**Vision, definition and KPIs**

**Guidance**

The Smart Energy City leverages the *Smart City Vision* as a tool to help set the trajectory for an overall smarter city development. This development will encompass all social, economic and environmental aspects of sustainability, using these aspects as an overall goal of both the Smart Energy City and its key elements. The *Definition of a Smart Energy City* is the specific working definition of the TRANSFORM project centered on energy. The definition is broken down to a number of *Key Elements*, which needs to be achieved for a city to develop into a smart energy city.

Each key element is defined and then broken down into a number of *key performance indicator categories*. These categories are further clarified by a scale of development/progress. The indicators within each subject describes a qualitative development (in 4 levels), such as the development of a strategy

Once this data is tracked, a city will be able to define approximately where on the scale of development/progress it currently sits and see what is needed to further progress towards a fully integrated Smart Energy City. This exercise should to be driven by each individual city, as the definition and KPIs were developed to be used as a tool for each city to work towards becoming a Smart Energy City.[[1]](#footnote-1)

It should be noted that for all KPI categories, and KPI’s, the focus point is the City, or the municipality, and specifically, what actions the City has taken and what corresponding results have been achieved. In many cases it may be that the City does not have total decision making power but it has the ability to influence these decisions. If this is the case, it is assumed that the City is still able to set up strategies and initiate initiatives to fulfill the political visions and goals for the City.

It is the intention of this document that the City is able to decide which KPI categories it will use to track progress throughout the project. The City will select KPIs based on its own individual vision, goals, possibilities, and challenges etc. it has.

**Vision for the Smart City**

**A liveable, resilient city, which is inclusive, climate friendly, insight-driven and fosters innovation and a sustainable economy.**

**Definition of a Smart Energy City**

The Smart Energy City, as a core to the concept of the Smart City, provides its users with a liveable, affordable, climate-friendly and engaging environment that supports the needs and interests of its users and is based on a sustainable economy.

The Smart Energy City is highly energy and resource efficient, and is increasingly powered by renewable energy sources; it relies on integrated and resilient resource systems, as well as insight-driven and innovative approaches to strategic planning. The application of information, communication and technology are commonly a means to meet these objectives.

**Key elements of the overall Smart Energy City definition**

* + - * Resource system integration
      * Access to energy services
      * Resilience
      * Energy Efficiency
      * Renewable Energy
      * Active and engaged users
      * Sustainable Economy
      * Smart Governance

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| 1. **Key Element definition - Resource system integration**   Strategic physical and digital planning will look across resource flows to determine optimal energy and resource efficiency throughout city systems. The integration should cover physical, organizational and social aspects, working across vertical city systems to pin point and maximize value. The term which is used for this overall horizontal resource integration is integrated energy planning (IEP). Resource systems across energy, transport, waste and water are closely integrated, in both planning and day-to-day operation, and at many levels (citizens/users, operators, service providers, government and private sector). This integration allows for an improved level of service to users, reduced consumption of resources, and an increased quality of life among other benefits. Data can be used to enable resource integration across City systems, by helping to identify potential value at stake and the players involved.  ICT (information and communication technologies) is defined to be any digital equipment enabling more efficient resource use. | | | | |
| **KPI Categories** | **KPI**  (Level 1/beginner) | (Level 2) | (Level 3 | **(Level 4/**smart) |
| 1.1 Integrated Energy Planning (integrated energy planning involves estimating how much energy all the different users will need in the future. Then identifying a mix of appropriate sources, forms of energy and measures to meet these energy service needs in the most efficient (technically and economically) and socially beneficial manner. | Energy planning which is based on a traditional supply oriented approach | Establishment of a unit in the city to develop ÍEP for the city. Dev and publish the IEP (including stakeholder analysis, modelling, scenario analysis and action plan). | Imp. of action plan for IEP (technical and socio-economic assessment of projects – development of public, private and PPP) | An energy system based on renewable sources which is taking people, the environment and supply security into account. |
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| 1.2 Development of ICT use. | No or few installations of smart meters and/or decision to develop a strategy for smart meter implementation and use. | Develop and publish City strategy for smart meter implementation and use. | Imp. of City strategy for smart meter implementation and use (e.g. pilot projects – public, private and PPP). | City-wide-roll- out of projects to increase installation and use of smart meters (public, private and PPP). |
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| Little use of broadband (comm./res.) and/or decision to develop strategy for use of ICT | Develop and publish City strategy for use of ICT, incl. broadband, Wi-Fi etc. | Imp. of city strategy for use of ICT, incl. broadband, Wi-Fi etc. (e.g. through pilot projects - public, private and PPP) | City-wide-roll-out of projects for use of ICT, incl. broadband, Wi-Fi etc., extended accessibility ICT connection in public areas and transportation systems |
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| No or low use of government/user data interface (comm./res.) | Develop and publish City strategy for use of government/user data interface | Imp. of City strategy for data interface (e.g. through pilot projects - public, private and PPP) | City-wide-roll-out for projectsfor use of government/user data interface (comm./res.), and extended cooperation in form of PPP as well as public and private initiatives on-going |
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| 1.3 Use of ICT tools in city planning and management routines (e.g. to reduce energy efficiency and carbon emissions) | No use of ICT tools in the city planning and management routines and/or decision to develop strategy | Develop and publish city strategy for use of ICT tools in the city planning and management routines | Implement city strategy for use of ICT tools in the city planning and management routines (e.g. through pilot projects - public, private and PPP) | City -wide-roll-out of projects, mainly in administration, for use of ICT tools in the city planning and management routines |
| 1.4 Flexibility and transparency  of service providers (utilities) | No services for use of utility/government/user data interface (comm./res.) | Develop and publish City strategy for use of utility/ government/user data interface | Imp. of City strategy for use of utility/ government/user data interface (e.g. through pilot projects - public, private and PPP) | City wide-roll-out for projects for use of utility/government/user data interface (comm.. /res.) and extended cooperation in form of PPP as well as public and private initiatives on-going. |
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| 1.5 Waste (integration with resource systems) based on 2020 goals from the Waste Directive (to be reviewed by EC) | No increase in recycling and/or decision to develop a waste management strategy that is integrated with the resource system. | Develop and publish city waste management strategy including waste recycling strategies | Imp. of waste management strategy including a waste prevention and waste recycling strategy (e.g. through pilot projects - public, private and PPP) | Fully implemented waste management strategy integrated with the resource system, including waste prevention strategy, waste recycling measures and economic measures. |
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| 1.6 Transportation (integration with energy system) | No or low use of public transportation by citizens | Develop and publish City strategy for transportation with focus on sustainable transportation | Imp. of City strategy for transportation with focus on sustainable transportation | City strategy for sustainable transportation in place, and a high use of the system |
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|  | No or low transport interchange facilities for intermodality | Development of city strategy to encourage intermodality facilities at new stations and public transport infrastructure | Implementation of actions plan to upgrade transport facilities to increase options for intermodal use (e.g. integrated ticketing, allow bicycles on trains, bicycle storage at train stations, car parking at train stations, new public transport stations / stops to merge with other forms of transport, etc) | Implemented intermodal transport facilities across city to allow ease of interchange across public transportation |
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| 1. **Key Element definition – Access to energy services**   Access to reliable, affordable and sustainable energy services for all energy users, which includes electricity, heating, cooling and gas. Affordable energy is defined as total energy bills not amounting to more than 10% of total household income. The Smart Energy City uses strategies and future planning to increase the affordability of energy to all its citizens, while decreasing future price risks. Furthermore, the City may offer new services to its inhabitants to help decrease individual energy use, and maximise efficiencies. | | | | |
| **KPI Categories** | **KPI**  (Level 1/beginner) | (Level 2) | (Level 3) | **(Level 4/**smart) |
| 2.1 Access to affordable energy services | Decision to develop strategy to improve access to energy services, incl. Electricity, heating and/or cooling networks. | Develop and publish city strategy to increase accessibility to energy services, incl. Electricity, heating, and/or cooling networks. | Imp. of City strategy to increase accessibility energy services ( (incl. pilot projects - public, private and PPP) | City-wide-roll-out of projects to increase access to energy services, and extended cooperation in form of PPP as well as public and private initiatives on-going |
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| Low affordability of people’s access to energy services and/or decision to develop programme to address low affordability. | Develop and publish programme to address low affordability | Imp. of programme to address low affordability (incl. pilot projects - public, private and PPP) | City-wide-roll-out of programmes for making affordable access to energy services. |
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| 2.2 Level of energy services provided  (smart tariffs, small scale RE, and smart end-use technologies) | Limited diversity of smart energy related products and services (e.g. ToU tariffs) available on the market to citizens and businesses | Dev. And publish city strategy to encourage new and smarter services provided by utilities to reduce energy consumption by the user  Increasing diversity of smart energy related products and services (e.g. real time dynamic pricing, net metering and small scale renewable packages) available on the market | Imp. of City strategy to encourage new and smarter services provided by utilities to reduce energy consumption by the user  High diversity of smart energy related products and services available on the market (.e. integration of energy management with other lifestyle services e.g. telco ./ remote healthcare) | City-wide-roll-out of projects and a high level of new smart services provided by utilities to reduce energy consumption by the user.  Diversity of products and services enabling a market transition from volumetric (kw/h) to service-based utility offerings (e.g. home retained at 20OC) |
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| 1. **Key Element definition – Resilience**   A resilient city is one which sustains the long-term well-being of its communities and economy by maintaining the functions of city systems through effective planning for, and responses to shocks and stresses, especially including those caused by climate change either directly or indirectly. Resilient systems will secure the supply of energy and manage the risk to urban energy supplies by creating and implementing forward planning and strategies (e.g. in occasion of an energy crisis). | | | | |
| **KPI Categories** | **KPI**  (Level 1/beginner) | (Level 2) | (Level 3) | **(Level 4/smart**) |
| 3.1 Self-sufficiency distributed generation (DG))  (solar PV/wind/ biomass/batteries) | Little access to self-sufficiency supply technologies and/or decision to develop city strategy | Develop and publish city strategy for DG | Imp. of City strategy for DG (incl. pilot projects - public, private and PPP) | City-wide-roll-out of projects for DG and full access to self-sufficiency supply technologies |
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| 3.2 Energy price shock | Little investment or initiatives in measures to prevent energy prize shocks | Develop and publish city strategy for measures to prevent energy prize shocks | Imp. of City strategy for measures to prevent energy prize shocks(incl. Pilot projects – public , private and PPP, e.g. establishing cooperation’s with energy service providers) | City-wide-roll-out of measures to prevent energy prize shocks in place, and extended cooperation’s with energy service providers established |
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| 1. **Key Element definition - Energy efficiency**   A Smart Energy City will be highly resource efficient, and specifically, energy efficient. The City is in a continuous process of reducing the amount of energy required per unit of output, both in City run services and for the individual City users. The integrated approach to energy and resource systems and infrastructure will play a part in increasing the energy efficiency of the City, along with the increased use of data and ICT integration. | | | | |
| **KPI Categories** | **KPI**  (Level 1/beginner) | (Level 2) | (Level 3) | **5,5** |
| 4.1 Reduction of energy use | No or low interest in energy reduction work or energy reduction renovation and/or decision to develop strategy | Develop and publish City strategy on energy reduction, including low energy new buildings, energy renovation of existing buildings etc., both for public as private facilities | Imp. of a City strategy on energy reduction, including low energy new buildings, energy renovation of existing buildings etc., both for public as private facilities(incl. Pilot projects – public, private and PPP) | City-wide-roll-out of energy reduction , including low energy new buildings, energy renovation of existing buildings etc., both for public as private properties, |
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| 4.2 Increasing efficiency of distribution networks (electricity, heating and cooling) | Low efficiency of energy distribution networks | Develop and publish City strategy for implementation of best practice technologies, management and control systems in energy distribution networks | Imp. of a City strategy for implementation of best practice technologies, management and control systems in energy networks (incl. Pilot projects and PPP e.g. cooperation with energy service providers under establishment. | City-wide –roll-out of projects and solutions for efficiency in energy networks in place, and extended cooperation with energy service providers established |
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| 4.3 Increasing efficiency in the supply system | Little increase in power plant conversion efficiency and /or decision to develop strategy | Develop and publish City strategy to implement best practices in Demand side Management (DSM) and power plant technologies | Imp. of City strategy for best practices in DSM and power plant technologies | Best practice power plant conversion efficiency established |
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| Little use of combined cooling, heating and power production (CCHP) | Develop and publish city strategy for CCHP development | Imp. of low payback time CCHP potential (incl. Pilot projects – public, private and PPP) | Full use of CCHP potential |
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| 4.4. Increasing end-use energy efficiency (household, commercial, industrial) including investments in retrofitting for heating and cooling savings | Little investment in energy efficient end use technology projects and/or decision to develop city strategy | Develop and publish City strategy for assessment of potential for investment in energy efficient end use technologies | Imp. of City strategy for investment in energy efficient end use technologies in projects with up to 2 year payback time (incl. PPP) | City strategy in place for increasing investments in energy efficient end use technologies in projects with up to 5 year payback time. |
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| 4.5 Reduction in primary energy demand |  |  |  |  |

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| 1. **Key Element definition - Renewable Energy**   The Smart Energy City aims to reduce carbon emissions, and to be powered by renewable energy sources, where possible, while phasing out the use of polluting energy sources and productions such as natural gas and coal. Renewable energy is defined as sources of energy which have an unlimited supply and are non-polluting such as sustainable biomass, [sunlight](http://en.wikipedia.org/wiki/Sunlight), [wind](http://en.wikipedia.org/wiki/Wind), hydro and [geothermal heat](http://en.wikipedia.org/wiki/Geothermal_energy). Nuclear energy is not included in this definition of renewable energy due to its future potential hazardous effects on the environment. | | | | |
| **KPI Categories** | **KPI**  (Level 1/beginner) | (Level 2) | (Level 3) | **(Level 4/smart**) |
| 5.1 Production of electricity and heat from renewable energy (RE) sources  Production of energy may not be a municipal task for all cities, however this KPI focuses on whether the City has a strategy for providing, or having relevant energy companies providing, energy produced from RE sources (RES). | No or low production of energy from RE sources and/or decision to develop city strategy/plan | Develop and publish City Smart Energy Plan (SEP) with aim of increasing production of RE or encouraging energy production by RE sources | Imp. of a City SEP which promote an increasing production of energy by RE sources or encourage energy production by RE sources (incl. Pilot projects – public, private and PPP) | City SEP in place which promote an increasing production of energy by RE sources or encourage energy production by RE sources |
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| 5.2 Level of public and private investment in developing RES | Low level of investments in RE | Develop and publish a City SEP with aim of encouraging investments in RE | Imp. of a City SEP with aim of encouraging investments in RE | City SEP in place and a high level of investments in RE |
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| 5.3 Penetration of RE on the grid / in the city’s energy portfolio |  |  |  |  |
| 5.4 Greenhouse gas (GHG) emissions caused by energy production and transportation | High emission of GHG and/or decision to develop city strategy | Develop and publish City strategy/plan to reduce GHG emissions | Imp. of City strategy to reduce GHG emissions (incl. Pilot projects – public, private and PPP) | City-wide-roll-out of projects for reducing GHG emissions in place and the EU202020 goals on target |
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| 1. **Key Element definition - Active users (citizens, business and science)**   The Smart Energy City enables and nurtures both formal and informal networks, where businesses, citizens and academia are active and engaged in the development of strategies, and the operational running of the City and its services. The basic instrument for these networks is open and accessible data and partnerships, which can help create synergies and facilitate innovation. The users of the city are smart in the way that they actively engaged and participate in designing the services that they will use in the future, helping to future proof the City, e.g. by self-sufficiency. . | | | | |
| **KPI Categories** | **KPI**  (Level 1/beginner) | (Level ) | (Level 3) | **(Level 4/smart**) |
| 6.1 Smart City-reflective behaviour | Decision to develop City strategy for developing “behavioural change strategy” with regard to energy use or information on Smart City goals to consumers | Develop and publish City strategy for “behaviour change” with regard to energy use or information on Smart City goals to consumers | Imp. of City strategy for “behaviour change” with regard to energy use or information on Smart City goals to consumers (incl. Pilot projects – public, private and PPP) | City-wide-roll-out of projects for “behaviour change” with regard to energy use or information on Smart City goals to consumers (PPP as well as public and private initiatives on-going) |
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| 6.2 The citizen’s awareness of the City’s Smart Energy City vision and objectives | No initiative from the City on citizen awareness on the city’s Smart Energy City vision and objectives and/or decision to develop strategy | Develop and publish City Strategy on citizen awareness on the city’s Smart Energy City vision and objectives | Imp. of City strategy on citizen awareness on the city’s Smart Energy City vision and objectives (incl. Pilot projects – public, private and PPP) | City-wide-roll-out of projects for citizen awareness on the city’s Smart Energy City vision and objectives and citizens influence and participate fully in the Smart City transformation |
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| 6.3 Formal and informal hubs and innovation centres | No formal nor informal hubs and innovation centres initiatives started and/or decision on development of city strategy | Develop and publish city strategy on formal and informal hubs and innovation centres | Imp. of city strategy on Formal and informal hubs and innovation centrs (incl. pilot projects – public, private and PPP) | City-wide-roll-out of projects on formal and informal hubs and innovation centres(including PPP’s as well as public and private initiatives). |
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| 6.4 Self-sufficiency by users (residential/ commercial)  (Could be divided in separate rows for residential and business users) | Low willingness by users to test and apply new ideas and/or decision on development of city strategy | Develop and publish City strategy for pilot projects, analysis and/or assessments | Imp. of City strategy for pilot projects, analysis and/or assessments (incl. pilot projects – public, private and PPP) | City strategy in place and high willingness to test and apply new ideas |
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| Low willingness by users to take part in technology assessments or evaluations and/or decision on development of city strategy | Develop and publish City strategy for pilot projects, analysis and/or assessments | Imp. of City strategy for pilot projects, analysis and/or assessments (incl. pilot projects – public, private and PPP) | High willingness to take part in technology assessments or evaluations |
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| Low willingness to test and apply new supply, end-use, management, automation, ICT and/or control technologies and/or decision on development of city strategy | Develop and publish City strategy pilot projects, analysis and/or assessments | Imp. of City strategy pilot projects, analysis and/or assessments (incl. pilot projects – public, private and PPP) | City strategy in place and high willingness to test and apply new supply, end-use, management, automation, ICT and/or control technologies |
| 6.5 Engagement from users (residential/ commercial)  (Should be divided in separate rows for residential and business users,) | Limited user engagement due to lack of interest or encouraging and/or decision on development of city strategy | Develop and publish city strategy for encouraging users to be engaged | Imp. of City strategy for encouraging user engagement and user feedback loop established (incl. pilot projects – public, private and PPP) | City strategy in place and high user engagement in integrated service design and extended use of user feedback loops |
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| No user initiatives for new bottom up projects and/or decision on development of city strategy | Develop and publish City strategy for user initiatives for new bottom up projects | Imp. of City strategy for user initiatives for new bottom up projects(incl. pilot projects – public, private and PPP) | City strategy in place and extended user participation in new bottom up projects |
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| 6.6 Investment | Low willingness to invest in new supply, end-use, management, automation, ICT and/or control technologies and/or decision on development of city strategy | Develop and publish City strategy for pilot projects, analysis and/or assessments to encourage investments in new supply, end-use, management, automation, ICT and/or control technologies | Imp. of City strategy pilot projects, analysis and/or assessments to encourage investments in new supply, end-use, management, automation, ICT and/or control technologies (incl. pilot projects – public, private and PPP) | City strategy in place to encourage investments and a high willingness to invest in new supply, end-use, management, automation, ICT and/or control technologies |
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| 1. **Key Element definition – Sustainable economy**   The Smart Energy City has a low carbon economy that is financially competitive and resource-efficient, fostering an innovative clean tech sector, a strong number and availability of “green jobs” and growth in specific green industries and services.  It is assumed the investment mentioned below refers to investment in feasible projects, focused on improving the City’s sustainability.  The Smart Energy City demonstrates that the energy transition is competitive, vibrant, and resource-efficient. Key indicators of economic sustainability are the economic efficiency of investments of public money (expenditure versus energy savings), green jobs generation (refurbishment works, renewable energy system installation, etc) and decoupling of growth of GDP and energy consumption (a global approach that takes the rebound effect into account).  The Smart Energy City keeps the cost of energy and broader cost of affordable living low. | | | | |
| **KPI Categories** | **KPI**  (Level 1/beginner) | (Level 2) | (Level 3) | **(Level 4/smart**) |
| 7.1 Investment in innovation (both public and private) | Low investment in developing new “green technologies” and smart energy efficient end-use technologies and/or decision on development of city strategy(PPP as well as public and private investment separately) | Publish City strategy for Smart City investments | Imp. of City strategy for Smart City investments (incl. pilot projects – public, private and PPP) | High level investments in developing new “green technologies” and Smart energy efficient end-use technologies (PPP as well as public and private investment separately) |
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| Low investment in new ICT projects/companies aiming at Smart City development and/or decision on development of city strategy (PPP as well as public and private investment separately) | Publish City strategy for Smart City investments | Imp. of City strategy for Smart City investments (incl. pilot projects – public, private and PPP) | High investment in new ICT projects/companies aiming at Smart City development (PPP as well as public and private investment separately) |
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| Low involvement of research institutes and universities in PPP and Triple Helix projects and/or decision on development of city strategy | Publish City strategy for PPP and Triple Helix projects | Imp. of City strategy for Smart City PPP and Triple Helix projects and “city to city” co-operation agreements (incl. pilot projects – public, private and PPP) | High co-operation and involvement of research institutes and universities in PPP and Triple Helix projects |
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| 7.2 Availability and prevalence of green jobs in the city | No new green jobs in the city because of low investments in new green jobs projects and/or companies and/or decision on development of city strategy | Publish City strategy for green jobs investments in the city | Imp. of City strategy for green jobs investments in the city(incl. pilot projects – public, private and PPP) | Many new green jobs because of high investments in new projects and/or companies in green sectors in the city |
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| 7.3 Green initiatives | No greenfield sustainable city development projects and/or decision on development of city strategy | Few greenfield sustainable city development projects | Significant number of greenfield sustainable city developments projects (incl. pilot projects – public, private and PPP) | Many greenfield sustainable city development projects |
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| No brownfield sustainable city projects and/or decision on development of city strategy | Few brownfield sustainable city development projects | Significant number of brownfield sustainable city development projects (incl. pilot projects – public, private and PPP) | Many brownfield sustainable city development projects |
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| 1. **Key Element definition - Smart Governance**   Smart Governance encourages the use of technology to help facilitate and better support City planning and decision making. It encourages improved democratic processes, through increased use and availability of data and transforming the ways that public services are delivered through innovative service delivery and creation. Partnerships between the public and private sector are key, and should be encouraged throughout the City.  The Smart Energy City encourages increased transparency in public service provision and delivery as well as a governing process based on improved efficiencies, community leadership, mobile working and continuous improvement through innovation. Smart Governance continuously uses information and technology to facilitate citizen involvement, to create, obtain and provide accessible information and open data for the public.  (This is the re-evaluation of the way our cities are currently planned and operated including what information feeds what decisions, how governance structures can develop permanent principles of flexibility and interoperability, and also future proof the infrastructure investments to help reduce the risk of obscelence and built in inefficiencies) | | | | |
| **KPI Categories** | **KPI**  (Level 1/beginner) | (Level 2) | (Level 3) | **(Level 4/smart**) |
| 8.1 Local stakeholders involved in investment and maintenance | Low level of stakeholders involved in investments and/or decision on development of city strategy | Publish City strategy for investments and triple helix development with a special focus on Smart City development | Imp. of City strategy for investments and triple helix development with a special focus on Smart City development (incl. pilot projects – public, private and PPP) | City-wide-roll-outof projects and high level of stakeholders and triple helix development involved in investments by the City |
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| No triple helix focus and/or decision on development of city strategy | Low triple helix focus | Publish City strategy for and significant focus on triple helix projects | Strategy in place for and high focus on triple helix projects |
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| 8.2 Governance | Silo-ed city departmental governance structure and/or decision on development of city strategy | Some cross-departmental collaboration in City governance structure | Publish cross-departmental“ Smart City” management strategy | Cross-departmental “ Smart City” management rolled out and shared performance targets combined with international collaboration |
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| 8.3 e-Governance | Low level services provided to the users and/or decision on development of city strategy | Publish City driven pilot projects, analysis and/or assessments | Imp. of City strategy for pilot projects, analysis and/or assessments | In general high level of high quality e- services provided to the users |
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| 8.4 Standards for data collection and analysis (e.g. in regards to energy efficiency and CO2 emissions) | No standards and/or decision to develop standards | Publish city strategy to set up standards for data collection and analysis | Impl. of city stategy to set up standards for data collection and analysis | Developed and applied standards for data collection and analysis |
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| 8.5 Government engagement with users | No Smart City engagement fora/city labs and/or decision on development of city strategy | Publish City driven pilot projects, analysis and/or assessments | Imp. of City strategy for pilot projects, analysis and/or assessments (incl. pilot projects – public, private and PPP) | City strategy in place and many Smart City engagement fora (city labs?) |
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1. Each city also has to be aware that there might be places where the scale issue is important. E.g. where the city has no power over the development, but the national level does; or a solution might be smart on city level, but not on regional level. [↑](#footnote-ref-1)