CSE: IWS & Börse Frankfurt: IWI
FEB - 2016
Borders College Project –

• Background & Objectives

• Relationships and Contracts

• Project Technical

• Project Outcomes Launch and Social Benefits

• Opportunity
Introduced to college by Scottish Water in July 2014
College Objective to further reduce GHG emissions following
- Energy efficiency retrofit
- Solar installation
- Looking for a renewable heat source
SHARC Competitor – Biomass boilers
SHARC Feasibility completed August 2014 demonstrated
- Similar GHG savings to biomass
- Saved on fuel delivery
- Stabilised heat price
- No up front capital
Completed pre-contract work February 2015
Started works June 2015.
Project Relationships and Contracts

- **SPV established (SHARC Caledonia)**
  - JV between GIB/Equitix and SHARC
- **SPV with Borders College – Ultimate client and consumer of heat**
  - 20 year Heat Purchase agreement (aligned to UK Government RHI timeline).
  - License to occupy - allowing SHARC asset to occupy college land for 20 years.
- **SPV with Scottish Water – Provider of resource – and lead generator**
  - Use of Sewer contract
  - Includes Technical support from Scottish Water Horizons
  - Includes ongoing annual use of sewer charge (Gate fee) – related to energy generated PA
- **SPV with SHARC**
  - Shareholder agreement to govern management of SPV
  - Installation contract to cover project
  - O&M contract to cover operation of system for 20 years
- **Suit of contracts can be rolled out to any project going forward**
Project Technical

- Pre-contract design
  - Civil Engineering
  - Mechanical & Energy engineering
  - Due Diligence from Equitix TA (WSP)

- Onsite construction of
  - Energy Centre
  - Sewer Interface and Pumping station install
  - 500m of Flow return heat network, connecting 5 plantrooms
  - Plant room adaptation of college heat distribution – connection to LLH

- Off site production of equipment for install at site
  - SHARC skid and PHX
  - Heat Pumps
  - Controls – software development
  - Pump sets

- Post contract commissioning
The Borders project utilizes the adjacent town Sewer for supply

SHARC wet well incorporating a penstock into main sewer

Construction of the sewer interface
500m low temperature heat network installed

Heat distribution from Energy centre to Network

Pre-Insulated heat network external connection to High Mill
Retrofit Solution to ageing building.

- Research/Labs plantroom SHARC pipework interface
- SHARC pipe work installation to TTC building
- External mains into Research/labs
- High Mill Building Occupied by Herriot Watt University
Energy Centre constructed to house the SHARC equipment

The construction of the Energy Centre

Heat pump being craned into position

400kW heat pump & 2500Litre buffer vessel

The Energy Centre
The Borders project demonstrates:

- The retrofit credentials of system.
- The use of the system in DHN opportunity.
- The tie in to town sewer networks.
- The ability to fund projects under heat supply agreements.

Customer benefits - SHARC Energy will provide the College with:

- 1.8 GWh of annual heat
- GHG emissions saving of in excess of 150 tones per year
- 20 year stable heat supply price

Social Benefits:

- Regional Employment – during construction and operational stage
- Energy Security - Locally produced energy supply
- Reduced GHG emissions
- Contribution to local economy
Borders College Launch

Project Launch Event 8th December 2015

- 100 + delegates attended
- Event Supported by Scottish Government Minister
- Event Supported by SW main board Director
- Substantial Post event PR and media coverage

Demonstrator credentials of system continue to support on going promotion to market;

- 6 post event demonstration visits
- 1 event involved 40 delegates.
Performance of first Quarterly review

- Heat delivery to college operating comfortably at 55°C flow (project modeled at 63°C)
- System COPs consistently above 4 (project modeled at 3.7)
- So far so good!
THANK YOU

For more information please visit our website at www.sharcenergy.com

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