The Research Council of Norway

Norwegian research on energy transitions

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The Research Council of Norway

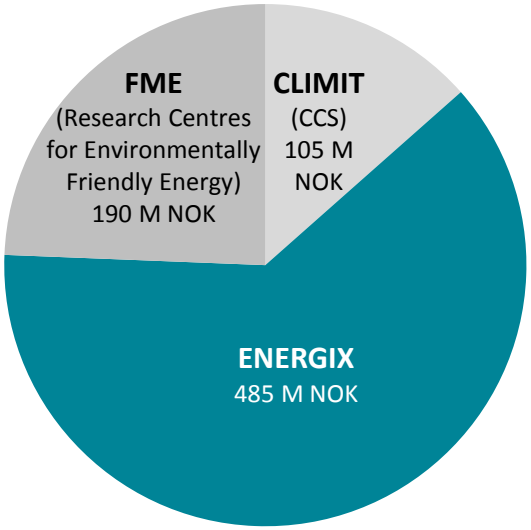
Innovation Norway

ENOVA

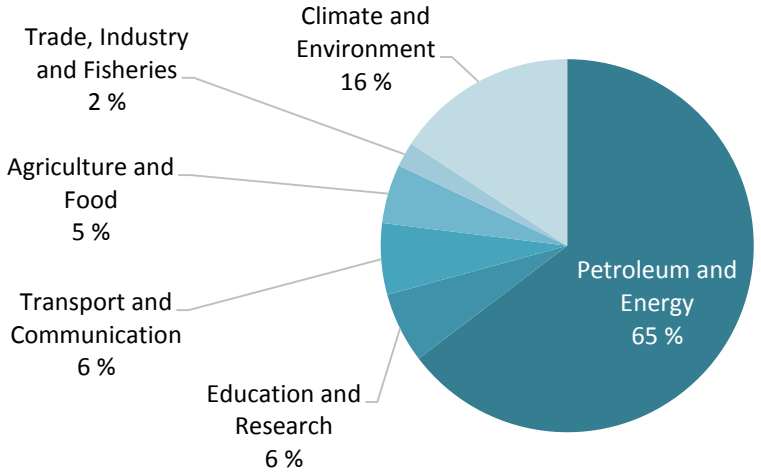
- ENERGIX
- FME (research centres for environmentally friendly energy)
- CLIMIT (CCS)
- TRANSPORT 2025
- KLIMAFORSK (climate)
- PETROMAKS2 (petroleum)
- BIONÆR (bioeconomy)
- etc

ENERGIX – Norway's central funding programme for energy research

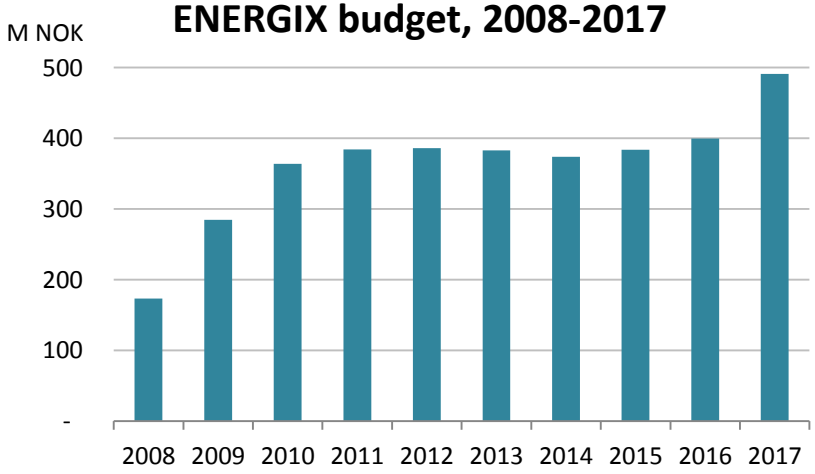
Clean energy research funding programmes, 2017



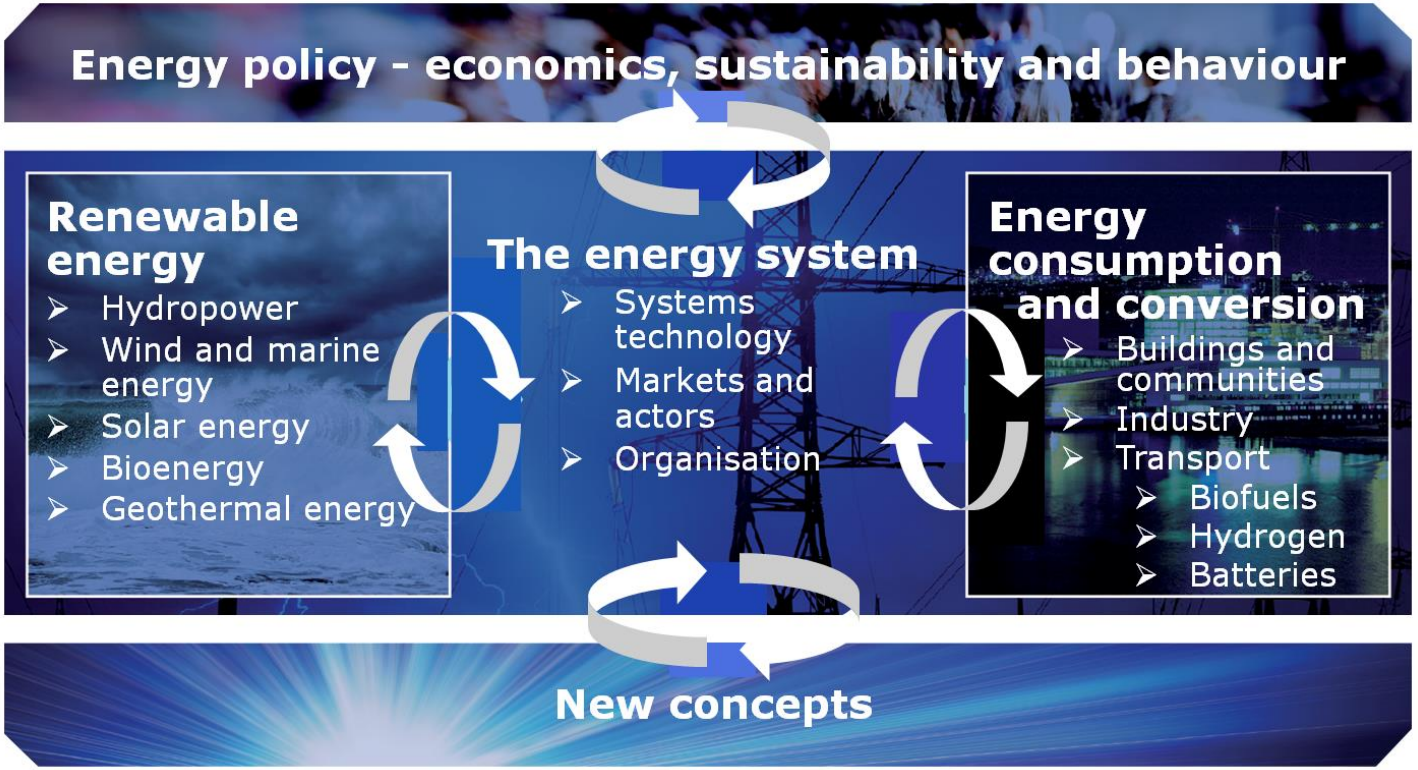
ENERGIX financing by ministry, 2017



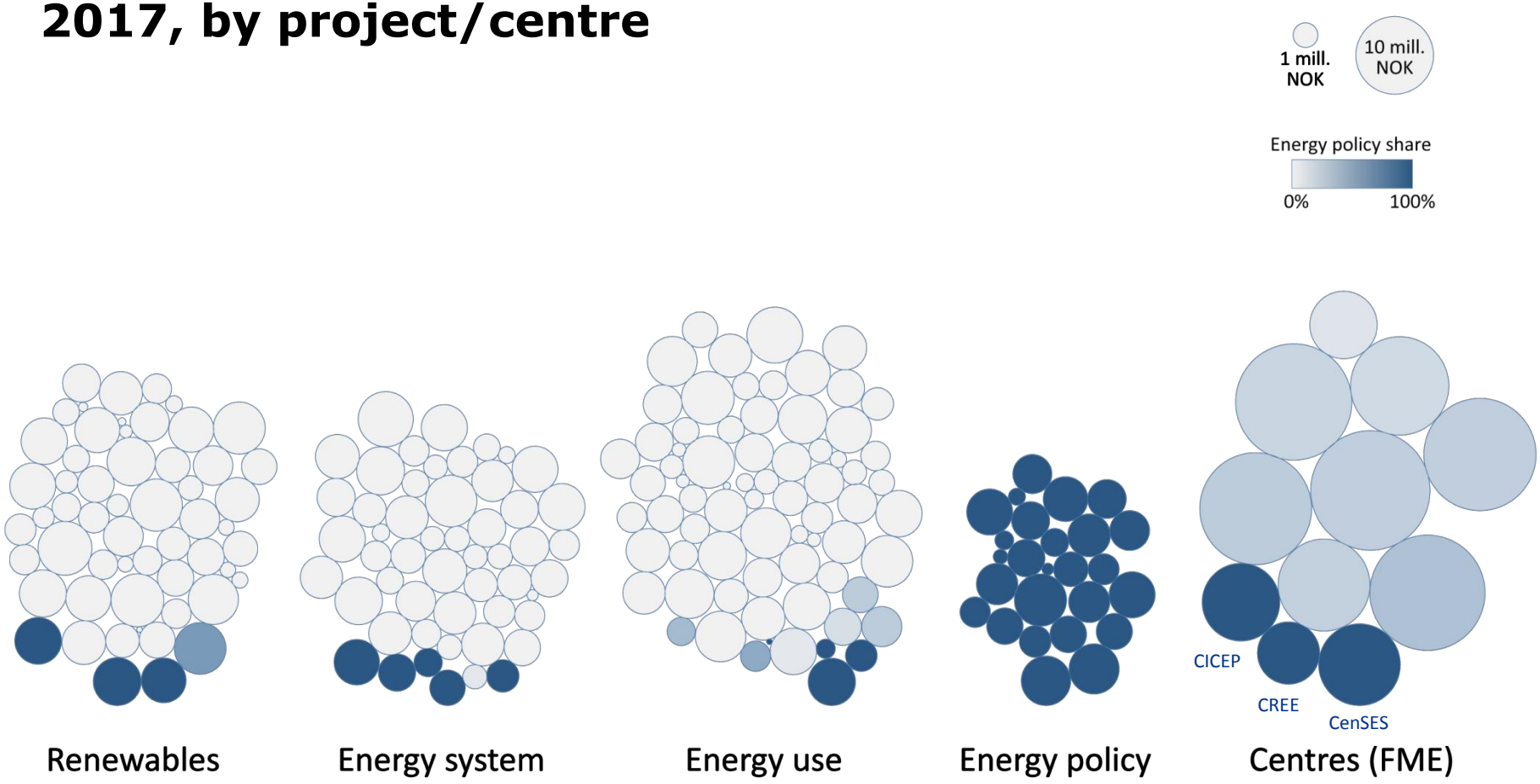
ENERGIX budget, 2008-2017



ENERGIX thematic focus areas

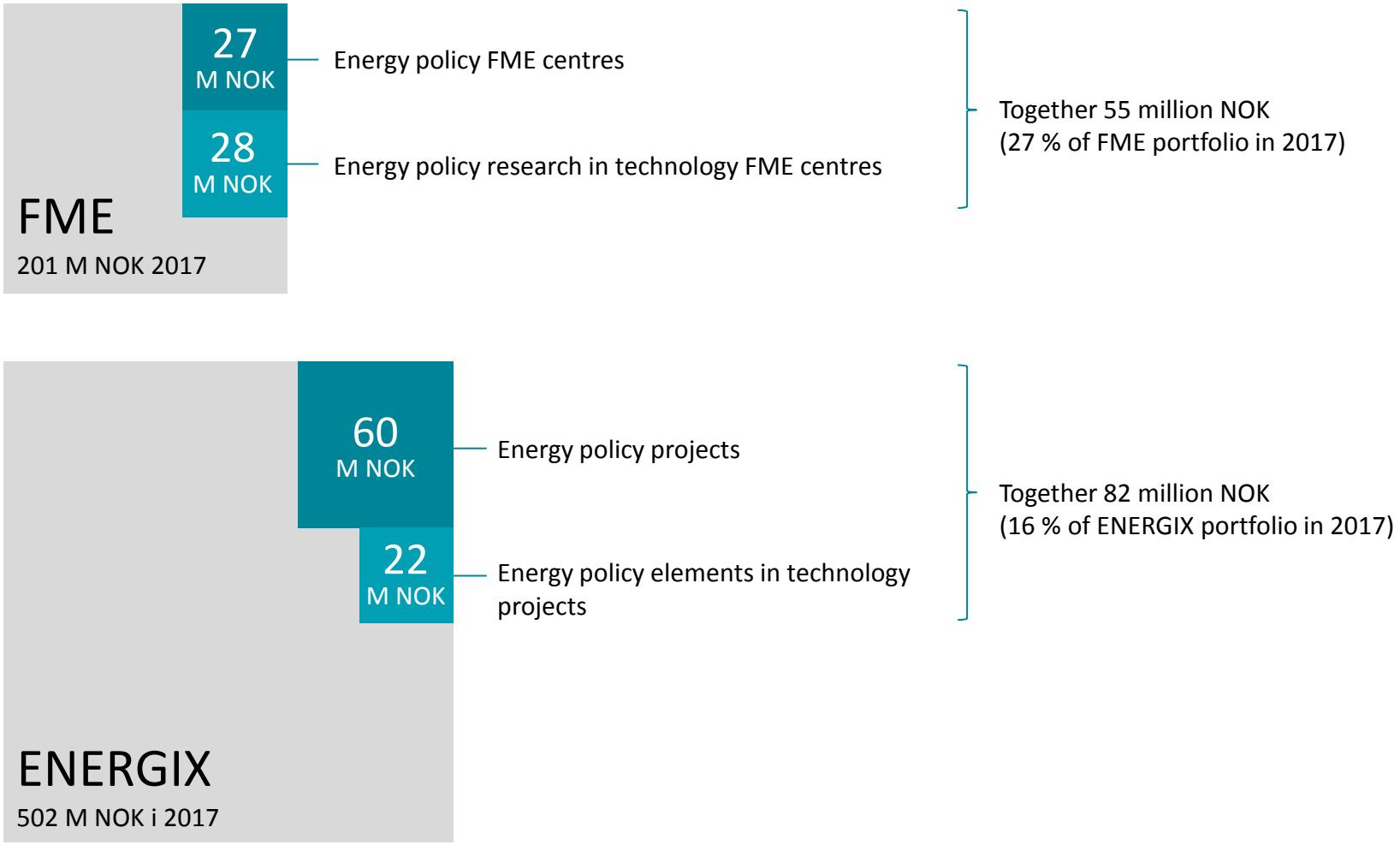


ENERGIX and FME funding 2017, by project/centre

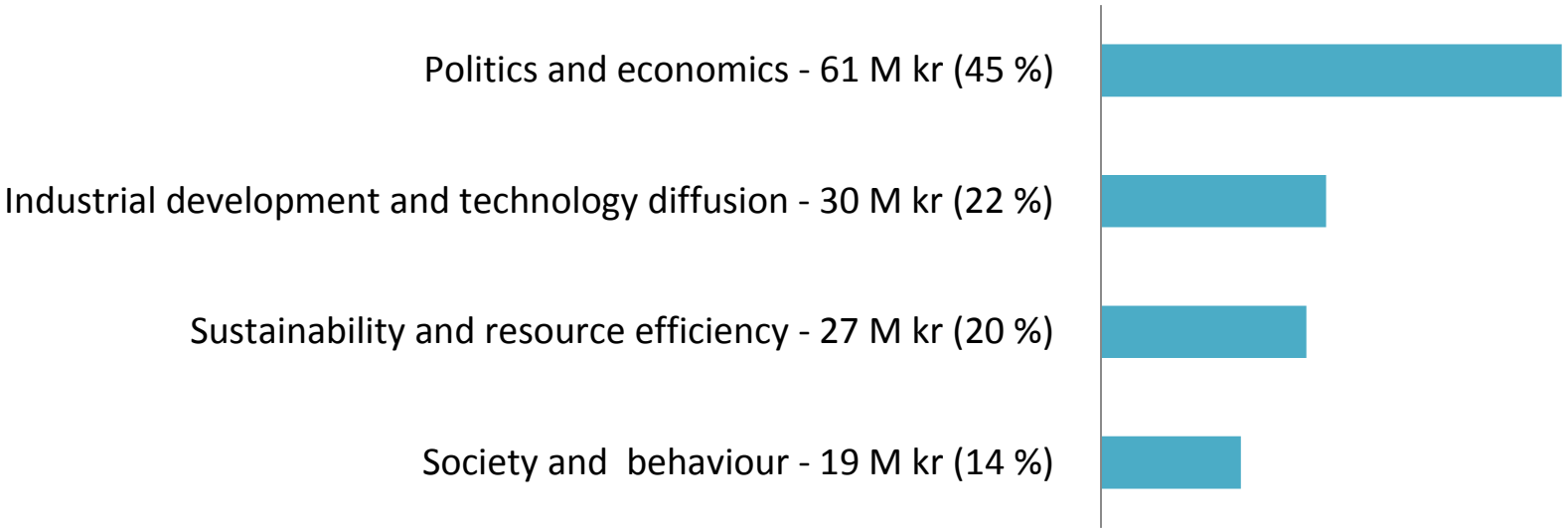


Note: Funding for one year in a multi-year project/centre. Excludes: New Concepts, first round of FME centres (2009-2017)

Energy policy share of ENERGIX and FME funding in 2017



Energy policy research in ENERGIX and FME by topic (total: 137 million NOK)



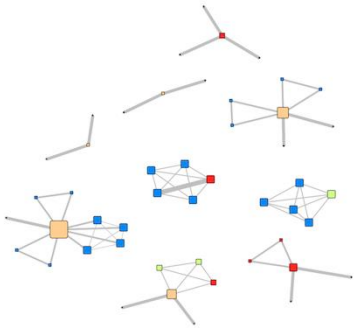
Bibliometric study of Norwegian social science research on energy

Norwegian higher education institutions

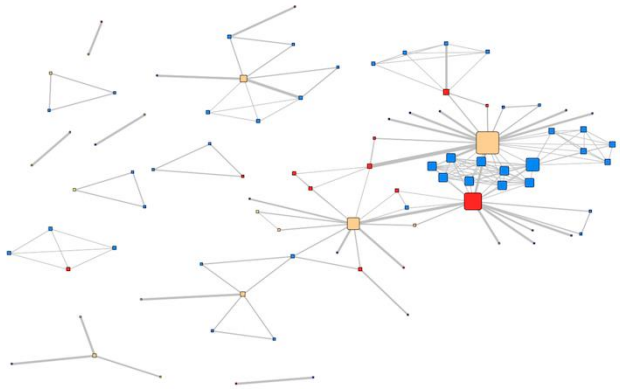
Norwegian research institute sector

Norwegian companies

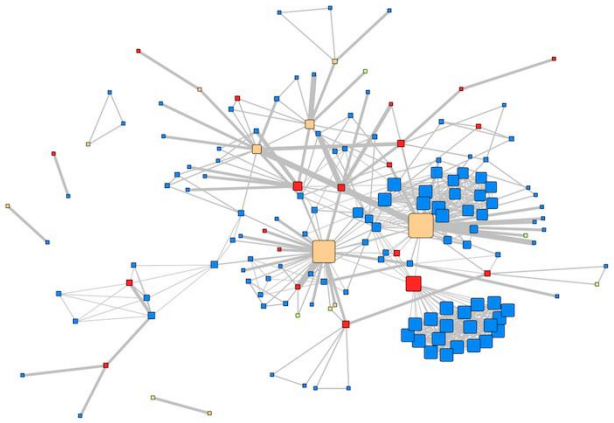
International organisations



1999 - 2008



2009 - 2011



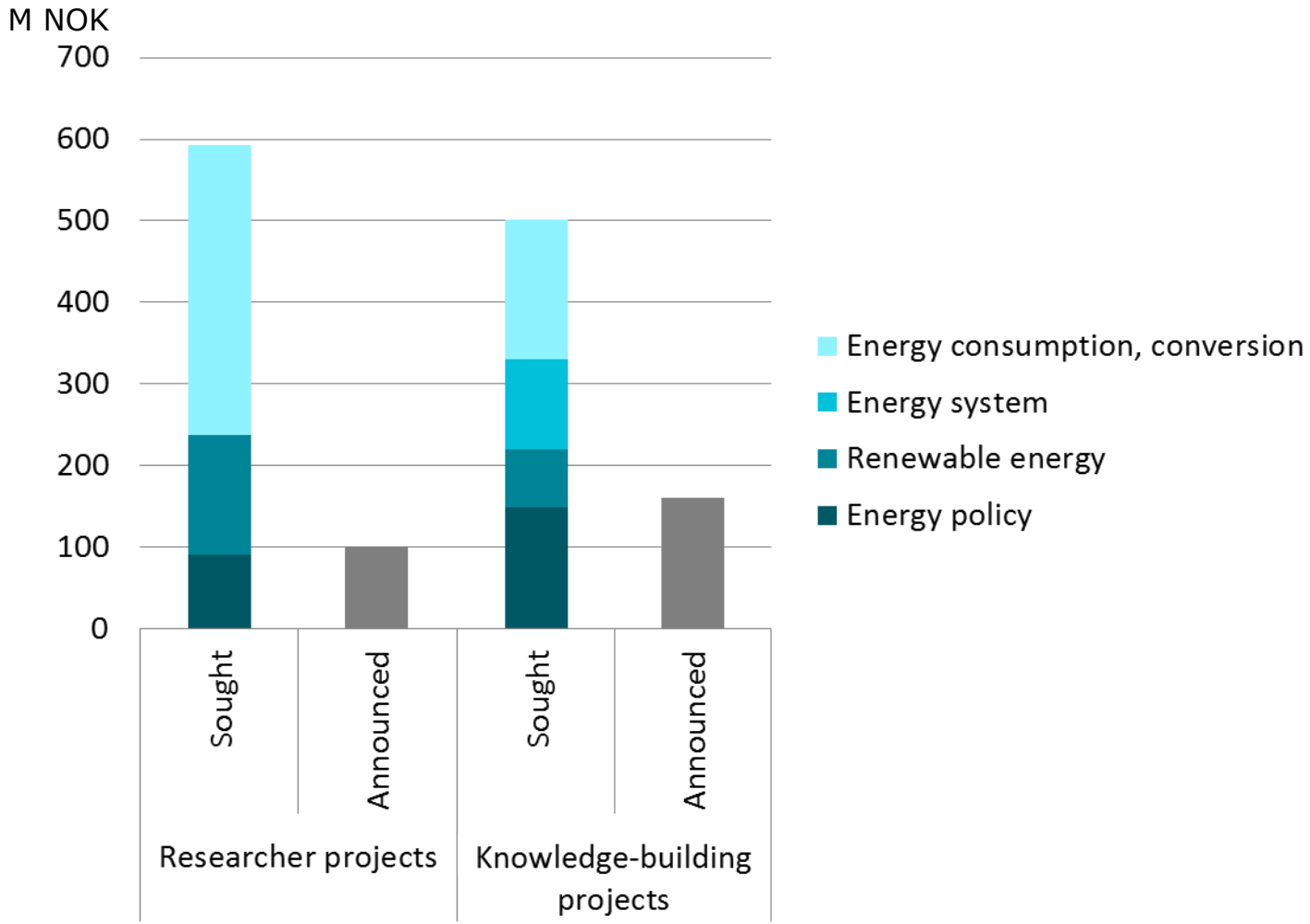
2012 - 2014

Source: adapted from NIFU 2017

Proposal types

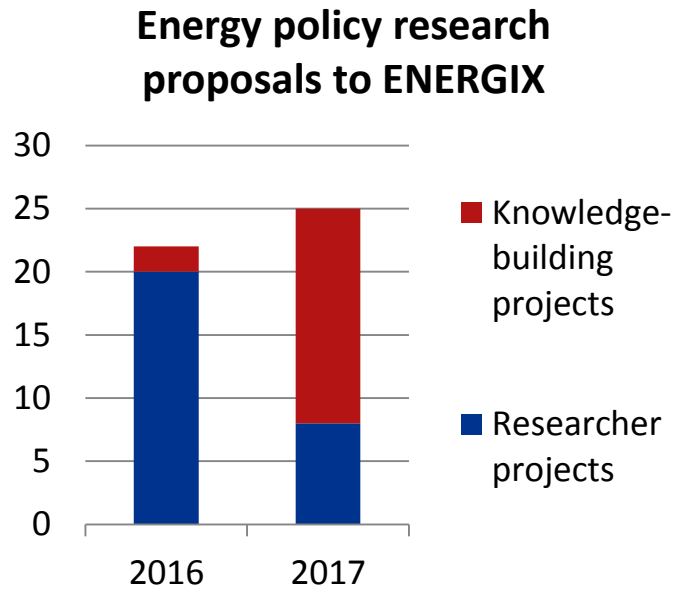
Researcher Projects	Knowledge-building Projects
Promote scientific renewal and the development of new knowledge	Contribute to long-term competence development and industry-oriented researcher training
No co-financing requirement	Minimum 20 % user co-financing as cash (private or public) or in-kind (public only)

ENERGIX 2017 call: Selected project types



From 2017: User independence

- Need for independence from users in order to produce credible research results
- Objective to increase relevance of energy policy research through greater user involvement
- 2017 call closed for Researcher Projects, unless project has a special need for independence
- 2017 call allowed public in-kind co-financing for Knowledge-Building Projects
- Together, these changes resulted in a shift to Knowledge-Building Project proposals



Potential new funding round for social science FME centres

- Focus on challenges and opportunities around energy and climate policy
  - GHG reductions, 2030/2050 targets, efficiency, transport
  - Security of supply, flexibility
  - Cost-effective utilisation of renewable resources
  - Competitive energy technology industries
- Deep user involvement
- Prominent and visible
- Highly interdisciplinary
- Significant international cooperation

Tentative timeline

December 2017	Government budget
January 2018	Call published
21st March 2018	Deadline for mandatory outline
10th October 2018	Deadline for call
May 2019	New centres announced at Energy Research Conference

Energy system modelling research needs, from a Research Council workshop in April 2017

A. Models

Flexibility and power
- Temporal granularity
- Market and incentives
- Optimisation between flexibility technologies
- Flexibility across energy carriers
- Future European energy markets

Consumers
- Distributed generation and storage
- Demand response
- Behaviour
- Economic irrationality

Uncertainty
- Stochasticity
- Assumptions on technology development, policy and drivers

Scope
- Europe
- Energy-Economy interplay
- Transport
- Bioenergy
- Climate, environment and health

B. Organisation

Cooperation between modelling groups

Linkages between models

Data access and quality

Other challenges
- Limited user bases
- Maintenance of models and databases
- Lack of 'official' models
- ICT interplay

C. Use

User competence and involvement

Modularity in models

Other challenges
- User friendliness
- Automation
- Documentation
- Visualisation of results

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Thank you

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