

# Objective FP7-ICT-2011.9.8

## Minimising Energy Consumption of Computing to the Limit (MINECC)



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## Rationale

- Rationale
  - Energy efficiency of today's technologies is orders of magnitude above the theoretical limits
  - Obstacle to realizing new functionalities in, for instance, mobile or distributed applications, and limits performance.
  - Increasing impact on energy supply and environment



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## Target Outcomes

- Foundations for radically new technologies for computation that strive for the theoretical limits in energy consumption while maintaining or even enhancing functionality and performance
  - New elementary devices and inter-device-communication mechanisms
  - Novel computing paradigms with radically improved energy efficiency (e.g. inspired by biology, post-Boolean logics and computing under uncertainty, randomness and unreliability as a result of low-energy device properties)
  - Software models and programming methodologies supporting the strive for the energetic limit (e. g. energy cost awareness or exploiting the trade-off between energy and performance/precision)
- Proposals should foresee a proof of concept, indication of expected energy gain, appropriate energy metrics or benchmarks for verification



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## Expected Impact & Further Reading

- Understanding of theoretical limits of energy efficiency in computation (e.g. energy dissipation, thermodynamic and quantum physics limits)
- Foundations of computing technologies with negligible energy consumption
- Reduction of the environmental impact caused by the energy consumption of ICT

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- **Consultation Workshop Report**  
[http://cordis.europa.eu/fp7/ict/fet-proactive/docs/shapefetip-wp2011-12-10\\_en.pdf](http://cordis.europa.eu/fp7/ict/fet-proactive/docs/shapefetip-wp2011-12-10_en.pdf)
  - **MINECC Web site**  
[http://cordis.europa.eu/fp7/ict/fet-proactive/minecc\\_en.html](http://cordis.europa.eu/fp7/ict/fet-proactive/minecc_en.html)



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## Technical Details

- Call 8, Objective FP7-ICT-2011.9.8
- STREPs only
- Budget\*: 15 Mio€
- Contact Persons:



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Francisco  
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Gallardo

(\*) indicative