

Built Environment, Energy, and Water

UCSD-Southampton
Collaboration Opportunities

Key Areas of Interest

- Water – how to adapt to changes in supply and demand including climate impacts
 - UCSD: SSI, Scripps; Southampton: Bakr
 - What can UK learn from California experience
 - How can built environment be part of the response strategy
 - Graywater, rain capture from roofs
 - Implications for building codes, earthquake safety, structural engineering
 - Water re-use/reclamation
 - Stormwater runoff
 - Water storage
 - Water rationing policies
- Institute of Sustainability – UK, PUSH; local water authorities – US & UK

Buildings & Energy

UCSD “smart” group (Calit, SSI, et al); UoS SERG: Patrick James, Mark Jentsch

- Zero-carbon buildings – new and retrofit
 - Modeling and predicting building performance; which are best to retrofit; validation of models
 - Characterizing different climatic regions, anticipating climate change impacts on built environment
 - Occupant behavior; information interface
 - Policies –e.g., building codes, disclosure of building efficiency rating
 - Transfer experience between commercial buildings to residential structures; systems-level integration of energy and other resource demands
- Stakeholders: design and construction companies; real estate developers; local and state authorities (building codes); Utilities; Chula Vista Energy Center; UK Homes and Communities Agencies, DECC, LWECC

Renewable Energy

UCSD: Smart Group, SIO; UoS: SERG

- Wind
 - Structural wind (integrated into building design)
 - Wind turbines – vibration and noise, aeroacoustics
 - Estimating wind resources over land and off-shore
 - Decision and planning support (e.g., weather window for installation and maintenance)
- Marine
 - Wave energy – modeling wave energy potential
 - Downscaling global ocean circulation models; high resolution coastal zone models
- Stakeholders: CleanTech, local companies; UK Trade & Investment; Vestas; UK developers, Crown State, DECC, Envirobusiness; Ports and Navies

Potential Mechanisms/Next Steps

- Exchange of experts
 - September add-on to Cambridge workshop; other
- Each named “champion” to confirm or delegate to specific individuals.
- Prepare capabilities summaries and exchange info.
 - Tony Raven, Neil Pearce – Peter Thomas
- Exchange list of funding opportunities and plans for proposing new research projects
- Comparative studies – instrument and measure same variables in Southampton and San Diego buildings, coastal environments
- Tap into rate-payer funding; connect to UK Carbon Trust and California Climate programs
- Identify demonstration/showcase projects and venues