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Final methodology supporting WP3 Solution 2 – Regional H2 Competence Centres, documented under D.3.2.2 (Report on H2CE Solutions). The methodology is the same as in the October 2025 Guide.

Editorial clarification – November 2026

The document presentation and WP references were clarified in response to the ▫oint Secretariat's ▫AR3 verification comments. No substantive changes were made to the methodology finalised in March 2026.

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1. Introduction to the Competence Center in Zagreb

The Zagreb Energy Centre (ZEC), also known as the Physical Competence Centre for Hydrogen and Sustainable Energy, was officially opened in May 2025 during the implementation of the H2CE – Empowering H_2-Ready Regions in Central Europe project. The Centre represents one of the project's key outputs (solutions), established by the City of Zagreb to provide citizens, businesses, and institutions with comprehensive information, education, and support in the fields of hydrogen technologies, renewable energy, and the green transition.

Located in the heart of Zagreb at Maksimirska 51, the Centre is strategically positioned on the ground floor to ensure easy access for all citizens, including individuals with special needs and mobility challenges. Its central position, close to the City Administration and major administrative centres, symbolizes the City of Zagreb's strong commitment to addressing energy, environmental, and sustainability challenges.

The location is well connected by tram and bus lines, ensuring convenient access for stakeholders, citizens, and businesses. Its visibility and accessibility make it an ideal venue for educational programmes, public events, and professional gatherings related to hydrogen and sustainable energy.






Iskoristimo solarni potencijal Zagreba, zajedno!


Zagrebački Energetski Centar


Tvoj suputnik u zelenoj tranziciji!

The One-Stop Shop serves as an information and education hub within the H2CE project framework. It offers an informative corner where visitors can learn about:

- The H2CE – Empowering H_2-Ready Regions in Central Europe project,
- Hydrogen developments in Croatia,
- Relevant national documents and strategies adopted in the hydrogen and renewable energy fields,
- Key institutions and contacts in Croatia responsible for hydrogen-related activities.

The Centre's staff are members of the H2CE project team, highly knowledgeable about the project's objectives and the broader hydrogen ecosystem. They are available to provide accurate information and guidance to citizens, companies, and institutions.

The Zagreb Energy Centre is designed as a modern, flexible, and inspiring environment that fosters innovation, collaboration, and knowledge exchange in the areas of energy efficiency, renewable energy sources, hydrogen technologies, and sustainability. It serves as a venue for project presentations, workshops, training sessions, and professional events, connecting citizens, entrepreneurs, associations, researchers, and policymakers.

The unique atmosphere, combined with high-quality technical equipment and professional support, makes ZEC the ideal location for:

- Presenting innovative projects,
- Conducting educational and training programmes,
- Organizing meetings, panel discussions, and community events focused on energy transition and green initiatives.

What ZEC offers:

- Seating capacity for 50 participants (40 chairs and 10 bench seats):
  Flexible, high-quality furniture allows adaptation for various event formats.
- Conference table for up to 15 people:
  Suitable for coordination meetings, project working groups, or focus groups.
- Projector and laptop:
  Equipped for multimedia presentations, workshops, and lectures.
- Content promotion on five TVs and a projector:
  Five screens (three facing the shop window and two inside) enable simultaneous display of event announcements, logos, presentations, or promotional videos.

Upon entering, visitors are greeted at a reception desk where they can access introductory materials on the H2CE project and related sustainability initiatives. A small consultation area provides space for one-on-one meetings and personalized discussions. The presentation area, accommodating 10–20 participants, features a movable partition wall, allowing flexibility for workshops, seminars, and educational events. Modern audiovisual technology supports interactive and engaging presentations, while wall displays feature educational content and visuals about energy efficiency, renewable sources, and decarbonization strategies.The Competence Centre features a dedicated exhibition area that highlights cutting-edge energy technologies, with a focus on renewable energy, energy efficiency, and hydrogen solutions. The interior design thoughtfully integrates natural materials, neutral tones, and greenery, reflecting the Centre's commitment to sustainability. Wherever possible, existing furniture and fixtures have been repurposed, demonstrating an eco-conscious and resource-efficient approach to space management.

ZEC's online platform (https://zec.zagreb.hr/) serves as an extension of the physical Centre, providing a comprehensive and easily accessible gateway to all services offered. The website consolidates educational resources, consulting services, and practical guidance on hydrogen-related projects, renewable energy, energy efficiency, and climate adaptation. It also functions as a central hub for the latest news, updates,

and developments, including information on the H2CE project and other ongoing initiatives, ensuring that stakeholders remain informed about regional and European hydrogen and clean energy activities.

The Competence Centre plays a pivotal role in advancing Zagreb's clean energy transition, supporting decarbonization efforts, and raising public awareness of hydrogen and sustainable energy technologies. By connecting municipal authorities, research institutions, and local businesses, the Centre fosters collaboration, knowledge exchange, and innovation across the sustainability ecosystem. As the first of its kind in Croatia, the "Hydrogen Corner" has become a central meeting place for entrepreneurs, researchers, and public institutions. Serving both as a modern physical space and an online platform, the centre offers education, consulting, and practical support for hydrogen-related activities, as well as key information on national energy policy, energy efficiency, renewable energy, and climate adaptation.

Ultimately, ZEC embodies the City of Zagreb's vision of a knowledge-driven, sustainable, and hydrogen-ready future, representing a crucial step toward achieving climate neutrality, energy resilience, and a greener urban environment.

1.1. Establishment and purpose of Competence Centres for Hydrogen and Energy

Building on the successful establishment of the Competence Centre in Zagreb, the H2CE – Empowering H_2-Ready Regions in Central Europe project is developing a Solution Model — one of its key outputs — designed to serve as a replicable framework for other regions wishing to establish similar centres. This model builds upon the experiences, methodologies, and lessons learned from the Zagreb Energy Centre, ensuring that the approach can be adapted to different regional and institutional contexts across Central Europe.

The overarching goal of establishing Competence Centres for Energy is to provide structured, reliable, and practical support to local authorities, organizations, and communities engaged in the clean energy transition. These centres act as facilitators and enablers, helping stakeholders to overcome regulatory, financial, technical, and awareness-related barriers that often impede the implementation of energy and hydrogen projects.

The approach developed within H2CE promotes a systematic and transferable methodology for setting up and operating such centres. It provides a comprehensive framework that guides institutions through all stages of development — from concept design to operationalization and long-term management. The Solution Model will serve as a reference tool for project partners and other interested entities, enabling them to create their own Competence Centres that are aligned with local priorities and regional development strategies.

Before the establishment of any new centre, it is essential to conduct a thorough preparatory process to ensure that the initiative is both strategically relevant and sustainable. This includes:

- performing a market and stakeholder assessment to identify existing needs, capacities, and opportunities,
- defining the mission, scope, and thematic focus of the centre based on local and regional energy priorities,
- ensuring the necessary institutional, financial, and technical preconditions are in place,
- developing strategic partnerships with public authorities, academia, and the private sector, and
- preparing an effective communication and engagement plan to ensure visibility and active participation from citizens and stakeholders.

These preparatory steps are crucial for establishing a robust foundation that allows each centre to operate effectively, deliver measurable results, and contribute meaningfully to the broader goals of the green and digital transition.

In the subsequent chapter, a detailed step-by-step methodology will be presented, outlining the practical phases and actions required for setting up Competence Centres for Energy — from initial planning and capacity building to implementation and long-term operation.

By promoting this structured and adaptable model, the H2CE project aims to encourage the establishment of regional competence centres across Central Europe, fostering innovation, cooperation, and knowledge sharing, and thereby strengthening the region's collective capacity to advance a sustainable, low-carbon, and hydrogen-ready future.

1.2. Guide to establishing and operating a Competence Centre for Hydrogen and Energy

This practical guide is intended to help new centres develop into solution-oriented hubs, translating project knowledge and testing outcomes into real-world applications.

1.2.1. Defining the purpose, vision, and strategic mission

The first and most essential step in establishing a Competence Centre for Energy and Hydrogen is to define its core purpose, overarching vision, and strategic mission. A Competence Centre is not just an administrative office; it is a multifunctional hub designed to support regions, municipalities, industries, and citizens in navigating the energy transition. Its mission should align with national and regional energy strategies while addressing the practical needs of local stakeholders.

The vision of the Centre must emphasize its role as a "one-stop-shop" for expertise, resources, and guidance in sustainable energy, with a particular focus on hydrogen as part of a broader energy ecosystem. This includes renewable energy integration, energy efficiency, smart grids, sustainable mobility, and industrial decarbonization. By acting as a central coordination and knowledge hub, the Centre aims to accelerate the deployment of innovative technologies, foster cross-sectoral partnerships, and support the long-term development of low-carbon solutions.

A clearly defined mission ensures that all stakeholders—municipal authorities, private companies, research institutions, and citizens—understand the Centre's role as a reliable, neutral facilitator. This mission should also emphasize the Centre's dual strategic purpose: first, to catalyze regional innovation, education, and coordination in hydrogen and energy technologies; and second, to contribute to regional economic revitalization and green transformation through cross-sectoral collaboration.

1.2.2. Understanding the context and mapping the environment

Before implementing any services or activities, it is crucial to conduct a comprehensive analysis of the environment in which the Centre will operate. This involves evaluating institutional, regulatory, and economic frameworks, as well as existing energy infrastructure, local expertise, and technological capacity.

Understanding the regulatory context is particularly important for hydrogen projects, which often face complex permitting requirements, safety regulations, and compliance procedures. Similarly, mapping

local and national renewable energy initiatives, energy communities, and smart infrastructure projects helps identify knowledge and capacity gaps where the Centre can make the most impact.

The Centre must also assess barriers to energy innovation, including technical limitations, financial constraints, and administrative hurdles. Engaging in detailed consultations, surveys, and interviews with municipalities, businesses, research centers, and civil society allows the Centre to identify stakeholder priorities and expectations. This participatory approach ensures that the Centre's activities are demand-driven rather than top-down, increasing relevance and effectiveness.

Furthermore, understanding the operational scale is critical. In countries with strong regional governance, establishing regional competence centers with a coordinating national office may be most effective. In smaller regions, a single national Centre with potential satellite offices can suffice. The choice of scale determines staffing, infrastructure needs, and the design of service delivery.

1.2.3. Identifying stakeholders and assessing needs

A Competence Centre must be built around a clear understanding of its stakeholders and their specific requirements. Stakeholders may include municipal governments, private companies, industrial clusters, research institutions, energy communities, and individual citizens.

Stakeholder engagement is key to defining the Centre's services. Techniques such as interviews, workshops, consultations, and surveys help identify challenges, priorities, and expectations. For example, municipalities might require guidance on integrating renewable energy or hydrogen solutions into local energy systems. Industrial stakeholders may seek advice on hydrogen production, storage, and transport, while research centers may need partnerships for pilot projects or technology validation. Citizens and cooperatives often need support in understanding financing options and technical feasibility.

These insights form the foundation for prioritizing services and activities. The Centre's value lies in its ability to respond directly to these identified needs, creating practical, actionable support that empowers stakeholders to implement sustainable energy projects successfully.

1.2.4. Defining services and activities

Based on the analysis of context and stakeholder needs, the next step is to define the comprehensive portfolio of services the Centre will provide. These services should address technical, regulatory, financial, and educational aspects of energy projects, particularly hydrogen initiatives.

Regulatory and policy support: The Centre must help stakeholders navigate complex legal and administrative frameworks. This includes guidance on compliance with national and EU hydrogen regulations, safety standards, permitting processes, and energy community requirements. It also involves acting as an intermediary between local stakeholders and government authorities, identifying policy gaps, and advocating for improvements.

Technical expertise and deployment: The Centre should maintain a pool of experts in hydrogen production, storage, fuel cells, renewable energy integration, and smart grids. These experts can provide feasibility studies, techno-economic assessments, project development support, and on-site guidance for pilot projects or community-scale initiatives. This "expert pool" approach ensures access to specialized knowledge when needed without creating long-term dependencies.

Financial and investment guidance: Accessing capital is a major barrier to project implementation. The Centre should provide detailed information on national and EU funding opportunities, assist in developing viable business models, and connect stakeholders with potential financing partners.

Innovative financial mechanisms, including revolving funds, citizen investment models, and green bonds, should be explored to ensure sustainable investment.

Capacity-building and training: The Centre should organize structured training programs for municipal staff, engineers, entrepreneurs, and citizens. Topics may include hydrogen technologies, renewable energy systems, project finance, regulatory compliance, and community engagement. Collaborations with universities and vocational schools enhance the educational dimension and provide access to cutting-edge research.

Digital and IT Support: Developing a digital platform allows stakeholders to access self-service tools, resource libraries, funding databases, project tracking systems, and networking opportunities. The platform facilitates knowledge sharing, promotes collaboration, and enhances the Centre's visibility and accessibility.

Demonstration and innovation activities: The Centre should implement pilot projects that combine hydrogen and renewable energy technologies, showcasing practical applications in mobility, heating, and storage. Documenting these projects provides evidence-based best practices and policy recommendations for wider replication.

1.2.5. Space identification and resource optimization

Many municipalities already possess underutilized or vacant premises—former administrative offices, cultural centers, or public buildings. These can be repurposed into functional innovation centers with relatively low investment.

Key steps include:

- Inventory of public assets: Identify buildings suitable for renovation or adaptive reuse.
- Technical adaptation: Design modular spaces including training rooms, co-working areas, exhibition zones, and consultation offices.
- Sustainability upgrades: Apply energy efficiency measures and install renewable energy systems (solar PV, heat pumps, etc.).
- Symbolic positioning: Situate the Center in an accessible and visible location to signal openness and civic engagement.

The reuse of existing public infrastructure not only reduces investment costs but also demonstrates responsible resource management and alignment with the circular economy principles promoted by the European Union.

1.2.6. Securing sustainable financing

A Competence Centre requires a robust, diversified financing model to ensure long-term viability. During the start-up phase, funding may be drawn from EU programmes such as Horizon Europe, LIFE, the Innovation Fund, and Interreg Central Europe. National and regional public budgets, as well as private sector partnerships, can complement these sources.

As the Centre matures, self-sustaining revenue streams should be developed. Paid services like consultancy, training programs, certification, and project development support can generate income while core public-oriented services remain free. Participation in EU research and innovation projects, public-private partnerships, and service-based revenue generation strengthens financial resilience and allows continuous adaptation to evolving market needs.

1.2.7. Organizational structure and governance

Effective governance is essential to the Centre's success. The Centre should be structured to reflect its multi-stakeholder nature, typically comprising a lead institution (municipality, regional energy agency, or university), a governing board with representatives from government, academia, industry, and civil society, and an advisory council of experts in hydrogen and energy technologies.

The operational team must include a director, project managers, technical experts, financial specialists, communication professionals, and administrative staff. Regional offices or satellite centers may be necessary to ensure accessibility and local engagement. Coordination, internal communication, and workflow clarity are critical to maintain efficiency, consistency, and accountability. Regular meetings, shared digital systems, and transparent reporting mechanisms support strong operational governance.

1.2.8. Partnerships and collaboration

No Competence Centre can function in isolation. Collaboration across public authorities, private enterprises, research institutions, and civil society ensures relevance, credibility, and alignment with policy objectives. Universities and research centers provide scientific support, while private companies contribute expertise, facilities, and co-financing. International partnerships and European networks allow access to the latest knowledge, technological developments, and funding opportunities. Formal agreements, such as Memorandum of Understanding, help solidify long-term collaborations.

1.2.9. Digital and physical infrastructure

The Centre must integrate both physical and digital infrastructures. Physically, it requires a central reception, flexible meeting and training spaces, exhibition areas for hydrogen and renewable technologies, and co-working areas for innovators and entrepreneurs. Public visibility and accessibility reinforce its role as a community hub.

Digitally, the Centre should maintain a comprehensive online knowledge platform offering studies, best practices, funding databases, collaboration tools, and self-service project management resources. This dual infrastructure approach ensures the Centre can engage stakeholders efficiently and facilitate both local and remote collaboration.

1.2.10. Launching and implementing activities

The launch of the Centre should begin with pilot activities and public engagement. Small-scale demonstrations, such as hydrogen bus displays or fuel-cell microgrid projects, provide tangible examples of technologies in action. Educational programs, workshops, and certified training courses build capacity among staff, local authorities, and citizens. Networking events and cross-border knowledge exchanges with other European competence centers strengthen collaboration and foster innovation.

The Centre must also adopt a systematic approach to supporting stakeholders, guiding them through the project lifecycle—from initial contact and needs assessment, through technical, financial, and regulatory support, to feedback and evaluation. This ensures consistent, practical assistance that leads to concrete outcomes.

1.2.11. Communication and outreach

A strong communication strategy is essential for visibility and impact. The Competence Center should have a clear and recognizable identity, including a dedicated website and visual brand. The online portal should serve as a gateway to all services, knowledge materials, and project information.

Public engagement can take many forms: media campaigns, workshops, exhibitions, webinars, and participation in trade fairs. The Center should also establish partnerships with municipalities and regional governments to reach citizens more effectively. For example, hosting information stands at public events or running “energy roadshows” can increase awareness.

The tone of communication should always be practical and empowering, helping people understand not just the “why” of energy transition, but the “how” — how to access support, build projects, and benefit from clean energy.

1.2.12. Guide users through the process – “Take consumers by the hand”

The true value of a Hydrogen Competence Centre lies in its ability to accompany stakeholders throughout the entire project lifecycle — from the initial idea to successful implementation. Rather than providing fragmented information, the Centre ensures consistent, personalised, and practical support tailored to the specific needs of each user. The process typically begins when a stakeholder — such as a municipality, company, research institution, or community organisation — reaches out to the Competence Centre for guidance. This first contact serves as the entry point for collaboration.

The Centre then carries out a needs analysis, mapping the stakeholder’s objectives, challenges, and available resources. Based on this diagnosis, the Competence Centre assigns dedicated experts or project officers to provide targeted support. All activities are guided by the principle of empowerment rather than dependency — helping stakeholders build their own capacities to develop and manage hydrogen initiatives in the long term.

After the support process concludes, the Competence Centre should actively collect feedback and evaluate outcomes. This enables continuous learning and improvement, while also identifying best practices that can be shared across other regions and institutions.

Ultimately, the Hydrogen Competence Centre functions as a trusted partner and catalyst, ensuring that local actors can confidently navigate the complex pathway toward a hydrogen-ready and climate-neutral future.

1.2.13. Monitoring, evaluation, and continuous improvement

Monitoring and evaluation are critical to ensure the Centre’s accountability, effectiveness, and adaptability. Key performance indicators should track quantitative outcomes, such as the number of projects supported, funds mobilized, renewable capacity installed, and emissions reduced, as well as qualitative impacts, including stakeholder satisfaction, increased awareness, and strengthened cross-sector collaboration.

Regular reviews, annual reports, and transparent evaluation foster trust with funders, partners, and the public. Continuous learning, staff training, participation in European exchanges, and knowledge sharing ensure the Centre remains up-to-date with technological advancements, policy changes, and emerging market opportunities.

1.2.14. Learning from European examples and adapting to local conditions

Although One-Stop Shops (OSS) for energy communities are not fully equivalent to the concept of a Competence Centre, they share the same fundamental mission — empowering local actors, building capacity, and accelerating the transition towards a sustainable energy future. Their experiences across Europe provide valuable insights and replicable models that can guide the development of Hydrogen Competence Centres. In Belgium, *HomeGrade* and *Energiecentrale* have successfully provided citizens with integrated technical and financial guidance, helping to launch and scale local energy initiatives. In Bulgaria, the *Asenovgrad Energy Centre* demonstrates how smaller municipalities can establish effective community energy support structures with limited resources.

A particularly relevant and transferable example is Croatia's SHAREs One-Stop Shop (OSS) - HR: SHAREs coordinated by REGEA – North-West Croatia Regional Energy and ClimateAgency. The SHAREs OSS combines expert advisory services, community outreach, and financial guidance to empower citizens and municipalities to engage in collective energy projects. By offering tailored tools, templates, and mentoring, the initiative bridges the gap between community enthusiasm and technical or financial feasibility — a model that can directly inspire the design of hydrogen-focused competence centres.

Similarly, Italy's Agenzia per l'Energia e lo Sviluppo Sostenibile (AESS) and Spain's Osona Energia and *FAEN - Fundación Asturiana de la Energía* have demonstrated how local and regional agencies can act as catalysts for clean energy innovation and citizen engagement.

While these examples primarily focus on community energy, their operational principles — accessibility, stakeholder engagement, transparent governance, and financial facilitation — are highly transferable to the hydrogen sector.

A Hydrogen Competence Centre can build upon these proven models, adapting their methods to focus on hydrogen production, safety, innovation, and integration into broader sustainable **e**nergy systems. By combining European best practices with local adaptation, regions can develop centres that are both replicable and context-sensitive, serving as long-term engines of innovation, education, and resilience within the green transition.

1.2.15. Ensuring long-term sustainability and strategic impact

Ultimately, the Competence Centre must evolve from a project-based initiative into a self-sustaining institution. By combining public funding, revenue-generating services, and participation in international networks, the Centre can maintain long-term operations and continue to drive regional energy transition efforts.

Through the repurposing of existing public infrastructure, capacity-building, demonstration projects, and cross-sector collaboration, the Centre delivers tangible socio-economic benefits. These include job creation, regional revitalization, improved access to funding, and accelerated deployment of hydrogen and renewable energy technologies.

By operating within a broader sustainable energy framework, linking renewable generation, smart grids, energy efficiency, sustainable mobility, and circular economy principles, the Centre ensures that hydrogen is part of a coherent, integrated energy ecosystem. This holistic approach maximizes synergies and supports the EU's climate and energy objectives, including the Green Deal and REPowerEU.

Executive summary

The Competence Centre for Energy and Hydrogen is a transformative instrument that translates Europe's strategic energy and climate ambitions into practical local actions. Acting as a hub for knowledge, innovation, collaboration, and capacity-building, it connects municipalities, industries, research institutions, and citizens to drive the green transition.

By integrating hydrogen initiatives within a broader sustainable energy framework — encompassing renewable energy integration, energy efficiency, smart grids, and sustainable mobility — the Centre accelerates decarbonisation while strengthening regional economic and social resilience.

The transition to a climate-neutral Europe requires regions and local communities to build institutional capacities that can turn strategic visions into tangible outcomes. Within the Interreg Central Europe framework, the Competence Centre serves as a key instrument to achieve this goal — not as a single-purpose entity, but as a multifunctional innovation and capacity-building hub supporting the entire energy transition ecosystem.

Such Centres can often be established within existing municipal or regional facilities, revitalising underused public spaces and transforming them into community-oriented innovation environments. This approach enables local authorities to demonstrate leadership, optimise resources, and ensure long-term sustainability.

Through strategic planning, stakeholder engagement, sound governance, diversified financing, and continuous learning, regions across Central Europe can establish Competence Centres that become lasting engines of innovation, education, and sustainable development. Ultimately, these Centres embody the values of cooperation, inclusivity, and sustainability — creating a blueprint for a climate-neutral, hydrogen-ready future.