The smart energy ecosystem is the next step of the conventional electrical grid, offering increased reliability, augmented service quality and efficient exploitation of existing infrastructures. However, it generates significant security and privacy problems as it contains a combination of heterogeneous, coexisting smart and legacy technologies. The EU-funded SDN-microSENSE project will provide secure, privacy-enabled and resistant-to-cyberattacks tools to ensure electrical power and energy system (EPES) operation and the integrity and confidentiality of communications. The project will adopt an SDN-based technology and implement risk assessment processes to identify the risk level of each EPES component, self-healing abilities to
Objective

The smart energy ecosystem constitutes the next technological leap of the conventional electrical grid, providing multiple benefits such as increased reliability, better service quality and efficient utilization of the existing infrastructures. However, despite the fact that it brings beneficial environmental, economic and social changes, it also generates significant security and privacy challenges, as it includes a combination of heterogeneous, co-existing smart and legacy technologies. Based on this reality, the SDN-microSENSE project intends to provide a set of secure, privacy-enabled and resilient to cyberattacks tools, thus ensuring the normal operation of EPES as well as the integrity and the confidentiality of communications. In particular, adopting an SDN-based technology, SDN-microSENSE will develop a three-layer security architecture, by deploying and implementing risk assessment processes, self-healing capabilities, large-scale distributed detection and prevention mechanisms, as well as an overlay privacy protection framework. Firstly, the risk assessment framework will identify the risk level of each component of EPES, identifying the possible threats and vulnerabilities. Accordingly, in the context of self-healing, islanding schemes and energy management processes will be deployed, isolating the critical parts of the network in the case of emergency. Furthermore, collaborative intrusion detection tools will be capable of detecting and preventing possible threats and anomalies timely. Finally, the overlay privacy protection framework will focus on the privacy issues, including homomorphic encryption and anonymity processes.

Fields of science

engineering and technology > environmental engineering > energy and fuels > renewable energy
engineering and technology > electrical engineering, electronic engineering, information engineering > electrical engineering > power engineering > electric power distribution
natural sciences > biological sciences > ecology > ecosystems

Programme(s)

H2020-EU.3.7. - Secure societies - Protecting freedom and security of Europe and its citizens
MAIN PROGRAMME

H2020-EU.3.7.4. - Improve cyber security
H2020-EU.3.7.2. - Protect and improve the resilience of critical infrastructures, supply chains and transport modes
Topic(s)


Call for proposal


See other projects for this call

Sub call

H2020-SU-DS-2018

Funding Scheme

IA - Innovation action

Coordinator

AYESA ADVANCED TECHNOLOGIES SA

Net EU contribution

€ 413 375,00

Address

Calle Gonzalo Jimenez De Quesada 2 Planta 11 Torre Sevilla Torre Pelli
41092 Sevilla

Spain

Region

Andalucía > Sevilla

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution

€ 177 160,71
Participants (37)

🔗 THIRD-PARTY
FUNDACION AYESA
Spain
Net EU contribution
€ 36 250,00
Address
Marie Curie 2
41092 Sevilla
Region
Andalucía > Sevilla
Activity type
Research Organisations
Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network
Non-EU contribution
€ 0,00

🔗 THIRD-PARTY
ACT SISTEMAS SL
Spain
Net EU contribution
€ 35 000,00
Address
Calle Marie Curie 2
41092 Sevilla
Region
Andalucía > Sevilla
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)
Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network
Non-EU contribution
**PANEPISTIMIO DYTIKIS MAKEDONIAS**

*Greece*

Net EU contribution

€ 372 500,00

Address

Parko Agiou Dimitriou 1
501 00 Kozani

Region

Γρεβενά > Δυτική Μακεδονία > Βόρεια Ελλάδα

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation  Website  Participation in EU R&I programmes  HORIZON collaboration network

Non-EU contribution

€ 0,00

---

**ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS**

*Greece*

Net EU contribution

€ 462 500,00

Address

Charilaou Thermi Road 6 Km
57001 Thermi Thessaloniki

Region

Θεσσαλονίκη > Κεντρική Μακεδονία > Βόρεια Ελλάδα

Activity type

Research Organisations

Links

Contact the organisation  Website  Participation in EU R&I programmes  HORIZON collaboration network
PREDUZECE ZA TELEKOMUNIKACIJSKE USLUGE REALAIZ DOO BEOGRAD (SAVSKI VENAC)

Serbia
Net EU contribution
€ 252 875,00
Address
Mihajla Bogicevica 7
11000 Beograd
SME Yes
Region
Србија - север > Београдски регион > Београдска област
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)
Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network
Non-EU contribution
€ 108 375,00

ATOS SPAIN SA
Spain
Net EU contribution
€ 29 860,66
Address
Calle De Albarracin 25
28037 Madrid
Region
Comunidad de Madrid > Comunidad de Madrid > Madrid
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)
THIRD-PARTY

ATOS IT SOLUTIONS AND SERVICES IBERIA SL

Spain

Net EU contribution
€ 203 519,82

Address
Ronda De Europa 5
28760 Tres Cantos Madrid

Region
Comunidad de Madrid > Comunidad de Madrid > Madrid

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

SCHNEIDER ELECTRIC FRANCE SAS

France

Net EU contribution
€ 0,00

Address
Rue Joseph Monier 35
92500 Rueil Malmaison

Region
Ile-de-France > Ile-de-France > Hauts-de-Seine

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 0,00

THIRD-PARTY
SCHNEIDER ELECTRIC ESPANA SA
Spain
Net EU contribution
€ 25,357,28

Address
Bac De Roda 52 Edif A
08019 Barcelona

Region
Este > Cataluña > Barcelona

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network

Non-EU contribution
€ 10,867,40

DIMOSIA EPICHEIRISI ILEKTRISMOU ANONYMI ETAIREIA
Greece
Net EU contribution
€ 181,125,00

Address
Chalkokondyli Street 30
104 32 Athina

Region
Κεντρικός Τομέας Αθηνών > Αττική > Αττική

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network

Non-EU contribution
€ 77 625,00

FUNDACION TECNALIA RESEARCH & INNOVATION
Spain

Net EU contribution
€ 492 812,50

Address
Parque Cientifico Y Tecnologico De Bizkaia Astondo Bidea Edificio 700
48160 Derio (Bizkaia)

Region
Noreste > Pais Vasco > Bizkaia

Activity type
Research Organisations

Links
Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network

Non-EU contribution
€ 0,00

DIMOS AVDIRON
Greece

Net EU contribution
€ 82 250,00

Address
Genisea
67064 Genisea

Region
Ξάνθη > Ανατολική Μακεδονία > Βόρεια Ελλάδα
Activity type
Public bodies (excluding Research Organisations and Secondary or Higher Education Establishments)

Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 0,00

INNOVATIVE ENERGY AND INFORMATION TECHNOLOGIES LTD
Bulgaria
Net EU contribution
€ 505 750,00

Address
Ul Magnurska School N11 Hay Tek Park By Office 316
1784 Sofia

SME
Yes

Region
Югозападна и Южна централна България > Югозападен > София (столица)

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 216 750,00

ELEKTROENERGIEN SISTEMEN OPERATOR EAD
Bulgaria
Net EU contribution
€ 103 250,00

Address
Bul Tsar Boris lli 201
1618 Sofia

Region
Югозападна и Южна централна България > Югозападен > София (столица)

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Website
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 44 250,00

---

ELECTRODISTRIBUTION GRID WEST AD
Bulgaria

Net EU contribution
€ 96 250,00

Address
Tsarigradsko Shouse Blv 159
1784 Sofia

Region
Югозападна и Южна централна България > Югозападен > София (столица)

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 41 250,00

---

UBITECH LIMITED
Cyprus

Net EU contribution
€ 285 906,25
Address
26 Nikou & Despinas Pattchi
3071 Limassol

SME
Yes

Region
Κύπρος > Κύπρος > Κύπρος

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 122 531,25

---

CYBERLENS LTD

United Kingdom

Net EU contribution
€ 183 750,00

Address
10 12 Mulberry Green Old Harlow
CM17 0ET Essex

SME
Yes

Region
East of England > Essex > West Essex

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 78 750,00
SIDROCO HOLDINGS LIMITED
Cyprus
Net EU contribution
€ 262 937,50
Address
Petraki Giallourou 22
1077 Nicosia
SME
Yes
Region
Κύπρος > Κύπρος > Κύπρος
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)
Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network
Non-EU contribution
€ 112 687,50

0 INFINITY LIMITED
United Kingdom
Net EU contribution
€ 260 636,25
Address
Office 2 Brook House 209 Cranbrook Road
IG1 4TD London
SME
Yes
Region
London > Outer London — East and North East > Redbridge and Waltham Forest
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)
Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 111 701,25

EIGHT BELLS LTD

Cyprus
Net EU contribution
€ 256 375,00
Address
Agias Paraskevis 23 Strovolos
2002 Nicosia
SME
Yes
Region
Κύπρος
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 109 875,00

INCITES CONSULTING SA

Luxembourg
Net EU contribution
€ 254 625,00
Address
130 Route D'arlon
8008 Strassen
SME
Yes
Region
Luxembourg  >  Luxembourg  >  Luxembourg

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation  
Participation in EU R&I programmes  
HORIZON collaboration network

Non-EU contribution
€ 109 125,00

ENERGYNAUTICS GMBH
Germany

Net EU contribution
€ 134 925,00

Address
Robert Bosch Strasse 7
64293 Darmstadt

SME
Yes

Region
Darmstadt  >  Darmstadt, Kreisfreie Stadt

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation  
Participation in EU R&I programmes  
HORIZON collaboration network

Non-EU contribution
€ 57 825,00

NORGES TEKNISK-NATURVITENSKAPELIGE UNIVERSITET NTNU
Norway

Net EU contribution
€ 443 000,00
Address
Hogskoleringen 1
7491 Trondheim

Region
Norge > Trøndelag > Trøndelag

Activity type
Higher or Secondary Education Establishments

Links
Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network

Non-EU contribution
€ 0,00

SIAXAMANIS E.E.
 Greece
Net EU contribution
€ 123 900,00

Address
Kalis Elpidos 26
554 37 Thessaloniki

SME
Yes

Region
Θεσσαλονίκη > Κεντρική Μακεδονία > Βόρεια Ελλάδα

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation Participation in EU R&I programmes HORIZON collaboration network

Non-EU contribution
€ 53 100,00

GOTTFRIED WILHELM LEIBNIZ UNIVERSITAET HANNOVER
Germany
Net EU contribution
€ 225 307,50
Address
Welfengarten 1
30167 Hannover
Region
Niedersachsen > Hannover > Region Hannover
Activity type
Higher or Secondary Education Establishments
Links
Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network
Non-EU contribution
€ 0,00

RAVNA HYDRO LTD
Bulgaria
Net EU contribution
€ 99 750,00
Address
Ul. General Karzov 21
4300 Karlovo
SME Yes
Region
Югозападна и Южна централна България > Южен централен > Пловдив
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)
Links
Contact the organisation Participation in EU R&I programmes HORIZON collaboration network
Non-EU contribution
€ 42 750,00
FUNDACIO INSTITUT DE RECERCA DE L'ENERGIA DE CATALUNYA

Spain

Net EU contribution

€ 367 187,50

Address

C/ Jardins De Les Dones De Negre 1
08930 Sant Adria De Besos

Region

Este > Cataluña > Barcelona

Activity type

Research Organisations

Links

Contact the organisation
Website
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution

€ 0,00

---

ESTABANELL Y PAHISA ENERGIA SA

Spain

Net EU contribution

€ 183 697,50

Address

Calle Rec 26-28
08400 Granollers

SME

Yes

Region

Este > Cataluña > Barcelona

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network
CHECKWATT AB
Sweden
Net EU contribution
€ 173 057,50
Address
Marketenterivagen 1
415 28 Goteborg
SME
Yes
Region
Södra Sverige > Västsverige > Västra Götalands län
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)
Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network
Non-EU contribution
€ 74 167,50

INDEPENDENT POWER TRANSMISSION OPERATOR SA
Greece
Net EU contribution
€ 177 625,00
Address
Dyrrachiou Str. & Kifisou 89
10443 Athens
Region
Κεντρικός Τομέας Αθηνών > Αττική > Αττική
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)
SINTEF ENERGI AS
Norway
Net EU contribution
€ 453 320,00
Address
Sem Saelandsveg 11
7465 Trondheim
Region
Norge > Trøndelag > Trøndelag
Activity type
Research Organisations

DIL DIEL
Bulgaria
Net EU contribution
€ 103 250,00
Address
8, Boris Hristov Str., Fl. 2, Ap.5
1111 Sofia
SME
Yes
Region
IDENER TECHNOLOGIES SL
Spain
Net EU contribution
€ 122 150,00
Address
Calle Early Ovington 4 Nave 8
41300 La Rinconada (Sevilla)
SME Yes
Region Andalucía > Sevilla
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)
Links
Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network
Non-EU contribution
€ 52 350,00

GEIE ERCIM
France
Net EU contribution
€ 137 500,00
Address
SME
Yes

Region
Provence-Alpes-Côte d’Azur > Provence-Alpes-Côte d’Azur > Alpes-Maritimes

Activity type
Other

Links
Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network

Non-EU contribution
€ 0,00

SCHNEIDER ELECTRIC INDUSTRIES SAS
France
Net EU contribution
€ 284 812,50

Address
Rue Joseph Monier 35
92500 Rueil Malmaison

Region
Ile-de-France > Ile-de-France > Hauts-de-Seine

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network

Non-EU contribution
€ 122 062,50

THIRD-PARTY
SCHNEIDER ELECTRIC ESPANA SA
Spain
Net EU contribution
€ 79 642,72

Address
Bac De Roda 52 Edif A
08019 Barcelona

Region
Este > Cataluña > Barcelona

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation  Website
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 34 132,60

ATOS IT SOLUTIONS AND SERVICES IBERIA SL

Spain

Net EU contribution
€ 86 432,02

Address
Ronda De Europa 5
28760 Tres Cantos Madrid

Region
Comunidad de Madrid > Comunidad de Madrid > Madrid

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation  Website
Participation in EU R&I programmes
HORIZON collaboration network

Non-EU contribution
€ 37 042,29