

Hydropower on the River Thames

January 2013


Background

There has been an increase in proposals to install low head hydropower schemes on rivers throughout England and Wales. To ensure the sustainable expansion of this technology, in 2009 we produced a Good Practice Guide (GPG) for developers. The GPG is currently under review with public consultation and direct talks with interested groups. The revised GPG v2 is due to be issued in Spring 2013. We have also published a community hydropower guide (with DECC and the Energy Saving Trust) to help support communities in developing hydropower schemes.

There are a number of approvals which have to be gained before a hydropower scheme can be operated. These include a licence, planning permission, access rights and an electricity agreement with the end user or the National Grid.

Situation on the River Thames

As the regulating authority for hydropower developments we issue licences for their operation. We are in discussion with developers on a number of sites which belong to us. The situation at each of our active sites is described below.

Teddington Weir		
Location	Teddington Weir	
Operational Date	2013	
Development details	Proposal for three 4.0m diameter Archimedes screws, mounted on the weir structure. The maximum output is 490 kW.	
Developer Details	Community Group – Ham Hydro CIC (with Galliford Try Construction).	
Planning permission	Application submitted to LB of Richmond, awaiting decision.	
Licence	Developer has undertaken additional environmental surveys in the weirpool. The reports will provide data on fish, macro-invertebrates and macrophytes to update ecological reports to satisfy the Water Framework Directive compliance audit. An impoundment licence submission is planned for Feb/March 2013.	
Agreement for Lease	Exclusivity agreement signed. Lease arrangement to be confirmed.	
Electricity Agreement	Options explored but not agreed.	

Sunbury Weir




Location	Sunbury Weir, Sunbury
Operational Date	2014
Development details	Proposal for four 3.6m diameter Archimedes screws, in new channels across the overspill weir. The maximum power output is 330 kW.
Developer Details	Heather Parker Projects Ltd (with Galliford Try Infrastructure)
Planning permission	Full application not submitted. Screening Opinion complete. Discussion with local authority on-going in preparation for application.
Licence	Pre-application submitted and response returned. The developer has undertaken environmental surveys in the weirpool. The reports will provide data on fish, macro-invertebrates and macrophytes to support ecological reports required for their licence application. Full application expected in February/March 2013.
Agreement for Lease	Signed Exclusivity Agreement. Lease not formally progressed.
Electricity Agreement	Not agreed.

Bell Weir




Location	Bell Weir, Egham
Operational Date	2016
Development details	Proposal for two 4m diameter Archimedes screws mounted in a new channel on private land. There is 115 kW maximum power output.
Developer Details	Southeast Power Engineering Limited.
Planning permission	Not applied for.
Licence	Pre-app completed. Full licence application not submitted.
Agreement for Lease	Not applied for.
Electricity Agreement	In negotiation with adjacent landowner.

Romney Weir

Location	Romney Weir, Windsor		
Operational Date	March 2013		
Development details	Two 4m diameter Archimedes screws, mounted on the weir structure. There is 300 kW maximum power output.		
Developer Details	Southeast Power Engineering Limited		
Planning permission	Granted.		
Licence	Issued. Scheme is not yet operational. Outstanding electrical work required to connect scheme to Windsor Castle is underway. Other minor works are required prior to commissioning of turbines. Developer is programming outstanding works with a view to complete in February 2013.		
Agreement for Lease	Signed.		
Electricity Agreement	Agreed with Royal Household at Windsor Castle.		

Boveney Weir


Location	Boveney Weir, Windsor	
Operational Date	TBC	
Development details	Initial proposal on hold. Low head may result in non viability of sustainable scheme.	
Developer Details	To be confirmed.	
Planning permission	Not applied for.	
Licence	Not applied for.	
Agreement for Lease	Not applied for.	
Electricity Agreement	Not agreed.	


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Boulter's Weir		
Location	Boulter's Weir, Maidenhead	
Operational Date	2014	
Development details	Proposal for four 3.6m diameter Archimedes screws to be mounted on the weir structure. There is 490 kW maximum power output.	
Developer Details	Heather Parker Projects Ltd (with Galliford Try Infrastructure)	
Planning permission	Not applied for.	
Licence	Pre-application submitted and initial response returned. The developer has undertaken environmental surveys in the weirpool. The reports will provide data on fish, macro-invertebrates and macrophytes to support ecological reports required for their licence application.	
Agreement for Lease	Exclusivity Agreement in place. Lease not progressed.	
Electricity Agreement	Not agreed.	

Marlow Weir		
Location	Marlow Weir, Marlow	
Operational Date	2014	
Development details	Proposal for two 4.5m diameter Archimedes screws to be mounted on the weir structure. There is 335 kW maximum power output.	
Developer Details	Southeast Power Engineering Limited.	
Planning permission	Not applied for.	
Licence	Pre-application submitted. Developer is starting some stakeholder engagement as part of the process to develop a pre-application for a licence.	
Agreement for Lease	Exclusivity Agreement in place. Lease not progressed.	
Electricity Agreement	Not agreed.	

Goring Weir




Location	Goring Weir, Goring
Operational Date	2013
Development details	Proposal for three 3.6m diameter Archimedes screws, mounted on the weir. There is 234 kW maximum power output.
Developer Details	A Community group - Goring and Streatley Sustainability Group.
Planning permission	Planning permission application has been submitted and is awaiting determination with the planning authority.
Licence	Full application made, in progress.
Agreement for Lease	HoT in draft, lease in discussion.
Electricity Agreement	Not agreed.

Osney Weir



Location	Osney Weir, Oxford
Operational Date	2013
Development details	Proposal for one 3m diameter Archimedes screw, mounted in a new channel. There is a maximum output of 49 kW. Installation of a brush fish pass alongside the turbine channel. Viewing platform with public display and information board.
Developer Details	West Oxford Community Renewables Ltd (IPS).
Planning permission	Planning permission application has been submitted.
Licence	Drafted, awaiting 'Right of Access' agreement before issue.
Agreement for Lease	HoT in draft, lease in discussion.
Electricity Agreement	To be agreed.

Viaduct			
Location	Viaduct Weir on the River Mole at Esher, Surrey		
Operational Date	2015		
Development details	Initial proposal to install turbine in adjacent new channel unlikely due to high pressure gas main crossing site. Alternative option for in-river scheme proposed. Details to be submitted for approval in principle.		
Developer Details	Southeast Power Engineering Limited.		
Planning permission	Not applied for.		
Licence	Pre-application completed.		
Agreement for Lease	Not applied for.		
Electricity Agreement	Not agreed.		

Future development

In South East Region we are leading the way with the development of hydropower on Environment Agency weirs. We have had interest from developers for schemes at other weirs along the River Thames at Sandford, Radcot, Sutton Courtenay, Shifford, Benson, Days, Rushey and Buscot weirs.

Proposals on the Thames generally provide additional facilities for fish passage. The Thames weirpools, especially the gravels, are recognised as a valuable habitat that requires protection.

Fish Trials at Romney Weir hydro scheme

Further theoretical studies to look at Archimedes screws with 4 and 5 blade designs have been completed. An interim guidance note has been issued for use in determining applications using these designs. At Romney we have a commitment from the developer to fund fish passage trials on a 5 blade design Archimedes screw installed at the weir. This should provide evidence to support the national interim guidance note. Once the Romney scheme is operational our Fisheries Technical Specialists will work with the operator to develop a trial to simulate and record passage of fish through the 5 blade turbine. This will be important research to provide evidence and support to our Good Practice Guidelines and any proposed revisions.

There will be many challenges ahead in developing some of these locations, including any compensation for loss of flood capacity and planning considerations including noise and aesthetics. Overcoming these has taken longer than expected on previous schemes; nevertheless we are committed to supporting the Government target of 15% renewables by 2020.