Technology for the challenges of tomorrow’s smart cities

**CHALLENGES FOR SMART CITIES**

- **Buildings and neighborhoods**
  Energy efficiency, self-powered buildings, home automation, shared networks

- **E-services**
  Broadband internet, connectivity, data security, personalized interfaces, interactive advertising

- **User experience**
  Environmental monitoring, real-time information for users, personalized route management, lighting, geolocation, personal safety

- **Renewable energy**
  Production, urban energy storage systems, heat networks

- **Smart grids**
  Grid management, network connectivity (renewables, homes, neighborhoods), energy storage

- **Transportation**
  Electric vehicles, charging stations, emissions reduction and treatment, public transportation, safety and reliability

**Materials**

- Thermal systems
- Energy efficiency
- Sensor systems and integration
- Data transmission and processing
- Renewable energy and energy storage
  - Simulation, modelling, and software

**CEA Tech can help the following businesses:**

- Construction companies
- Equipment manufacturers
- Digital technology companies
- Transportation equipment and infrastructure manufacturers
Here are some of the ways CEA Tech can support your development:

**Energy production and recovery (solar, biomass, batteries, fuel cells)**

Energy transportation, stationary storage, backup generators, integration of renewables into the grid, waste-to-energy

**Energy-systems management**

Battery-management systems for vehicles and stationary storage

**Construction**

Energy efficiency, occupant comfort, system control and supervision (energy, lighting, safety/security), automation

**HMI (virtual and augmented reality, touch screens)**

Interactive advertising, geolocation, interactive tourism (museums), driver assistance, control panels, switches

**Big data**

Personalized services via social networks, the internet, or the grid; epidemic prevention; consumption forecasts

**Heterogeneous sensor systems and management**

Environmental monitoring, software for remote sensor network management, reducing energy consumption and use of backup energy sources

**Interactive simulation**

Traffic control, crowd control and safety

**Communicating systems**

Secure mobile communication; machine-to-machine, vehicle-to-vehicle, and network-to-vehicle communication

**Materials**

Building insulation, surface coatings (roads, glass surfaces), insulation for electrical systems

**Thermal systems**

Heat-network modelling, heat recovery and recycling, cooling

**Displays and lighting**

Optimized, integrated LED components for urban applications, buildings, and transportation; OLED displays

**Vision systems (IR, THz, more)**

Leak detection, user safety, energy-system troubleshooting