

Open public consultation - Questionnaire on the electrification action plan

Fields marked with * are mandatory.

Introduction

About you

* Language of my contribution

- Bulgarian
- Croatian
- Czech
- Danish
- Dutch
- English
- Estonian
- Finnish
- French
- German
- Greek
- Hungarian
- Irish
- Italian
- Latvian
- Lithuanian
- Maltese
- Polish
- Portuguese

- Romanian
- Slovak
- Slovenian
- Spanish
- Swedish

* I am giving my contribution as

- Academic/research institution
- Business association
- Company/business
- Consumer organisation
- EU citizen
- Environmental organisation
- Non-EU citizen
- Non-governmental organisation (NGO)
- Public authority
- Trade union
- Other

* First name

Marlon

* Surname

Hilden

* Email (this won't be published)

hilden.marlon@dihk.de

* Organisation name

255 character(s) maximum

Deutsche Industrie- und Handelskammer | German Chamber of Commerce and Industry

* Organisation size

- Micro (1 to 9 employees)
- Small (10 to 49 employees)
- Medium (50 to 249 employees)
- Large (250 or more)

Transparency register number

Check if your organisation is on the transparency register. It's a voluntary database for organisations seeking to influence EU decision-making.

22400601191-42

* Country of origin

Please add your country of origin, or that of your organisation.

This list does not represent the official position of the European institutions with regard to the legal status or policy of the entities mentioned. It is a harmonisation of often divergent lists and practices.

- | | | | |
|---|--|--|--|
| <input type="radio"/> Afghanistan | <input type="radio"/> Djibouti | <input type="radio"/> Libya | <input type="radio"/> Saint Martin |
| <input type="radio"/> Åland Islands | <input type="radio"/> Dominica | <input type="radio"/> Liechtenstein | <input type="radio"/> Saint Pierre and Miquelon |
| <input type="radio"/> Albania | <input type="radio"/> Dominican Republic | <input type="radio"/> Lithuania | <input type="radio"/> Saint Vincent and the Grenadines |
| <input type="radio"/> Algeria | <input type="radio"/> Ecuador | <input type="radio"/> Luxembourg | <input type="radio"/> Samoa |
| <input type="radio"/> American Samoa | <input type="radio"/> Egypt | <input type="radio"/> Macau | <input type="radio"/> San Marino |
| <input type="radio"/> Andorra | <input type="radio"/> El Salvador | <input type="radio"/> Madagascar | <input type="radio"/> São Tomé and Príncipe |
| <input type="radio"/> Angola | <input type="radio"/> Equatorial Guinea | <input type="radio"/> Malawi | <input type="radio"/> Saudi Arabia |
| <input type="radio"/> Anguilla | <input type="radio"/> Eritrea | <input type="radio"/> Malaysia | <input type="radio"/> Senegal |
| <input type="radio"/> Antarctica | <input type="radio"/> Estonia | <input type="radio"/> Maldives | <input type="radio"/> Serbia |
| <input type="radio"/> Antigua and Barbuda | <input type="radio"/> Eswatini | <input type="radio"/> Mali | <input type="radio"/> Seychelles |
| <input type="radio"/> Argentina | <input type="radio"/> Ethiopia | <input type="radio"/> Malta | <input type="radio"/> Sierra Leone |
| <input type="radio"/> Armenia | <input type="radio"/> Falkland Islands | <input type="radio"/> Marshall Islands | <input type="radio"/> Singapore |
| <input type="radio"/> Aruba | <input type="radio"/> Faroe Islands | <input type="radio"/> Martinique | <input type="radio"/> Sint Maarten |

- Australia
- Austria
- Azerbaijan
- Bahamas
- Bahrain
- Bangladesh

- Barbados
- Belarus
- Belgium
- Belize
- Benin
- Bermuda
- Bhutan

- Bolivia
- Bonaire Saint Eustatius and Saba
- Bosnia and Herzegovina
- Botswana
- Bouvet Island
- Brazil
- British Indian Ocean Territory
- British Virgin Islands
- Brunei
- Bulgaria

- Fiji
- Finland
- France
- French Guiana
- French Polynesia
- French Southern and Antarctic Lands
- Gabon
- Georgia
- Germany
- Ghana
- Gibraltar
- Greece
- Greenland
- Grenada
- Guadeloupe
- Guam
- Guatemala
- Guernsey
- Guinea
- Guinea-Bissau
- Guyana
- Haiti
- Heard Island and McDonald Islands

- Mauritania
- Mauritius
- Mayotte
- Mexico
- Micronesia
- Moldova
- Monaco
- Mongolia
- Montenegro
- Montserrat
- Morocco
- Mozambique
- Myanmar/Burma
- Namibia
- Nauru
- Nepal
- Netherlands
- New Caledonia
- New Zealand
- Nicaragua
- Niger
- Nigeria
- Niue

- Slovakia
- Slovenia
- Solomon Islands
- Somalia
- South Africa
- South Georgia and the South Sandwich Islands
- South Korea
- South Sudan
- Spain
- Sri Lanka
- Sudan
- Suriname
- Svalbard and Jan Mayen
- Sweden
- Switzerland

- Syria
- Taiwan
- Tajikistan
- Tanzania
- Thailand
- The Gambia
- Timor-Leste
- Togo

- Burkina Faso
- Burundi
- Cambodia
- Cameroon
- Canada
- Cape Verde
- Cayman Islands
- Central African Republic
- Chad
- Chile
- China
- Christmas Island
- Clipperton
- Cocos (Keeling) Islands
- Colombia
- Comoros
- Congo
- Cook Islands
- Costa Rica
- Côte d'Ivoire
- Croatia
- Cuba
- Curaçao
- Cyprus
- Honduras
- Hong Kong
- Hungary
- Iceland
- India
- Indonesia
- Iran
- Iraq
- Ireland
- Isle of Man
- Israel
- Italy
- Jamaica
- Japan
- Jersey
- Jordan
- Kazakhstan
- Kenya
- Kiribati
- Kosovo
- Kuwait
- Kyrgyzstan
- Laos
- Latvia
- Norfolk Island
- Northern Mariana Islands
- North Korea
- North Macedonia
- Norway
- Oman
- Pakistan
- Palau
- Palestine
- Panama
- Papua New Guinea
- Paraguay
- Peru
- Philippines
- Pitcairn Islands
- Poland
- Portugal
- Puerto Rico
- Qatar
- Réunion
- Romania
- Russia
- Rwanda
- Saint Barthélemy
- Tokelau
- Tonga
- Trinidad and Tobago
- Tunisia
- Türkiye
- Turkmenistan
- Turks and Caicos Islands
- Tuvalu
- Uganda
- Ukraine
- United Arab Emirates
- United Kingdom
- United States
- United States Minor Outlying Islands
- Uruguay
- US Virgin Islands
- Uzbekistan
- Vanuatu
- Vatican City
- Venezuela
- Vietnam
- Wallis and Futuna
- Western Sahara
- Yemen

- Czechia
- Lebanon
- Saint Helena
Ascension and
Tristan da Cunha
- Zambia
- Democratic
Republic of the
Congo
- Lesotho
- Saint Kitts and
Nevis
- Zimbabwe
- Denmark
- Liberia
- Saint Lucia

* Which sector or role best describes your core business or activity related to energy and electrification?

- Administration (planning, permitting, national or local administration)
- National regulatory agency
- Industry sector (energy consumer)
- Transport and e-mobility sector
- Transmission system operator (TSO)
- Distribution system operator (DSO)
- Energy utilities and providers
- Energy retailers
- Flexibility service provider / aggregator
- Energy communities and cooperatives
- Advisory services and energy service companies
- Finance and investment in energy
- Policy and advocacy
- NGO
- Power generation
- Energy storage providers
- Renewable energy developers
- Research and development
- Other (please specify)
- Not active in this field

* Other (please specify)

100 character(s) maximum

The Commission will publish all contributions to this public consultation. You can choose whether you would prefer to have your details published or to remain anonymous when your contribution is published. **For the purpose of transparency, the type of respondent (for example, 'business association, 'consumer association', 'EU citizen') country of origin, organisation name and size, and its transparency register number, are always published. Your e-mail address will never be published.** Opt in to select the privacy option that best suits you. Privacy options default based on the type of respondent selected

* Contribution publication privacy settings

The Commission will publish the responses to this public consultation. You can choose whether you would like your details to be made public or to remain anonymous.

Anonymous

Only organisation details are published: The type of respondent that you responded to this consultation as, the name of the organisation on whose behalf you reply as well as its transparency number, its size, its country of origin and your contribution will be published as received. Your name will not be published. Please do not include any personal data in the contribution itself if you want to remain anonymous.

Public

Organisation details and respondent details are published: The type of respondent that you responded to this consultation as, the name of the organisation on whose behalf you reply as well as its transparency number, its size, its country of origin and your contribution will be published. Your name will also be published.

I agree with the [personal data protection provisions](#)

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?

Use drag&drop or the up/down buttons to change the order or accept the initial order.

⋮ Competitiveness

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

Other (please specify):

100 character(s) maximum

| |
|---|
| The point "Fairness, consumer protection, and empowerment" falls outside the mandate of the DIHK. |
|---|

1.B - Barriers

*2. What are the **key barriers** hampering electrification decisions **across all sectors**?

between 1 and 5 choices

- 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)

200 character(s) maximum

Additionally, price uncertainties, high operational costs, high upfront costs or delays to connection to the grid and insufficient capacity of the grid are key barriers to be addressed.

1.C - Policy options

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

* 3.1 EU policy framework

between 1 and 3 choices

- 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

between 1 and 3 choices

- 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)

200 character(s) maximum

A major obstacle to the decarbonization of commerce and industry is the availability, permit-granting time, and quality of grid connections. Flexibilization shouldn't be disincentivized via tariffs.

* 3.3 Access to grid and flexibility

between 1 and 3 choices

- 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
- Implement measures to ensure electricity system adequacy and reliability, incl. risk preparedness
- Implement network tariffs that promote flexibility and incentivise 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)

200 character(s) maximum

Opportunities for flexibility measures can be created for certain businesses, but these must not be at the expense of the commercial/industrial sector, which depends on a stable supply and base load.

* 3.4 Financing and investment

between 1 and 3 choices

- Increase availability of financial instruments to cover upfront costs
- Measures promoting simultaneously electrification and access to renewables, including through power purchase agreements (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

Part 2 - Flexibility: demand response and storage

2.A - Scope

* 1. What are the most relevant technologies and solutions for increasing **flexibility** in the energy system?

between 1 and 5 choices

Thermal storage (electrified heat)

Electrochemical storage (incl. stationary batteries and mobile batteries, electric vehicle (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)

200 character(s) maximum

Market-driven developments should encourage the most (cost-)efficient technologies and solutions. (Sub-) sectoral targets should be avoided.

2.B - Barriers

* 2. What are the **key barriers** to **demand response**?

between 1 and 5 choices

- 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 remuneration 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.

300 character(s) maximum

*4. What are the **key barriers** to the **deployment of storage solutions**?

between 1 and 5 choices

- 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 remuneration for the provision of services
- Length of permitting processes for storage

- Technical barriers
- Other (please specify)
- N/A

* Other (please specify)

200 character(s) maximum

Spatial availability should be considered as another barrier to storage solutions.

5. Please elaborate on key specific barriers to the deployment of storage solutions.

300 character(s) maximum

2.C - Policy options

6. What are the **priority policy options** for increasing the **flexibility** of the system?

* 6.1 **EU policy framework**

between 1 and 3 choices

- 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

* 6.2 **Policy design options**

between 1 and 3 choices

- 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)

200 character(s) maximum

Permitting procedures should be accelerated in general, without creating a special status for storage solutions with prioritized grid connection status.

* 6.3 Access to grid and flexibility

between 1 and 3 choices

- 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)

200 character(s) maximum

Demand flexibility is not possible in all industries. Feed-in tariffs could also incentivize producers to behave in a way that benefits the electricity system and networks.

* 6.4 Financing and investment/Promotion of business models and innovation

between 1 and 3 choices

- 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)

200 character(s) maximum

Complementary to demand-side flexibility measures, hedging obligations on the part of producers could be a way to achieve greater supply and price stability.

Part 3 - Electrification of transport

3.A - Barriers

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

300 character(s) maximum

The expansion of the charging infrastructure is an obstacle to the market ramp-up of electrification in the transport sector.

2. What are the **key barriers** specific to the **electrification of the road sector**?

Between 1 and 5 selections per column

at least 1 answered row(s)

| | For electric light-duty vehicles | For electric heavy-duty vehicles | For smart charging | For bidirectional charging |
|---|---|---|-------------------------------------|-------------------------------------|
| High operational costs linked to electricity | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Complexity of permitting procedures for the installation of recharging points | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Difficulties to secure an appropriate grid connection | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Lack of financial incentives (please specify at which level) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of cost-reflective network charges | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of deployment of smart meters | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of interoperability (please specify at which level) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Low technological maturity | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| Lack of consistent standards in both the charging infrastructure and the vehicles | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of certified metering dedicated to vehicle-to-grid (V2G) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of access to markets for small and mobile assets/local flexibility markets | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Need for common technical requirements for grid connection | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Double taxation for storage | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Insufficient in-vehicle data sharing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of awareness and behavioural resistance/social acceptance | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (please specify) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| N/A | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

3.B - Policy options

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

*3.1 EU policy framework

between 1 and 3 choices

- 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)

200 character(s) maximum

The policy framework should largely be limited to market-based and technology-neutral mechanisms such as ETS II. Further measures may include the development of infrastructure to ramp up the market.

* 3.2 General policy design measures

between 1 and 3 choices

- 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

* 3.3 Access to grid and flexibility

between 1 and 3 choices

- 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
- Implement measures to ensure electricity system adequacy and reliability, incl. risk preparedness
- Implement network tariffs that promote flexibility and incentivise 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)

200 character(s) maximum

Supporting system optimization should be primarily supported via grid-supportive behavior of market participants.

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

4.A - Scope

1. What are the most relevant technologies for the **affordable decarbonisation of heating** towards 2040?

Between 1 and 5 selections per column

at least 1 answered row(s)

| | 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 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ground-source heat pump | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Deep geothermal | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Waste heat | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Solar heat | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cogeneration using renewable energy | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Biomass | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Biomethane | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Hydrogen | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Electric boiler | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other electric solutions | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | | | | | |
|----------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Small modular nuclear | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Carbon capture and storage | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (please specify) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| N/A | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

* Other (please specify)

200 character(s) maximum

Solutions for decarbonizing the economy should be technology-neutral and exclude preferential predeterminations. Carbon pricing should incentivize cost-efficient solutions.

4.B - Barriers

2. What are the key specific **barriers** to the **affordable electrification of heating and cooling in buildings?**

Between 1 and 5 selections per column

at least 1 answered row(s)

| | 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 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| High financing costs | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| High initial investment | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| High operational costs | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Infrastructure-related barriers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Insufficient awareness of or trust in solutions | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of fit-for-purpose or easily available and affordable technologies | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lack of incentives for landlord and/or tenant in the case of rental | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Skills-related barriers | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Technical barriers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (please specify) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| N/A | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

3. Please elaborate on one key barrier to the affordable electrification of heating and cooling in buildings in the EU.

300 character(s) maximum

In addition to the electrification of heating and cooling supply, other technological and cost-efficient solutions should be treated equally within the EU regulatory framework. These might include, combined heat and power generation, biomass, decarbonized gases and others.

4. What are the key specific **barriers** to the **affordable electrification of industry**?
Between 1 and 5 selections per column

at least 1 answered row(s)

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

| | | | |
|-----|--------------------------|--------------------------|--------------------------|
| N/A | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|-----|--------------------------|--------------------------|--------------------------|

***Other (please specify)**

200 character(s) maximum

For all categories high capital and operational costs, difficulties to adapt industrial process impact on competitiveness vis-a-vis EU competitors apply as barriers to electrification measures.

5. Please elaborate on one key barrier to the affordable electrification of industry in the EU.

300 character(s) maximum

In the commercial and industrial sector in particular, electrification measures and production methods can be more cost-intensive than those of international competitors with significantly lower energy costs.

4.C - Policy options

5. What are the **priority policy options for accelerating the **affordable electrification of heating and cooling in industry and buildings**?**

5.1 EU policy framework

Between 1 and 3 selections per column

at least 1 answered row(s)

| | For space heating | For industrial processes |
|--|-------------------------------------|-------------------------------------|
| Adaptation of current legislative framework (towards 2030) | <input type="checkbox"/> | <input type="checkbox"/> |
| Additional policy initiatives (non-regulatory) | <input type="checkbox"/> | <input type="checkbox"/> |
| Additional public financing | <input type="checkbox"/> | <input type="checkbox"/> |
| Implementation of the current EU regulatory framework | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| New legislative framework (towards 2040) | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (please specify) | <input type="checkbox"/> | <input type="checkbox"/> |
| N/A | <input type="checkbox"/> | <input type="checkbox"/> |

5.2 Policy design, targets and support schemes

Between 1 and 3 selections per column

at least 1 answered row(s)

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

5.3 Energy system design

Between 1 and 3 selections per column

at least 1 answered row(s)

| | For space heating | For industrial processes |
|---|-------------------------------------|-------------------------------------|
| Cooperation between electricity grid operators and district heating and cooling systems | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Integrated planning of electricity, gas and heat infrastructure at EU level | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Integrated planning of electricity, gas and heat infrastructure at national level | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Integrated planning of electricity, gas and heat infrastructure at local level | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Mapping of future cooling needs | <input type="checkbox"/> | <input type="checkbox"/> |
| Mapping of heat sources and demand at national level | <input type="checkbox"/> | <input type="checkbox"/> |
| Planned gas infrastructure decommissioning | <input type="checkbox"/> | <input type="checkbox"/> |
| Stronger integration of cooling in urban planning | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (Please specify) | <input type="checkbox"/> | <input type="checkbox"/> |
| N/A | <input type="checkbox"/> | <input type="checkbox"/> |

5.4 Promotion of business models and innovation

Between 1 and 3 selections per column

at least 1 answered row(s)

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

* Other (please specify)

200 character(s) maximum

The market design should incentivize generators' flexibilization, too. If demand-side non-fossil flexibility is rewarded, it should be done via network tariffs.

5.5 Affordability, just transition and consumer empowerment

Between 1 and 3 selections per column

at least 1 answered row(s)

| | For space heating | For industrial processes |
|--|--------------------------|---------------------------------|
| Information tools: further improvement of energy labelling of heating and cooling appliances | <input type="checkbox"/> | <input type="checkbox"/> |
| Promotion of renewable heat communities | <input type="checkbox"/> | <input type="checkbox"/> |
| Protection of energy poor and vulnerable consumers | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|---|-------------------------------------|-------------------------------------|
| Support for demonstration projects | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Support for skills | <input type="checkbox"/> | <input type="checkbox"/> |
| Targeted programmes for specific regions (e.g. coal regions in transition, outermost regions) | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (Please specify) | <input type="checkbox"/> | <input type="checkbox"/> |
| N/A | <input type="checkbox"/> | <input type="checkbox"/> |

Contact

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