Financing Smart Cities in the Czech Republic

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European Perspective
Smart Cities and Communities

Sustainable Urban Mobility
- Citizen Focus: how we include citizens into the process as an integral actor for transformation
- Policy & Regulation: creating the enabling environment to accelerate improvement
- Integrated Planning: how we work across sector and administrative boundaries; and manage temporal goals
- Knowledge Sharing: how we accelerate the quality sharing of experience to build capacity to innovate and deliver
- Metrics & Indicators: enabling cities to demonstrate performance gains in a comparable manner
- Open Data: understand how to exploit the growing pools of data; making it accessible – yet respecting privacy
- Standards: providing the framework for consistency commonality and repeatability, without stifling innovation
- Business Models, Procurement & Funding: integrating local solutions in an EU and global market

Sustainable Districts & Built Environment

Integrated Infrastructure & Processes

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Smart City - Easy Approach
Czech Perspective
Methodology for the Concept of Smart Cities

1. Political commitment – vision of Smart City
2. Organization and responsibility
3. Strategy / Action Plan
4. Cooperation and long-term partnerships

1. CITY
2. CITIZEN
3. TECHNOLOGIES
4. SMART CITY

13. digital, open and cooperative city
14. healthy and clean city
15. economically interesting city
16. city with brilliant reputation

5. Activate and connect
6. Establish communities and provide space for self-development
7. economy of sharing
8. Cultivate public space

9. Full-area coverage
10. Multipurpose solutions
11. Integrated solutions
12. Open solutions

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Perspective of the Ministry of the Environment of the Czech Republic

- New technologies
- Strategic planning
- Spatial planning
- Open data

Smart Cities

- Sustainable urban development
- Climate mitigation & adaptation
- Air quality
- Waste management
- Water management

Environment

- Human health
- Human well-being

People

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**Operational Programme Environment**

- Water
- Air
- Waste, environmental burdens and risk
- Nature and landscape
- Urban environment
- Environmental prevention
- Innovative and demonstrational projects

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**National Programme Environment**

- Water
- Air
- Waste, environmental burdens and risk
- Nature and landscape
- Urban environment
- Environmental prevention
- Innovative and demonstrational projects

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**New Green Savings Programme**

- nová
- zelená
- úsporám
Call to Promote Elaboration of Key Strategic Documents

- Feasibility studies of:
  - low-emission zones (air)
  - regulation plans (air)
- Sustainable Urban Mobility Plans

- **Funds available: 10 mil. CZK (ca. $450 000)**
- Acceptance of applications 5-9/2017
- Part of the National Programme Environment
Covenant of Mayors
Objectives

MITIGATION
Accelerating the decarbonisation of our territories

ADAPTATION
Strengthening our capacity to adapt to unavoidable climate change impacts

SECURE, SUSTAINABLE & AFFORDABLE ENERGY
Increasing energy efficiency and the use of renewables

Implementing or even going beyond the EU 2030 climate and energy targets

- At least 40% lower CO₂ (and possibly other greenhouse gas) emissions by 2030 through improved energy efficiency measures and greater use of renewable energy sources
- Enhanced resilience to the impacts of climate change
- Increased cooperation with fellow local and regional authorities within the EU and beyond to improve access to secure, sustainable and affordable energy
Covenant of Mayors
Implementation Process

STEP 1:
Signature of the Covenant of Mayors for Climate and Energy

STEP 2:
Submission of your Sustainable Energy and Climate Action Plan (SECAP)

STEP 3:
Submission of your monitoring report

Offering citizens high quality of life in sustainable, climate-resilient and vibrant cities

Implementation, Monitoring & Reporting

Evaluation & feedback

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Call to Support Municipalities in Joining the Covenant of Mayors

- Elaboration of *Sustainable Energy and Climate Action Plan* (SECAP) including:
  - Baseline emission inventory
  - Vulnerability assessment
  - Projected mitigation and adaptation activities
- **Funds available:** 5 mil. CZK (ca. $226 000)
- Acceptance of applications 5-9/2017
- Part of the National Programme Environment
New Green Savings Programme Segmentation

A. Reducing energy performance in existing family or apartment houses
   • Thermal insulation (windows, doors, enclosure walls, roof incl. „green“ roofs, ceiling, floors)

B. Building family or apartment houses with very low energy performance

C. Efficient use of energy resources
   • Replacement of heating system
   • Photovoltaics
New Green Savings Programme

**Support area A**
Reducing energy performance

**Support area B**
Low-energy buildings

**Support area C**
Energy efficiency

- Green roofs (A & B)
- Photovoltaics
- Roof insulation
- Ceiling and other frame constructions insulation
- Windows and doors replacement
- Enclosure walls insulation
- Heating system replacement
- Ground floor insulation
- Wastewater heat recovery (A, B, C)
- Technical expertise (A, B, C)
- Bonus for the use of the materials certified under the Environmental Product Declaration (A, B, C)
- Installation of heat recovery ventilation

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Call to Promote Purchase of Alternative Fuel Vehicles (EV, PHEV, CNG)

- For municipalities, regions and its associated organizations
- **Funds available:** 100 mil. CZK (ca. $4,5 mil.)
- Funds allocated: 37 mil. CZK
- Acceptance of applications from 11/2016 to 3/2017
- Next call to be launched 10/2017
- 1 EV = cca $9,000
„Rainwater“ Call
Main objectives

• Support sustainable water management in residential buildings
• Retain water in our territory
• Maintain underground water resources
• Make people think of water and sustainable water management
• Save some money for fresh water supply
Rainwater for Garden Irrigation

1. Rainwater retention
2. Rainwater filtration
3. Rainwater accumulation
4. Irrigation water
Rainwater for Garden Irrigation and Toilets Flushing

- Rainwater retention
- Rainwater filtration
- Rainwater accumulation
- Control unit – supply switching
- Toilet flush water
- Irrigation water
Water Recycling (grey water)

1. grey water collecting
2. grey water treatment
3. grey water accumulation
4. control unit – supply switching
5. toilet flush water
6. irrigation water
7. rainwater retention
8. rainwater filtration
9. rainwater accumulation
„Rainwater“ Call - Statistics

- Acceptance of applications between 29th and 30th June 2017
- Accepted almost 2300 electronic applications
- Funds were depleted in only 28 hours
- Next call launched 9/2017
- **Funds available: 240 mil. CZK (ca. $10,9 mil.)**
- One half for areas endangered by drought

Water management

- Rainwater for garden irrigation and toilets flushing...
- Water recycling 9%
- Rainwater for garden irrigation 16%

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Rainwater Management in Municipalities
Subsidy Scheme

- **Funds available**: 1 billion CZK (ca. $45 mil.)
- Acceptance of applications 6-8/2017
- For public sector and NGOs
- Part of the Operational Programme Environment
Rainwater for public greenery irrigation

1. rainwater retention
2. rainwater filtration
3. rainwater accumulation
4. irrigation water
Basin to retain rainwater

1. rainwater inflow
2. accumulation basin, max. 50%
3. minimum water level
4. retention space available, min. 50%
5. maximum water level
Non-permeable to permeable surfaces

**BEFORE**

1. non-permeable surface
2. 100% surface runoff

**AFTER**

3. permeable surface
4. min. 50% rainwater infiltration
Call to Promote Innovative Pilot Projects with Positive Envi Impacts

- 4 branches:
  - Water
  - Air Quality
  - Waste Management
  - Energy Savings and Smart Energy Solutions

- Funds available: **100 mil. CZK (ca. $4,5 mil.)**
  - Acceptance of applications 2-6/2017
  - For municipalities, regions etc.
  - Max. 75 % of eligible costs
  - Part of the National Programme Environment
  - Currently in the evaluation stage
Alternative funding models

- Within the Ministry of the Environment:
  - **Loans** for projects already accepted for funding within Operational Programme Environment
  - **Operating lease** for purchase of alternative fuel cars subsidized within National Programme Environment (projected)
- Other:
  - **National Development Bank projects** to provide financial products (loans and guarantees combined with grants; direct and indirect capital investments) to promote economic and social development through e.g. energy savings, use of renewables, and science, research and innovations
Smart Cities projects

- Municipal budget
- Sponsorship (pilot projects)
  - Subsidy schemes
    - European
    - National
  - Payments for services provided
- External sources
External sources

Debt financing
- Investment loans
- Promissory notes
- Factoring

Private sources (PPP)
- Design-Built-Finance-Operate(-Maintenance) agreements
- Energy Performance Contracting
- Concession systems
- Crowdfunding

European financial instruments
- European Investment Bank
- European Investment Fund
- Council of Europe Development Bank

Crowdfunding

Concession systems

Design-Built-Finance-Operate(-Maintenance) agreements

Energy Performance Contracting

Concession systems

Crowdfunding
Alternative funding models
Financial Instruments

- New type of state support
- First financial instrument starts this month
  - Operational Programme Environment – reducing environmental risks
  - ca. $22 million - loans
- Future of environmental policy
CZ Government strongly support Smart City approach!!

No silo – act together

Strategic Framework – no solo solutions

Water
Mobility
Air
Circular Economy
Energy Efficiency
Renewables
Examples of Czech Smart Cities „Big players“

Ostrava

- Approx. 300 000 inhabitants
- Highly industrialized city – significant environmental problems (especially air quality)
Examples of Czech Smart Cities „Big players“ Ostrava

• Centre of the „Smart Moravian-Silesian Region“
• Covenant of Mayors signatory since 2011, clean mobility projects, replacement of residential heating systems
• Industrial history as an opportunity – national site of industrial heritage Lower Vítkovice
Examples of Czech Smart Cities „Small Pioneers“

Písek

- Approx. 30,000 inhabitants
- Focus on mobility, energy and ICT/IoT
Examples of Czech Smart Cities
„Small Pioneers“
Litoměřice

- Approx. 24,000 inhabitants
- Focus on energy and citizen participation
Questions and answers...