ]   |

**3.B - Policy options**

**\*3.1 EU policy framework (seleziona 1-3)**

|  |
| --- |
| [ ]  Adaptation of current legislative framework (towards 2030) |
| [ ]  Additional policy initiatives (non-regulatory) |
| [ ]  Additional public financing |
| [ ]  Implementation of the current EU regulatory framework |
| [ ]  New legislative framework (towards 2040) |
| [ ]  Other (please specify) |
| [ ]  N/A |

**\*3.2 General policy design measures (seleziona 1-3)**

|  |
| --- |
| [ ]  Accelerate and simplify permitting procedures for recharging points |
| [ ]  Accelerate and simplify grid connection procedures for recharging points |
| [ ]  Introduce policy incentives for EV-related electricity demand |
| [ ]  Introduce incentives for interoperable smart charging and for V2G-ready vehicles |
| [ ]  Introduce consumer-centric measures to increase demand flexibility |
| [ ]  Facilitate data sharing between the electricity system, the recharging point and the EV |
| [ ]  Promote interoperability between the electricity system, the recharging point and the EV |
| [ ]  Other (please specify) |
| [ ]  N/A |

**Other (please specify): Specifica altro**

**\*3.3 Access to grid and flexibility (seleziona 1-3)**

|  |
| --- |
| [ ]  Accelerate ncentivizeon of energy systems to support automation and system optimisation |
| [ ]  Accelerate roll-out of smart metering to facilitate demand response and active consumer participation |
| [ ]  Implement measures to ensure electricity system adequacy and reliability, incl. risk preparedness |
| [ ]  Implement network tariffs that promote flexibility and ncentivize consumer behaviour to reduce grid costs |
| [ ]  Improve access to participation and remuneration of flexibility services |
| [ ]  Increase grid capacity and enable timely connections |
| [ ]  Promote the deployment of electricity storage coupled with charging points |
| [ ]  Other (please specify) |
| [ ]  N/A |

**Other (please specify): Specifica altro**

**Part 4 - Electrification of heating and cooling in industry and buildings**

**4.A - Scope**

**1. Most relevant technologies for the affordable decarbonisation of heating towards 2040**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | For space heating (individual) | For space heating (collective/large) | For district heating | For industrial heat below 200°C | For industrial heat between 200°C and 500°C | For industrial heat above 500°C |
| Air-source heat pump | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Ground-source heat pump | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Deep geothermal | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Waste heat | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Solar heat | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Cogeneration using renewable energy | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Biomass | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Biomethane | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Hydrogen | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Electric boiler | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Other electric solutions | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Small modular nuclear | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Carbon capture and storage | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| Other (please specify) | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |
| N/A | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   | [ ]   |

**4.B - Barriers (buildings)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Residential heating and cooling in individual dwellings | Collective residential heating and cooling in apartment buildings | Non-residential building heating and cooling (public or private) |
| Administrative/regulatory barriers | [ ]   | [ ]   | [ ]   |
| High financing costs | [ ]   | [ ]   | [ ]   |
| High initial investment | [ ]   | [ ]   | [ ]   |
| High operational costs | [ ]   | [ ]   | [ ]   |
| Infrastructure-related barriers | [ ]   | [ ]   | [ ]   |
| Insufficient awareness of or trust in solutions | [ ]   | [ ]   | [ ]   |
| Lack of fit-for-purpose or easily available and affordable technologies | [ ]   | [ ]   | [ ]   |
| Lack of incentives for landlord and/or tenant in the case of rental | [ ]   | [ ]   | [ ]   |
| Skills-related barriers | [ ]   | [ ]   | [ ]   |
| Technical barriers | [ ]   | [ ]   | [ ]   |
| Other (please specify) | [ ]   | [ ]   | [ ]   |
| N/A | [ ]   | [ ]   | [ ]   |

**3. Please elaborate on one key barrier to the affordable electrification of heating and cooling in buildings in the EU: Max 300 caratteri**

**4. Barriers to affordable electrification of industry**

|  |  |  |  |
| --- | --- | --- | --- |
|  | For industrial heat below 200°C | For industrial heat between 200°C and 500°C | For industrial heat above 500°C |
| Infrastructure-related barriers | [ ]   | [ ]   | [ ]   |
| High capital cost | [ ]   | [ ]   | [ ]   |
| High operational costs | [ ]   | [ ]   | [ ]   |
| High financing costs | [ ]   | [ ]   | [ ]   |
| Lack of access to clean energy contracts, including PPAs | [ ]   | [ ]   | [ ]   |
| Length of permitting processes | [ ]   | [ ]   | [ ]   |
| Lack of flexibility of industrial process | [ ]   | [ ]   | [ ]   |
| Difficulties to adapt industrial process | [ ]   | [ ]   | [ ]   |
| Impact on competitiveness vis-à-vis EU competitors | [ ]   | [ ]   | [ ]   |
| Impact on competitiveness vis-à-vis international competitors | [ ]   | [ ]   | [ ]   |
| Lack of technology adapted to specific needs | [ ]   | [ ]   | [ ]   |
| Lack of operational standards adapted to specific needs | [ ]   | [ ]   | [ ]   |
| Insufficient awareness or trust in solutions | [ ]   | [ ]   | [ ]   |
| Other (please specify) | [ ]   | [ ]   | [ ]   |
| N/A | [ ]   | [ ]   | [ ]   |

**5. Please elaborate on one key barrier to the affordable electrification of industry in the EU: Max 300 caratteri**

**4.C - Policy options**

**5.1 EU policy framework (seleziona 1-3 per colonna)**

|  |  |  |
| --- | --- | --- |
|  | For space heating | For industrial processes |
| Adaptation of current legislative framework (towards 2030) | [ ]   | [ ]   |
| Additional policy initiatives (non-regulatory) | [ ]   | [ ]   |
| Additional public financing | [ ]   | [ ]   |
| Implementation of the current EU regulatory framework | [ ]   | [ ]   |
| New legislative framework (towards 2040) | [ ]   | [ ]   |
| Other (please specify) | [ ]   | [ ]   |
| N/A | [ ]   | [ ]   |

Other (please specify): Specifica altro

**5.2 Policy design, targets and support schemes (seleziona 1-3 per colonna)**

|  |  |  |
| --- | --- | --- |
|  | For space heating | For industrial processes |
| Faster and simpler permitting | [ ]   | [ ]   |
| Improved statistics, long-term projections, decarbonisation pathways | [ ]   | [ ]   |
| Legislative limits for the use of fossil fuels or combustion | [ ]   | [ ]   |
| Taxation of fuels used in heating and cooling | [ ]   | [ ]   |
| Taxation of gaseous and solid emissions from heat generators | [ ]   | [ ]   |
| Technology-specific targets | [ ]   | [ ]   |
| Other (please specify) | [ ]   | [ ]   |
| N/A | [ ]   | [ ]   |

**Other (please specify): Specifica altro**

**5.3 Energy system design (seleziona 1-3 per colonna)**

|  |  |  |
| --- | --- | --- |
|  | For space heating | For industrial processes |
| Cooperation between electricity grid operators and district heating and cooling systems | [ ]   | [ ]   |
| Integrated planning of electricity, gas and heat infrastructure at EU level | [ ]   | [ ]   |
| Integrated planning of electricity, gas and heat infrastructure at national level | [ ]   | [ ]   |
| Integrated planning of electricity, gas and heat infrastructure at local level | [ ]   | [ ]   |
| Mapping of future cooling needs | [ ]   | [ ]   |
| Mapping of heat sources and demand at national level | [ ]   | [ ]   |
| Planned gas infrastructure decommissioning | [ ]   | [ ]   |
| Stronger integration of cooling in urban planning | [ ]   | [ ]   |
| Other (please specify) | [ ]   | [ ]   |
| N/A | [ ]   | [ ]   |

**Other (please specify): Specifica altro**

**5.4 Promotion of business models and innovation (seleziona 1-3 per colonna)**

|  |  |  |
| --- | --- | --- |
|  | For space heating | For industrial processes |
| Commitments by manufacturers of clean heating and cooling appliances and systems | [ ]   | [ ]   |
| Incentives for installers of clean heating and cooling appliances and systems | [ ]   | [ ]   |
| Incentives for manufacturers of clean heating and cooling appliances and systems | [ ]   | [ ]   |
| Promotion of replacement schemes or social leasing for heating appliances | [ ]   | [ ]   |
| Promotion of third-party services | [ ]   | [ ]   |
| Rewarding of non-fossil flexibility in electricity markets | [ ]   | [ ]   |
| Support for innovation | [ ]   | [ ]   |
| Support for manufacturing of clean heating and cooling technologies | [ ]   | [ ]   |
| Other (please specify) | [ ]   | [ ]   |
| N/A | [ ]   | [ ]   |

Other (please specify): Specifica altro

**5.5 Affordability, just transition and consumer empowerment (seleziona 1-3 per colonna)**

|  |  |  |
| --- | --- | --- |
|  | For space heating | For industrial processes |
| Information tools: further improvement of energy labelling of heating and cooling appliances | [ ]   | [ ]   |
| Promotion of renewable heat communities | [ ]   | [ ]   |
| Protection of energy poor and vulnerable consumers | [ ]   | [ ]   |
| Support for demonstration projects | [ ]   | [ ]   |
| Support for skills | [ ]   | [ ]   |
| Targeted programmes for specific regions (e.g. coal regions in transition, outermost regions) | [ ]   | [ ]   |
| Other (please specify) | [ ]   | [ ]   |
| N/A | [ ]   | [ ]   |

**Other (please specify): Specifica altro**