International Organization for Standardization
Organisation internationale de normalisation
Международная организация по стандартизации

FORM 1:
PROPOSAL FOR A NEW FIELD OF TECHNICAL ACTIVITY

Circulation date 2021-09-15 **Closing date for voting** 2021-12-08	**Reference number:** Enter Number (to be given by ISO Central Secretariat)
Proposer SAC	**ISO/TS/P 301**

A proposal for a new field of technical activity shall be submitted to the ISO Central Secretariat, which will assign it a reference number and process the proposal in accordance with the ISO/IEC Directives Part 1, Clause 1.5. The proposer may be a member body of ISO, a technical committee, subcommittee or project committee, the Technical Management Board or a General Assembly committee, the Secretary-General, a body responsible for managing a certification system operating under the auspices of ISO, or another international organization with national body membership. Guidelines for proposing and justifying a new field of technical activity are given in the ISO/IEC Directives Part 1, Annex C.

Proposal (to be completed by the proposer)

Title of the proposed new committee (The title shall indicate clearly yet concisely the new field of technical activity which the proposal is intended to cover). Heat Supply Network (HSN)
Scope statement of the proposed new committee (The scope shall precisely define the limits of the field of activity. Scopes shall not repeat general aims and principles governing the work of the organization but shall indicate the specific area concerned). Standardization in the field of HSN including design, construction, integration, control and regulation based on heating supply pipeline system Exclude: Standardization of heat sources and space heating systems covered by ISO/TC 11 Boilers and pressure vessels – STANDBY, ISO/TC 86 Refrigeration and air-conditioning, ISO/TC 163 Thermal performance and energy use in the built environment, ISO/TC 205 Building environment design, ISO/TC 267 Facility management, ISO/TC 268 Sustainable cities and communities, ISO/TC 301 Energy management and energy savings, and IEC SyC Smart Cities, IEC SyC Smart Energy. Note 1: Where appropriate, the ISO/TC Heat Supply Network (HSN) works in cooperation with existing committees on subjects that may support the heat supply network.

■ **The proposer has checked whether the proposed scope of the new committee overlaps with the scope of any existing ISO committee**

☐ **If an overlap or the potential for overlap is identified, the affected committee has been informed and consultation has taken place between proposer and committee on**
- **i. modification/restriction of the scope of the proposal to eliminate the overlap,**
- **ii. potential modification/restriction of the scope of the existing committee to eliminate the overlap.**

☐ **If agreement with the existing committee has not been reached, arguments are presented in this proposal (under question 7) as to why it should be approved.**

Proposed initial programme of work. (The proposed programme of work shall correspond to and clearly reflect the aims of the standardization activities and shall, therefore, show the relationship between the subject proposed. Each item on the programme of work shall be defined by both the subject aspect(s) to be standardized (for products, for example, the items would be the types of products, characteristics, other requirements, data to be supplied, test methods, etc.). Supplementary justification may be combined with particular items in the programme of work. The proposed programme of work shall also suggest priorities and target dates.)

The standardization of heat supply network is a systematic project, especially related to decarbonization, which needs a long time to complete. Therefore, as a priority and to promote HSN, the work of the new ISO / TC shall firstly focus on, but is not limited to the development of the following international standards:

1. ISO “heat supply network: terminology”.
2. ISO “Guideline on designing heat supply network”.
3. ISO “Technical specification for the operation and maintenance of heat supply network”.
4. ISO “Basic requirement for control and regulation of heat supply network”

Indication(s) of the preferred type or types of deliverable(s) to be produced under the proposal (This may be combined with the "Proposed initial programme of work" if more convenient).

Under this proposed TC, new international standards will be developed and published as International Standards (ISs), Technical Specifications (TSs) or Technical Reports (TRs) in line with the technology advancement, market needs and target users.

A listing of relevant existing documents at the international, regional and national levels. (Any known relevant document (such as standards and regulations) shall be listed, regardless of their source and should be accompanied by an indication of their significance.)

The variety of standards for HSN exists on regional, national and industry specific levels, while the consensus-based international requirements are absent.

The relevant existing documents are:

China (GB is national standard, CJJ is sector standard)

GB/T 28185-2011 Urban heating unit with heat exchanger
GB/T 33833-2017 Urban heat service
GB/T 34617-2017 Evaluation method of energy consumption for district heating system
GB/T 37261-2018 Ball joint compensator for district heating system
GB/T 38588-2020 In-situ measurements of heat loss of insulating pipes for urban heat-supplying
GB51131-2016 Technical code for gas-fired combined cooling, heating and power engineering
GB/T50893-2013 Technical code for retrofitting of heating system on energy efficiency
CJJ/T55-2011 Standard for terminology of heating
CJJ/T34-2010 Design code for city heat supply network
CJJ28-2014 Code for construction and acceptance of heating pipelines
CJJ 88-2014 Technical specification for operation and maintenance of city heating system
CJJ203-2013 Technical regulation for emergency repair of district heating system

CEN
EN: 13941+A1: 2010 Design and installation of preinsulated bonded pipe systems for district heating
EN 253:2009+A2:2015 District heating pipes - Preinsulated bonded pipe systems for directly buried hot water networks - Pipe assembly of steel service pipe, polyurethane thermal insulation and outer casing of polyethylene
EN 448-2009 District heating pipes - Preinsulated bonded pipe systems for directly buried hot water networks - Fitting assemblies of steel service pipes, polyurethane thermal insulation and outer casing of polyethylene
EN 489: 2009 District heating pipes - Preinsulated bonded pipe systems for directly buried hot water networks - Joint assembly for steel service pipes, polyurethane thermal insulation and outer casing of polyethylene
EN 14419: 2009 District heating pipes - Preinsulated bonded pipe systems for directly buried hot water networks - Surveillance systems
EN 15632-1: 2009+A1: 2015 District heating pipes - Pre-insulated flexible pipe systems - Part 1: Classification, general requirements and test methods
EN 15632-2: 2010+A1: 2015 District heating pipes - Pre-insulated flexible pipe systems - Part 2: Bonded plastic service pipes - Requirements and test methods
EN 15632-3: 2010+A1: 2015 District heating pipes - Pre-insulated flexible pipe systems - Part 3: Non bonded system with plastic service pipes; requirements and test methods
EN 15632-4: 2010+A1: 2009 District heating pipes - Pre-insulated flexible pipe systems - Part 4: Bonded system with metal service pipes; requirements and test methods

Denmark
Technical specification for directly buried pipelines

Poland
PN B01430-1990 Heating Installations of central heating Terminology
PN B10405-1991 District heat supply networks. Specifications and tests

Russia
Technical operating code for heating engineering and heating apparatus
СНиП41-02-2003 Heating network
GOST R 55596-2013 District heating systems. Standard for the stress and seismic analysis
GOST R 58097-2018 Flexible reinforced plastic pipes with thermal insulation and fittings for them for district heating and water-supply networks. General specifications

Korea
KS F 2823:2006 Method of testing to determine the thermal properties of insulated heating tubes (hot water circulation procedure)

Turkey
TS 13282-2007 Installer of central heating
TS 2164/T3-2011 Principles for the Preparation of the Projects of the Central Heating Systems

International standards on plastic piping systems developed by ISO/TC 138
International standards on solar heating developed by ISO/TC 180/SC 4

A statement from the proposer as to how the proposed work may relate to or impact on existing work, especially existing ISO and IEC deliverables. (The proposer should explain how the work differs from apparently similar work, or explain how duplication and conflict will be minimized. If seemingly similar or related work is already in the scope of other committees of the organization or in other organizations, the proposed scope shall distinguish between the proposed work and the other work. The proposer shall indicate whether his or her proposal could be dealt with by widening the scope of an existing committee or by establishing a new committee.)

The proposed new field of technical activities on HSN will complement and strengthen existing ISO activities and successful industry initiatives to clean energy transition, infrastructure and etc. in line with ISO STRATEGY 2030 and UN SDGs. The proposed TC will provide an opportunity to widely apply the relevant ISO standards in the form of integrated solution of HSN.

Based on the analysis, the HSN standards program falls outside the scope of relevant, existing TCs, namely ISO/TC 11 Boilers and pressure vessels – STANDBY, ISO/TC 86 Refrigeration and air-conditioning, ISO/TC 163 Thermal performance and energy use in the built environment, ISO/TC 205 Building environment design, ISO/TC 267 Facility management, ISO/TC 268 Sustainable cities and communities, ISO/TC 301 Energy management and energy savings, and IEC SyC Smart Cities, IEC SyC Smart Energy and any other technical committees.

The successful delivery of a holistic HSN standardization program therefore requires a new committee, and dedicated committee support, which brings together all stakeholders. By establishing liaisons with relevant technical committees and its related SCs, any potential overlap or duplication could be managed and minimized. Engagement will be put in place to ensure effective collaboration among ISO and IEC technical committees and other interested members in moving related activities forward.

Standards on sustainability of civil engineering works, developed by TC 59/SC 17, will be referred to as relevant.

A listing of relevant countries where the subject of the proposal is important to their national commercial interests.

The proposed standards program has good geographic representative from Asia, Europe with diverse economic and climatic situations. Denmark, Sweden, Finland, Norway, Germany, Poland and other ISO members, such as Russia and South Korea, have a lot of practices on this field.

A holistic standards program for HSN at the ISO level will help to support the global efforts on low carbon, energy conservation, supportive and safe (LESS)- in line with sustainable development goals, thereby delivering significant benefits, including:

- Through the standardization of HSN design, operation and product energy-saving technology, the heat transfer loss can be reduced;
- Through the standardization of HSN safety technology, the operation reliability of heat supply network can be improved;
- HSN standardization can improve the compatibility and efficiency of industrial waste heat and renewable energy, and achieve the goal of green and low carbon;
- Through the standardization of HSN, the control and regulation level of heating pipe network is improved by Internet of things and information communication technology.
- Improve the operation mechanism and business model through HSN to promote the development of low-carbon economy.

We expect other related National Standards Bodies to join the new ISO/TC if created.

A listing of relevant external international organizations or internal parties (other ISO and/or IEC committees) to be engaged as liaisons in the development of the deliverable(s). (In order to avoid conflict with, or duplication of efforts of, other bodies, it is important to indicate all points of possible conflict or overlap. The result of any communication with other interested bodies shall also be included.)

To be engaged as liaisons or to be kept informed during the development of the proposed new TC standards:
ISO/TC 11 Boilers and pressure vessels – STANDBY
TC 59/SC 17 Sustainability in buildings and civil engineering works
ISO/TC 86 Refrigeration and air-conditioning
TC 138 Plastics pipes, fittings and valves for the transport of fluids
ISO/TC 163Thermal performance and energy use in the built environment
ISO/TC 180, especially SC 4 about solar heating
ISO/TC 205 Building environment design
ISO/TC 267 Facility management
ISO/TC 268 Sustainable cities and communities and SC1 on smart community infrastructures
ISO/TC 301 Energy management and energy savings
IEC SyC Smart Cities
IEC SyC Smart Energy

A simple and concise statement identifying and describing relevant affected stakeholder categories (including small and medium sized enterprises) and how they will each benefit from or be impacted by the proposed deliverable(s).

This proposed work program would be designed to meet the needs of different stakeholders including heat supply planners, regulators, utilities, companies, infrastructure companies, service companies, and consumers for standardized terminology, technology and supporting tools of HSN.

The standardization of HSN would also enhance ongoing international effort by the international organizations and national governments to accelerate clean energy transition, infrastructure and etc. aligning with sustainable development goals.

More specifically, the proposal will support HSN providers to supply modern, clean and affordable heat as a priority in their agenda of economic and social development.

It will also provide assurance to global stakeholders, particularly the related service providers and consumers of the credibility of HSN technologies.

An expression of commitment from the proposer to provide the committee secretariat if the proposal succeeds.

China will provide secretariat for this new TC if the proposal is approved.

Purpose and justification for the proposal. (The purpose and justification for the creation of a new technical committee shall be made clear and the need for standardization in this field shall be justified. Clause C.4.13.3 of Annex C of the ISO/IEC Directives, Part 1 contains a menu of suggestions or ideas for possible documentation to support and purpose and justification of proposals. Proposers should consider these suggestions, but they are not limited to them, nor are they required to comply strictly with them. What is most important is that proposers develop and provide purpose and justification information that is most relevant to their proposals and that makes a substantial business case for the market relevance and the need for their proposals. Thorough, well-developed and robust purpose and justification documentation will lead to more informed consideration of proposals and ultimately their possible success in the ISO IEC system.)

At present, on the one hand, human beings are actively responding to the threat and challenge brought by extreme climate change, especially extreme cold weather, on the other hand, they are actively promoting carbon reduction and net zero emission, and constantly building multi-dimensional sustainable development path such as society, economy and environment. These are the goals of the United Nations Sustainable Development and the direction of development raised by the Paris Agreement. As one of the important factors, the quality improvement and efficiency of heating network can not be ignored.

The heating network is the pipeline system which efficiently transmit and distribute heat energy from heat source to the users. The safety and normal operation of the heating network maintain the normal production and life of urban and rural residents. With the development and application of information and communication technology, the composition and environment of modern heating network are becoming more and more complex. As a vital infrastructure for the construction and development of modern life, heating network has also met the incentives and challenges in economic, technological, social and environmental aspects, which will be transformed in this global transformation. We will carry out the standardization of heating network to reduce heat transmission loss through the standardization of design, operation and product energy-saving technology, to improve the compatibility and efficiency of industrial waste heat, to improve the control and regulation level of heating pipe network, therefore help to achieve the goal of low carbon, energy saving, supportive and safety.

With the establishment of large thermal power plants and nuclear power plants, the distance of heat energy transmission is getting furtherer and furtherer, and the pipe diameter is also increasing bigger and bigger. Therefore, countries generally adopt indirect heating system on a large scale, and long-distance transmission pipelines with high temperature circulating water. Berlin has built a combined network operation system including seven thermal power plants. A combined network system has been built in Copenhagen, Denmark, including thermal power plants, waste incineration plants and peak boiler rooms. The total length of heating network has reached 392,9000 km in China. Technologies such as long-distance heat supply network, large-scale heating transmission and distribution system by distributed water pump, direct-buried pipeline laying, pipeline leakage detection based on distributed optical fiber are playing important role in the construction and operation of the heating network in China. With the emerging of new

technologies and new equipment, the compatibility of multi-type heat sources and heat users, lower transmission loss and two-way operation network mechanism have become the new tendencies. Promote the development of heating network by standardization will not only accelerate the sustainable industrialization and innovation, but also help to build inclusive, safe and disaster resistant infrastructure.

At present, there is no HSN directive related technical committees in ISO, IEC, or at the level of international organizations. In addition, in the development of relevant standards for heating network, technical committees related to "heating" in ISO, such as ISO/TC1 1 boiler and pressure vessel (suspension), ISO/TC 86 refrigeration and air conditioning, thermal performance and energy utilization in ISO/TC 163 building environment, ISO/TC 205 architectural environment design, ISO/TC 267 facility management, ISO/TC 268 sustainable cities and communities, ISO/TC 301 energy management and energy savings are not directly related to the standardization of HSN. The standardization of HSN will be planned as a whole, and develop more suitable standards for the actual, targeted and practical demand.

To carry out the standardization of HSN, we will ask for ISO family members' support and invite all related members to participate jointly and actively. By summarizing best practices, we will promote the quality and efficiency of HSN, and we will achieve the goal of "ISO standards used everywhere" better, and support the realization of ISO 2030 strategy, Paris Agreement and the sustainable development goals of the United Nations.

Signature of the proposer
SAC

Further information to assist with understanding the requirements for the items above can be found in the Directives, Part 1, Annex C.