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Balgonie Hydro Station



Stormontfield Hydro Station



- 2 owned hydro stations in Scotland
- 2 under construction
- Several under development

TradeLink Solutions



- Manage 15 stations
 - Wind
 - Hydro
 - Biomass

Connection to Grid

- Issues related to size
- Critical sizes 10kw, 30kw (new), 200kw
- Onsite use easy to install
- Grid sales – High cost/very slow
- Cost– Gets to £10k very quickly
- Connection study
- Metering
- G59 protection etc.
- Many changes proposed - no time today

Electricity Sales

Issues to Consider

- When in the development process to start contacting offtakers
- Who to contact
 - Established electricity suppliers
 - New ‘green’ suppliers
 - Others
- Short or long term PPAs
 - Risks
 - Cash flow

Revenue Stream

- Electricity sales
 - Use of electricity onsite
 - Sale of electricity to other onsite 3rd parties
 - Sale of electricity to a supplier
- Triad (embedded benefits)
- Renewable Obligation Certificates
- Levy Exemption Certificates

Sales Options to Consider

- Sell electricity and LECs only
- Trade ROCs separately
- Sell ROCs with electricity and LECs

Electricity Sales

- Price structure
 - Standard time of day (SToD)
 - Flat price
 - Winter/Summer split
- Commissioning risk
- Balancing risk
- Payment terms
- Change of law risk

ROC Sales

- Whether to sell ROCs with electricity
 - Probably won't get optimal price
 - Cash flow issues to consider
- Elements of ROC price
 - Buy out price
 - Recycle value
- Options if decide to trade ROCs
 - Sell in market on ongoing basis
 - Sell on the basis of % of buyout and recycle value

Levy Exemption Certificates

- Can trade separately
- Sell with electricity

Triad and embedded benefits

- What is triad
- Other embedded benefits

Short Term PPA Values - Large Projects

(25 years + production for SE Hydro)

Element	Value	£/MWh
Electricity Sales	£24/MWh Winter £17/MWh Summer	19 - 22
ROC Sales	90 – 95% Buyout 70 – 80% Recycle	27.50 15 – 18
LEC Sales	80 – 90%	3.50 – 4.0
Triad benefit	80% Generator 20% Supplier	Location?
	TOTAL	65 – 73+

Current PPA Market For Small Generators

- 1 – no bid
- 2 – derisory if forced
- 3 – Market, 3 yrs max
- 4 – Spot market or 5MW+
- 5 – 10 yrs, market, failed to deliver
- 6 – 80% market, 3 years
- 7 – 70% market 2 years/no bid
- 8 – 80% market, 5 years

Key Issues for Small Generators

- Suppliers pivotal
- Few major suppliers offering suitable terms for private projects
- No bankable offers for small projects
- Large fixed charges for suppliers
- Aggregation services
- Legislative change in 2005 Review
- NFFO Auctions

Key Risks

- New ideas/solutions essentially all political (2027)
- Supply/demand for electricity
- Competitive (7 large players)
- Market structure
- ROC – level of investment
- Europe (2011) – 10/15/20%

Financing

- Clear Skies
- Specialist Banks
 - Triodos
 - Co-op
- Investment funds
- Own bank