NEMZETI INNOVÁCIÓS HIVATAL

Energiahatékonyság és megújuló energiaforrások a HORIZON 2020 programban

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Nemzeti Kapcsolattartó H2020 - energia

Horizont 2020 költségvetése, 2014-2020

Összesen 70 Mrd. €

Nemzeti Innovációs Hivatal:

Nemzeti Kapcsolattartók (NCP), Promgramme Committee (PC) Nemzeti Delegáltak

Forrás:
Agreement on „HORIZON 2020”,
Brussels, 17 July 2013 11985/13

I. Kiváló Tudomány:	***31,73 % - 22,211 mrd. €***
1. Európai Kutatási Tanács (ERC)	17,00 % - 11,94 ***mrd. €***
2. Jövőbeni és feltörekvő technológiák (FET)	3,50% - 2,45 ***mrd. €***
3. Marie Curie akciók (MSC)	8,00% - 5,6 ***mrd. €***
4. Kutatatási infrastruktúrák (RI)	3,23% - 2,26 ***mrd. €***
II. Ipari vezető szerep:	***22,09 % - 15,463 mrd. €***
1. Vezető szerep az alap-és az ipari technológiák területén	17,60% - 12,35 ***mrd. €***
2. Kockázatfinanszírozáshoz jutás	3,69% - 2,58 ***mrd. €***
3. Innováció a kis- és középvállalkozásoknál	0,80% - 0,56 ***mrd. €***
III. Társadalmi kihívások:	***38,53 % - 26,971 mrd. €***
1. Egészségügyi, demográfiai változások és jólét	9,70% - 6,79 ***mrd. €***
2. Élelmiszerbiztonság, fenntartható mezőgazdaság és biogazdaság	5,00% - 3,5 ***mrd. €***
3. Energia	7,70% - 5,39 ***mrd. €***
4. Közlekedés	8,23% - 5,76 ***mrd. €***
5. Klímaváltozás, nyersanyag és erőforrás hatékonyság	4,00% - 2,8 ***mrd. €***
6. Inklúzív társadalom	1,70% - 1,19 ***mrd. €***
7. Befogadó. Innovatív és biztonságos társadalom	2,20% - 1,54 ***mrd. €***
Kiválóság terjesztése és a hallgatók körének bővítése	**1,06 % - 0,742 *mrd. €***
Tudomány a társadalomért	**0,60 % - 0,42 *mrd. €***
Európai Innovációs és Technológiai Intézet **(EIT)**	**3,52 % - 2,464 *mrd. €***
Közös Kutatóközpont: nem nukleáris, közvetlen akciók	**2,47 % - 1,729 *mrd. €***
Összesen 100 %	**100 % - 70 *mrd. €***

Újdonságok a Horizon 2020-ban

- **Egységes keretprogram**
  három korábbi kezdeményezés (FP7, CIP, EIT) integrálása
- **Még több innováció**
  a kutatástól a piacig tartó innovációs lánc
- **Hangsúly a társadalmi kihívásokon**
  az EU társadalmát érintő problémák (pl. egészség, tiszta energia, közlekedés)
- **Egyszerűbb adminisztráció (Egységes szabályozás minden résztvevőre** -„Single set of rules”, e**gy projekthez egy támogatási ráta , gyorsabb hozzájutás a támogatásokhoz)**

H2020 stratégia- 3 pillére

1. Prioritás: a kiváló tudomány. MIÉRT?

- A világszínvonalú tudomány a jövő technológiáinak, munkahelyeinek és jólétének alapja.
- Európa számára kiemelt érdek a kiváló kutatók támogatása, megtartása ,a kiemelkedő kutatók Európába vonzása
- A kutatóknak a legjobb infrastruktúrákra van szüksége.

2. Prioritás: az ipari vezető szerep. MIÉRT?

- A kulcsfontosságú technológiákba történő stratégiai beruházások megerősítik a meglévő és fejlődő szektorok innovációját.
  (Pl.: korszerű gyártás, mikro-elektronika)
- Európának több magánberuházást kell vonzania a kutatás és innováció területén.
- Európának még innovatívabb KKV-kra van szüksége, hogy növekedést érjen el, és új munkahelyeket teremtsen.

3. Prioritás: a társadalmi kihívások. MIÉRT?

- Innováció nélkül nem lehet célt érni az állampolgárokat és társadalmakat érintő ügyekben, de az EU politikai céljaiban sem.
  (Pl.: éghajlatváltozás, környezetvédelem, energetika, közlekedés)
- Áttörést hozó megoldásokat a – társadalomtudományokat is magukba foglaló – multi-diszciplináris együttműködések eredményeznek.
- Az ígéretes megoldásokat tesztelni, demonstrálni és mérni kell.

Hivatalos információk

- Energy WP-version

http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/main/h2020-wp1415-energy_en.pdf

- illetve egyebek:

http://ec.europa.eu/research/participants/portal/desktop/en/funding/reference_docs.html#h2020-work-programmes-2014-15-main-wp

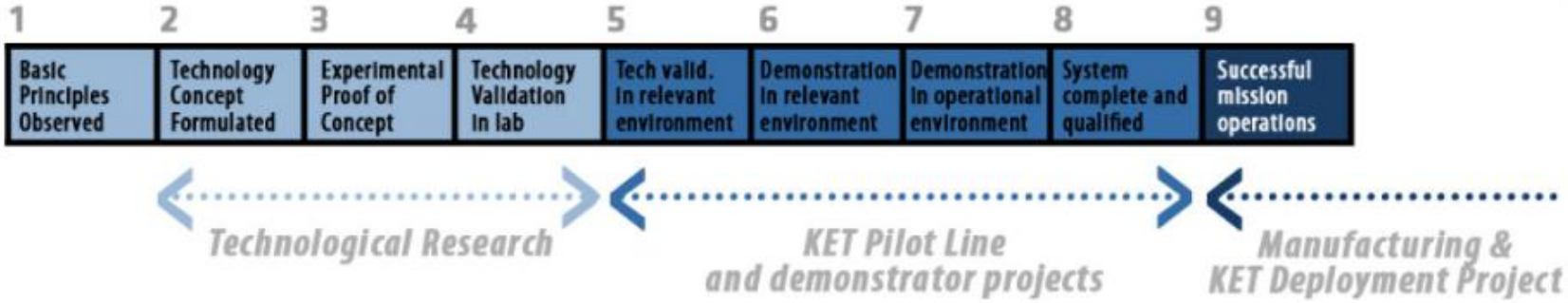
Horizon 2020- Energy Work Programme
Secure, Clean and Efficient energy

Energy Work Programme-Energy WP 2014-2015 Felhívások:

- Energy Efficiency -**EE**
- Low Carbon Energy-**LCE**
- Smart Cities and Communities-**SCC**

Innovációs lánc-TRL

Application of the Technology Readiness Levels



Where a topic description refers to a TRL, the following definitions apply, unless otherwise specified:
- TRL 1 – basic principles observed
- TRL 2 – technology concept formulated
- TRL 3 – experimental proof of concept
- TRL 4 – technology validated in lab
- TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key -enabling technologies)
- TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 7 – system prototype demonstration in operational environment
- TRL 8 – system complete and qualified
- TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)

H2020 lényege

- A strong challenge-based approach, considerable freedom for applicants to come up with technological solutions
- Broader topics, less prescription of technology options, strong emphasis on expected impact
- Adressing the whole innovation chain : integration of research and innovation by providing coherent funding from idea to market
- Simplified list of possible types of action (Research and Innovation actions, Innovation actions,etc)
- Cross-cutting issues mainstreamed

H2020 stratégiája

- A strategic programming approach : strategic programming exercise
- One single work programme including all Horizon 2020 pillars
- Work programmes with 2 year-duration to allow for better preparation of applicants
- Vezérmotívum of this first work programme : contribution of Horizon 2020 to **tackle the economic crisis** and **the path to sustainable growth**
- Key drivers : competitiveness, innovation and growth, leverage of industry, access to finance, new knowledge and skills, enabling technologies….

Challenge 3: Secure, Clean and Efficient Energy

Support the transition to a reliable, sustainable and competitive energy system by :

- Reducing energy consumption and carbon footprint
- Boosting development of renewable and alternative energy technologies and their integration in the energy system
- Making the grid more flexible (inclusion new energy sources, lowering costs of necessary infrastructure upgrades)
- Decarbonising the power and other industrial sectors

Increase the competitiveness of European industry

- Addressing the whole supply chain
- Increase energy efficiency in industry
- Decrease energy costs

Energy Work Programme : kiindulópontok

- Support the implementation of the Strategic Energy Technology Plan (SET-Plan) : SET-Plan Technology Roadmaps and Implementation Plans of the European Industrial Initiatives
- Oriented toward the future Integrated Roadmap and Action Plan (EC Communication on Energy Technologies and Innovation of 2. May 2013)

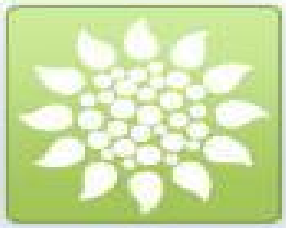
Napenergia

- Photovoltaics
- CSP

Szélenergia

- Wind energy

Bioenergia

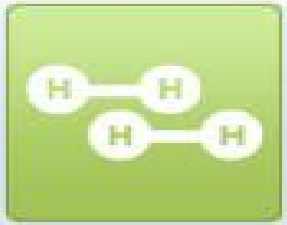


- Bioenergy

Egyéb megújulók

- Ocean
- Hydro
- Geothermal

Hidrogén és üzemanyagcella



- Fuel cells and hydrogen

Energia hálózatok

- Smart grid

CCS /Tiszta szén

- Clean coal/CCS
- Coal and steel (RFCS)

Energia hatékonyság

- Efficiency and savings

Horizontális aspektus

- Socio-economic research
- Future emerging technologies & materials

Energy area

- **3 calls**
- Energy Efficiency -EE
- Competitive Low Carbon Energy -LCE
- Smart Cities and Communities –SCC

- **! Evaluation rules…**

Horizon 2020 Energy – First Call!

Infoday & Brokerage Event

5th/6th December 2013, Brussels, Belgium

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AT 4ward Energy Research GmbH — Alois Kraussler — *Research*
No cooperation profiles specified

AT Bartenbach GmbH — Wilfried Pohl — *Company*
No cooperation profiles specified

AT Energieinstitut an der Johannes Kepler Universität Linz — Andrea Kollmann — *Research*
H2020 Partner Profile: Economic, social, organisational as well as legal aspects of the developments on the national or European energy marktes

AT Gerfried Cebrat — Gerfried Cebrat — *Other*
Business Co-operation: external contributor for proposals or partner in SME network
H2020 Coordinator Profile: Energy Saving through Open Appliance Control Platforms ESOP

AT NCP AT - FFG-Austrian Research Promotion Agency — Siegfried Loicht — *Other*
No cooperation profiles specified

AT Salzburg Research Forschungsgesellschaft mbH — Peter Dorfinger — *Research*
H2020 Coordinator Profile: Improved communication for new business models
H2020 Partner Profile: eEnergy communication experts

AT University of Innsbruck/Unit of Hydraulic Engineering — Markus Aufleger — *University*
H2020 Partner Profile: Floating Hydraulic Energy Storage System for the Maritime Renewable Energy Sector
H2020 Partner Profile: POWERTOWER - Large Scale Hydraulic Energy Storage

AT alpS GmbH - Centre for Climate Change Adaptation — Angela Michiko Hama — *Company*
No cooperation profiles specified

Energy Efficiency Call

A. Buildings and consumers

B. Heating and cooling

C. Industry and products

D. Finance for sustainable energy

- EE call will complement the EeB PPP (LEIT pillar H2020 Leadership in Enabling Industrial Technologies)

European Construction Technology Platform has set up the Energy Efficient Building European Initiative (E2B EI), steered by the Energy Efficient Buildings Association (E2BA)

- both technology and non-technology related topics (market uptake, support policy implementation, financing, …)

ENERGY EFFICIENCY I

Budget 2014: 92.50 MEUR 2015: 98.15 MEUR

A – Buildings and consumers

- EE 1 – 2014: Manufacturing of prefabricated modules for renovation of building
- EE 2 – 2015: Buildings design for new highly energy performing buildings
- EE 3 – 2014: Energy strategies and solutions for deep renovation of historic buildings
- EE 4 – 2014: Construction skills
- EE 5 – 2014/2015: Increasing energy performance of existing buildings through process and organisation innovations and creating a market for deep renovation
- EE 6 – 2015: Demand response in blocks of buildings
- EE 7 – 2014/2015: Enhancing the capacity of public authorities to plan and implement sustainable energy policies and measures
- EE 8 – 2014: Public procurement of innovative sustainable energy solutions
- EE 9 – 2014/2015: Empowering stakeholders to assist public authorities in the definition and implementation of sustainable energy policies and measures
- EE 10 – 2014/2015: Consumer engagement for sustainable energy
- EE 11 – 2014/2015: New ICT-based solutions for energy efficiency
- EE 12 – 2014: Socioeconomic research on energy efficiency

B – Heating and cooling

- EE 13 – 2014/2015: Technology for district heating and cooling
- EE 14 - 2014/2015: Removing market barriers to the uptake of efficient heating and cooling Solutions

ENERGY EFFICIENCY II

C - Industry and products

- EE 15 – 2014/2015: Ensuring effective implementation of EU product efficiency legislation
- EE 16 – 2014/2015: Organisational innovation to increase energy efficiency in industry
- EE 17 – 2015: Driving energy innovation through large buyer groups
- EE 18 – 2014/2015: New technologies for utilization of heat recovery in large industrial systems, considering the whole energy cycle from heat production to transformation, delivery and end use

D - Finance for sustainable energy

- EE 19 – 2014/2015: Improving the financeability and attractiveness of sustainable energy investments
- EE 20 – 2014/2015: Project development assistance for innovative bankable and aggregated sustainable energy investment schemes and projects
- EE 21 – 2014/2015: Development and market roll-out of innovative energy services and financial schemes for sustainable energy

Energy Efficiency Call : A. Buildings and consumers

- Innovative solutions for increasing the **rate, quality and effectiveness of building renovation techniques** in (mainly) existing buildings
- Technology for building materials and components (2014/15, Demo, Innov. action)
- Buildings Design for new highly energy performing buildings (2014/15, R&I action)
- Addressing the gap in knowledge and skills in the construction sector (Coordinating and Support Action)
- Process and organisation innovations to increase energy performance of existing buildings (2015/15, CSA)
- Demand Response in blocks of buildings (2015, Innov. action)
- Capacity building of public authorities to plan, implement sustainable energy policies and measures (2014/15, CSA)
- Empowering stakeholders to assist public authorities in the definition, implementation of sustainable energy policies and measures (2014/15, CSA)
- Public procurement of innovative sustainable energy solutions (2014, CSA)
- Consumer engagement for sustainable energy (2014/15, CSA)
- New ICT-based solutions for energy efficiency (Innov. Action, Prizes)
- Socio-economic research on energy efficiency (2014, R&I action)

Energy Efficiency Call : B. Heating and Cooling

- Technology for district heating and cooling (2014/15, R&I action)
- Removing market barriers to the uptake of efficient heating and cooling technologies (2014/15, CSA)

Energy Efficiency Call : C. Industry and Products

- This focus area will complement **the SPIRE PPP** and **the FoF PPP** (LEIT pillar H2020) ***Sustainable Process Industry through Resource and Energy Efficiency,*** Factories of Future
- Development and demonstration of energy-efficient products, processes and services by SMEs (2015, SME instrument)
- Organisational innovation to increase energy efficiency in industry (2014/15, CSA)
- Ensuring effective implementation of EU product efficiency legislation (2014/15, CSA)
- Driving energy innovation through large buyer groups (2015, CSA)

Energy Efficiency Call : D. Finance for sustainable energy

- Improving the financeability and attractiveness of sustainable energy investments (new business models, financial products) (2014/15, CSA)
- Project development assistance for innovative bankable and aggregated sustainable energy investment schemes and projects (2014/15, CSA)
- Development and market roll-out of innovative energy services and financial schemes for sustainable energy (2014/15, CSA)

Competitive low-carbon energy **LCE**
Budget 2014: 361.80 MEUR 2015: 374.73 MEUR

- LCE 1 2014: New knowledge and technologies

Renewable electricity and heating/cooling

- LCE 2 – 2014/2015: Developing the next generation technologies of renewable electricity and heating/cooling
- LCE 3 – 2014/2015: Demonstration of renewable electricity and heating/cooling technologies
  LCE 4 – 2014/2015: Market uptake of existing and emerging renewable electricity, heating and and cooling technologies

Modernising the European electricity grid

- LCE 5 – 2015: Innovation and technologies for the deployment of meshed off-shore grids
- LCE 6 – 2015: Transmission grid and wholesale market
- LCE 7 – 2014: Distribution grid and retail market

Providing the energy system with flexibility through enhanced energy storage technologies

- LCE 8 – 2014: Local / small-scale storage
- LCE 9 – 2015: Large scale energy storage
- LCE 10 – 2014: Next generation technologies for energy storage

Competitive low-carbon energy **LCE**

Sustainable biofuels and alternative fuels for the European transport fuel mix

- LCE 11 – 2014/2015: Developing next generation technologies for biofuels and sustainable alternative fuels
- LCE 12 – 2014/2015: Demonstrating advanced biofuel technologies
- LCE 13 – 2015: Partnering with Brazil on advanced biofuels
- LCE 14 – 2014/2015: Market uptake of existing and emerging sustainable bioenergy

Enabling the decarbonisation of the use of fossil fuels during the transition to a lowcarbon economy

- LCE 15 – 2014/2015: Enabling decarbonisation of the fossil fuel-based power sector and energy intensive industry through CCS
- LCE 16 – 2014: Understanding, preventing and mitigating the potential environmental impacts and risks of shale gas exploration and exploitation
- LCE 17 – 2015: Highly flexible and efficient fossil fuel power plants

Supporting the development of a European research area in the field of energy

- LCE 18 – 2014/2015 : Supporting Joint Actions on demonstration and validation of innovative energy solutions
- LCE 19 – 2014/2015 : Supporting coordination of national R&D activities

Social, environmental and economic aspects of the energy system

- LCE 20 – 2014: The human factor in the energy system
- LCE 21 – 2015: Modelling and analysing the energy system, its transformation and impacts

Cross-cutting issues

- LCE 22 – 2014: Fostering the network of National Contact Points

Competitive low-carbon energy Call

Technology Readiness Levels (TRLs) are indicated

- New knowledge and technologies (2014, R&I action)
- **Renewable electricity and heating/cooling**
- **Next generation technologies** PV, CSP, Wind, Ocean, Hydro Power, Geothermal, renewable heating and cooling (2014/15, R&I action)
- **Demonstration** of renewable electricity and heating/cooling technologies PV, CSP, Wind, Ocean, renewable heating and cooling, Geothermal (2014 or 2015, Innov. action)
- **Market uptake** of existing and emerging renewable electricity, heating and cooling technologies (2014/15, Innov. action)

Modernising the single European electricity grid

- Meshed off-shore grids in the Northern Seas (2014, CSA)
- **Transmission grid** and the wholesale market (2014, R&I and I action)
- **Distribution grid** and retail market (2015, R&I action)
- **Enhanced energy storage technologies (flexibility energy system)**
- Local / small-scale storage (2014, Innov. action)
- Large scale storage (2015, Innov. action)
- Next generation technologies for energy storage (2014, R&I action)

Competitive low-carbon energy Call/2

Sustainable biofuels and alternative fuels for the European transport fuel mix

- **Development** next generation technologies (2014/2015, R&I action)
- **Demonstration** advanced biofuel technologies (2014/2015, Innov. Action, implementation EIBI)
- Partnering with Brazil on advanced biofuels (2015, Innov. Action)
- **Market uptake** of existing and emerging sustainable bioenergy (2014/2015, Innov. Action)
- **Sustainable use of fossil fuels in the transition to a LC economy**
- **CCS** (2014/2015, R&I action)
- Understanding potential environmental impacts, risks shale gas exploration and exploitation (2014, R&I action)
- Highly flexible and efficient fossil fuel power plants (2015, R&I action)

Supporting the development of a European Research Area in the field of energy

- Joint actions, ERA-NET (2014/15)
- Support coordination of national R&D activities (2014/15)

Social, environmental and economic aspects of the energy system

- The human factor in the energy system (2014, R&I action)
- Modelling and analysing the energy system its transformation and impacts (2015, R&I action)

Cross-cutting issues

- Exploiting the R&I potential of SMEs in a low carbon energy system (2014/15, SME instrument)
- Fostering the network of National Contact Points (2014, CSA)

SMART CITIES AND COMMUNITIES

Budget 2014: 73.82 MEUR 2015: 86.68 MEUR

- SCC 1 – 2014/2015: Smart Cities and Communities solutions integrating energy, transport, ICT sectors through lighthouse (large scale demonstration - first of the kind) projects
- **Enhancing the roll-out of Smart Cities and Communities solutions by stimulating the market demand**
- SCC 2 – 2014 : Developing a framework for common, transparent data collection and performance measurement to allow comparability and replication between solutions and bestpractice identification
- SCC 3 – 2015 : Development of system standards for smart cities and communities solutions
- SCC 4 – 2014 : Establishing networks of public procurers in local administrations on smart city solutions
- SCC 5 – 2015: Smart solutions for creating better cities and communities – assistance for a prize competition

Energy kapcsolódások

Contribution to other workprogrammes

Energy Challenge contribution to other WPs 2014-15:

- *PPP Energy-efficient Buildings: 3 topics (EE1, EE2, EE3), 13M€ / 9M€ in 2014/2015*
- *PPP SPIRE: 1 topic (EE19), 8 M€ in 2014 and 2015* ***Sustainable Process Industry through Resource and Energy Efficiency,***
- *Focus area "Blue Growth": 1.5 M€ in 2014 and 2015 for topics under the "New offshore challenges" area*

Other H2020 parts contribution to Energy WP 2014-15:

- *DG CNECT: Financial support for topics EE8, EE11, LCE7 and SCC1*

Smart Cities and Communities Call

In close cooperation with DG Transport and DG Connect

Lighthouse projects

- Large scale demonstration
- SCC solutions integrating energy, transport and ICT sectors
- 2014/15, Innov. Action

Enhancing the roll-out of SCC by stimulating the market demand

- Development of system standards for SCC solutions (2015, CSA)
- Establishing networks of public procurers in local administrations on smart city solutions (2014, Innov. Action)
- Challenge Price competition for innovative smart solutions for creating better cities and communities (SMEs, start-ups) (2014)

NIH-ENERGETIKAI KFI JÖVŐKÉP, CÉLOK

Startégia és Hatékony támogatási rendszer nem létezik jól működő innováció-menedzsment és innovációs szolgáltatások nélkül:

- pályázati tanácsadás
- Pénz- és tőkepiaci források
- partnerkeresés
- IPR tanácsadás
- üzleti tanácsadás
- információs szolgáltatások
- inkubációs folyamatok támogatása
- Regionális Innovációs Ügynökségek (RIÜ) szerepének erősítése
- NIH Pont Inno szolgáltatás

Köszönöm a figyelmet!

LORENCZ KINGA
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Energy Work Programme 2014-2015

- **Scope** = FP7 + market uptake + unconventional hydro carbons + flexible fossil fuel power plants
- Challenge based approach
- Strong focus on market uptake
- Cross-cutting approach : interaction, collaboration, complementarity with other H2020 parts