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Knowledge Based Climate Mitigation Systems for a Low Carbon Economy

Fact Sheet

Project Information

COMPLEX

Grant agreement ID: 308601

[Project website](#) 

Project closed

Start date

1 October 2012

End date

30 September 2016

Funded under

Specific Programme "Cooperation": Environment
(including Climate Change)

Total cost

€ 6 982 677,07

EU contribution

€ 5 428 606,00

Coordinated by

UNIVERSITY OF NEWCASTLE
UPON TYNE

 United Kingdom

Objective

The science of complex systems distinguishes linear from non-linear dynamics. Simpler systems can often be satisfactorily described by linear models, but complex systems require non-linear models that can capture more of the characteristics of such systems, such as thresholds, feedback loops, avalanche effects, and irreversibility. Linear systems can be validated by aligning models to the past and using the model to predict the future. Non-linear systems, however, are often time-asymmetric - they can be explained with the wisdom of hindsight, but are not always

predictable. For example, systems may respond sharply to minor perturbations, and the quality of this response is a measure of the system resilience. In practice, non-linear dynamics are significant both at the micro-scale of small history and at the macro-scale of deep time. The brilliant young scientist, for example, may experience a series of epiphanies that change his/her understanding and behaviour in an unpredictable and irreversible way. The scientific community as a whole may experience an innovation-cascade that has a similar effect on a much larger scale. Current models of climate change and carbon emission assume the immediate past is a reasonable guide to the future. They struggle to represent the complex causal structures and time-asymmetries of many socio-natural systems. COMPLEX will integrate the quasi-classic models of meso-scale processes with our best understanding of fine-grained space-time patterns and the system-flips that are likely to occur in the long interval between now and 2050. We believe the sub-national region is the key point of entry for studying climate change and its cause-effect interrelations. It is small enough to be sensitive to local factors, large enough to interact with supra-national agencies and stable enough to be historically and culturally distinctive. In addition to undertaking case studies in Norway, Sweden, Netherlands, Spain and Italy, We will develop a suite of modelling tools and decision-support systems to inform national and supra-national policy and support communities across Europe working to make the transition to a low-carbon economy.

Fields of science (EuroSciVoc)

[engineering and technology](#) > [environmental engineering](#) > [energy and fuels](#) > **[renewable energy](#)**

[humanities](#) > [history and archaeology](#) > **[history](#)**

[natural sciences](#) > [earth and related environmental sciences](#) > [atmospheric sciences](#) > [climatology](#) > **[climatic changes](#)**



Programme(s)

[FP7-ENVIRONMENT - Specific Programme "Cooperation": Environment \(including Climate Change\)](#)

Topic(s)

[ENV.2012.6.1-2 - Development of advanced techno-economic modelling tools for assessing costs and impacts of mitigation policies](#)

Call for proposal

Funding Scheme

[CP - Collaborative project \(generic\).](#)

Coordinator



UNIVERSITY OF NEWCASTLE UPON TYNE

EU contribution

€ 489 794,00

Total cost

No data

Address

KINGS GATE

NE1 7RU Newcastle Upon Tyne

United Kingdom

Region

North East (England) > Northumberland and Tyne and Wear > Tyneside

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#) [Website](#)

[Participation in EU R&I programmes](#)

[HORIZON collaboration network](#)

Participants (16)



UNIVERSITEIT TWENTE

Netherlands

EU contribution

€ 1 134 351,00

Address

DRIENERLOLAAN 5
7522 NB Enschede 

Region
Oost-Nederland > Overijssel > Twente

Activity type
Higher or Secondary Education Establishments

Links
[Contact the organisation](#)  [Website](#) 
[Participation in EU R&I programmes](#) 
[HORIZON collaboration network](#) 

Total cost
No data



SIGTUNASTIFTELSEN

 Sweden
EU contribution
€ 281 064,00

Address
PO BOX 57
19322 SIGTUNA 

Activity type
Other

Links
[Contact the organisation](#)  [Website](#) 
[Participation in EU R&I programmes](#) 
[HORIZON collaboration network](#) 

Total cost
No data



SVERIGES LANTBRUKSUNIVERSITET

 Sweden
EU contribution
€ 604 148,00

Address

ALMAS ALLE 8
750 07 Uppsala 

Region
Östra Sverige > Östra Mellansverige > Uppsala län

Activity type
Higher or Secondary Education Establishments

Links
[Contact the organisation](#)  [Website](#) 
[Participation in EU R&I programmes](#) 
[HORIZON collaboration network](#) 

Total cost
No data



UNIVERSITA DEGLI STUDI DI PADOVA

 Italy
EU contribution
€ 150 222,00

Address
VIA 8 FEBBRAIO 2
35122 Padova 

Region
Nord-Est > Veneto > Padova

Activity type
Higher or Secondary Education Establishments

Links
[Contact the organisation](#)  [Website](#) 
[Participation in EU R&I programmes](#) 
[HORIZON collaboration network](#) 

Total cost
No data



CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS

 France
EU contribution

€ 240 532,00

Address

RUE MICHEL ANGE 3
75794 Paris 

Region

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

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 
[Participation in EU R&I programmes](#) 
[HORIZON collaboration network](#) 

Total cost

No data



SINTEF ENERGI AS

 Norway

EU contribution

€ 294 075,00

Address

Sem Saelandsveg 11
7465 Trondheim 

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 
[Participation in EU R&I programmes](#) 
[HORIZON collaboration network](#) 

Total cost

No data



INTERNATIONALES INSTITUT FUER ANGEWANDTE SYSTEMANALYSE

 Austria

EU contribution

€ 231 360,00

Address

Schlossplatz 1

2361 Laxenburg 

Region

Ostösterreich > Niederösterreich > Wiener Umland/Südteil

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

No data



OBSERVATORIO PARA UNA CULTURA DEL TERRITORIO ASOCIACION

 Spain

EU contribution

€ 292 650,00

Address

CALLE AGAPITO GARCIA SERRANITO BLOQUE 1 1C 14

28770 COLMENAR VIEJO 

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

No data



STOCKHOLMS UNIVERSITET

 Sweden

EU contribution

€ 297 920,00

Address

UNIVERSITETSVAGEN 10
10691 Stockholm 

Region

Östra Sverige > Stockholm > Stockholms län

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

No data



Scientific foundation Nansen International Environmental and Remote Sensing Centre

 Russia

EU contribution

€ 165 600,00

Address

14th Line Street 7A
199034 St. Petersburg 

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

No data



NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO

 Netherlands

EU contribution

€ 739 545,00

Address

ANNA VAN BUERENPLEIN 1
2595 DA Den Haag 

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

No data



INSTITUT NATIONAL DE RECHERCHE EN SCIENCES ET TECHNOLOGIES POUR L'ENVIRONNEMENT ET L'AGRICULTURE

 France

EU contribution

€ 150 293,00

Address

RUE PIERRE GILLES DE GENNES 1
92761 ANTONY CEDEX 

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

No data



ELECTRICITE DE FRANCE

 France

EU contribution

€ 10 453,00

Address

AVENUE DE WAGRAM 22
75008 Paris 

Region

Ile-de-France > Ile-de-France > Paris

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](#) 

Total cost

No data



THE UNIVERSITY OF SUSSEX

 United Kingdom

EU contribution

€ 161 111,00

Address

SUSSEX HOUSE FALMER
BN1 9RH Brighton 

Region

South East (England) > Surrey, East and West Sussex > Brighton and Hove

Activity type

Higher or Secondary Education Establishments

Links

- [Contact the organisation](#)  [Website](#) 
- [Participation in EU R&I programmes](#) 
- [HORIZON collaboration network](#) 

Total cost

No data



ASOCIACION BC3 BASQUE CENTRE FOR CLIMATE CHANGE - KLIMA ALDAKETA IKERGA

 Spain

EU contribution

€ 145 808,00

Address

EDIFICIO 1 PLANTA 1 PARQUE CIENTIFICO DE UPV/EHU BARRIO SARRIENA
48940 Leioa 

Region

Noreste > País Vasco > Bizkaia

Activity type

Research Organisations

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

No data



MAX-PLANCK-GESELLSCHAFT ZUR FORDERUNG DER WISSENSCHAFTEN EV

 Germany

EU contribution

€ 39 680,00

Address

HOFGARTENSTRASSE 8
80539 Munchen 

Region

Bayern > Oberbayern > München, Kreisfreie Stadt

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

No data

Last update: 26 June 2017

Permalink: <https://cordis.europa.eu/project/id/308601>

European Union, 2025

