

Minutes from Harlaw Hydro Annual General Meeting

Virtually using Zoom 26th June 2019 at 7:30pm



Housekeeping – The Virtual AGM

Martin Petty welcomed all those who had joined to Harlaw Hydro's first virtual AGM.

All the basic housekeeping information is on the screen,

- we are recording the AGM,
- if all goes to plan you will see the presentation slide and the speaker. We will try to move smoothly between speakers but please be patient if there is a slight delay.
- The Q&A and chat options will be available throughout the meeting with answers coming at the end.
- When the time comes you will be able to vote 'yes' or 'no' to board recommendations.
- Its 5 years since these pictures were taken
 - You see Andrew Clark, who will be talking to you later, taking a picture of the main inlet pipe which at that stage just went up in the air ahead of turbine house being built.
 - And the big day, Fergus Ewing formally opening our scheme.

Origins and Purpose - Slide 3

Harlaw Hydro is here because of community support; this is a Community success showing what can be done by people in the community. A big thank you to my fellow board members who take an active interest in the society and look after the finance and the day to day operation of the turbine.

We've been generating for nearly 5 years and Harlaw Hydro Limited was formally constituted nearly 8 years so it is appropriate to remind ourselves of some of the background and hopefully answer one or two questions that have arisen, specifically why do we give our surplus money to Balerno Village Trust.

In 2009 Balerno Village Trust held a community consultation and there was a definite interest in a small hydro scheme; BVT established a hydro project group as a result.

The project group developed the project to the point where capital had to be raised. It was at that point that Balerno Village Trust, with the excellent help of Scottish Cooperative Development, created Harlaw Hydro Limited, a cooperative setup for the benefit of the community (i.e. surplus funds must go to the community rather than the members), crucially Harlaw Hydro is able to issue shares which BVT could not do.

Under the rules of the society, Harlaw Hydro, an Industrial Provident Society, interest on capital invested can be paid to members, up to a maximum of 5%, AND surplus funds are channelled to the community through Balerno Village Trust which is a charity established to help develop and improve the community. Additionally, there was a commitment from BVT to make some funds available to the wider community that Harlaw Hydro represented, this commitment is fulfilled by BVT's participation in the Community Chest, you will hear from Emma later about the work BVT does and the Community Chest.

Agenda – Martin Petty (slides 4)

Present

31 members joined the webinar (51 had registered to join)

Apologies

9 members tendered their apologies.

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Minutes of previous AGM

The minutes from 2019 AGM were approved by the members present who voted 21 in favour and 0 against.

Chairman's remarks– Martin Petty (slides 5 - 10)

There have been three significant areas of activity this year:-

- Making best use of all the water.
- Changing from Solarplicity to Limejump for our Power Purchase Agreement.
- Improving the resilience of our system.

Water (slides 5-9)

This year was a bumper year, we generated three times what we did in the year 2018/19.

The rolling 12-month totals on the Power Meter were circa 431000 kWh vs 138000 kWh.

The charts from the Meteorological Office tell us what we know (shades of brown show rainfall below average for the years 1981-2010 with shades of blue showing above average rainfall). It was wet last year. Winter for Meteorological Office is December, January, and February; it is winter which has the largest impact on our revenue. The charts also illustrate how rainfall varies across the country as well as across the years and that we are in one of the drier parts of the UK.

However, this Spring has been gloriously sunny and dry as you see from the rainfall chart for the first two months of this financial year – it is lovely for walking around the reservoir, but low rainfall means low electricity generation.

Whether we blame it on climate change or not it is clear that there can be wide variations in the amount of rainfall from one year to the next, this in turn means that Harlaw Hydro's revenue can go down as well as up.

Solarplicity (slide 10)

Last year we had to report that Solarplicity, the company that bought our electricity, was clearly having problems with liquidity, several monthly payments were outstanding. While the revenue we get from selling electricity is important the major part of our revenue comes from the government through the Feed in Tariff (FiT) but our FiT payments were channelled through Solarplicity. In May the board decided that we ought to cancel our Power Purchase Agreement (PPA) with Solarplicity as they had clearly defaulted. We had almost completed the transfer to Limejump when Solarplicity went into administration. The good news is that we subsequently received all the FiT payments due to us and there was a very small gap between the demise of Solarplicity and the start of the new PPA with Limejump. The bad news is that we are not expecting see any of the missing payments from Solarplicity. Gordon will provide some more detail in the financial report.

Engineering (slide 11)

The story this year has been one of incremental improvement. We have learnt more of the intricacies of our control system and have managed to smooth the changes in power generated and of course water used. Andrew will tell you more later in the meeting but its thanks to his conscientious drive to smooth and maximise output, the agreement to a realistic reservoir level with the anglers and the council, brokered by Gordon MacDonald, and of course rain, that we have done so well this year.

We have changed the way our by-pass valve is controlled to improve operational resilience and we have worked with Proterra, our maintenance engineers, to keep the system operating as it should.

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Donation to BVT (slide 11)

As a result of the large increase in revenue the Board feels it is right to increase the donation given to the Balerno Village Trust (BVT) for use in the community from £20,000 to £30,000. It is expected that Harlaw Hydro will be able to donate £30,000 again next year but given the large fluctuations in rainfall this cannot be guaranteed.

Finance – Gordon Grassick (slides 12 - 16)

12 - The Statutory Annual a/c's to 31 March 20, along with a short Q&A were circulated to members before the meeting; both were prepared at the end of Gordon's 3rd year as Treasurer.

Gordon hoped these documents were HELPFUL in the understanding of members Investment in Harlaw Hydro.

What a spectacular year of Electricity Generation !!!

13 - The business of Harlaw Hydro is Electricity Generation, this slide contains 4 years of Generation with Quarters for each year in KWh. There is NO PATTERN to the Generation. You could perhaps loosely say the Quarters to June are broadly similar, BUT all OTHER Quarters over the 4 years show significant variations.

I would draw your attention to Year 2019/20, and the December and March Quarters. QUITE massive generation, especially compared to last year. This Generation LEVEL contributed hugely to the excellent Financial Results.

KWh's become £'s from both the FEED-IN-TARIFF scheme (with the acronym FIT) and the contractual sale of Export Electricity to the Power market. The FIT Rate is controlled by Ofgem and increases annually by the RPI.

FIT represents approximately 80% of Income, PAYMENT of which is therefore GUARANTEED.

14 - The good news is the Finance Records are in good shape.

Better news is the INCOME of £133,000, which compares to Income of JUST £50,000 last year.

In terms of Finance PROCESSING, I update Bank Transactions and I schedule Income Generation monthly.

The Bank Transactions and Income Generation are submitted to BOARD Meetings which are held regularly throughout the Financial year.

The Harlaw Board are therefore kept well informed of the Financial status of the Company.

Stripping out exceptional costs for this year of the Bad Debt and the extra Repairs, and also allowing for increases to the Balerno Village Trust Donation, Provisions and to Share Interest, the UNDERLYING RUNNING costs this year are very similar to last year.

The year shows a SURPLUS of £31k, compared with a DEFICIT last year of £(17)k

I would like to mention just a few EXCEPTIONAL points.

- The DEBT due by Solarplicity of £11,000 has been written off, as it appears very unlikely to be recoverable. Solarplicity were just 1 of 6 Electricity companies FAILING in 2019.
- RESERVES were boosted by a most generous DONATION of £5,000 from a Share Capital Redemption.
- The increase of £5k in MAINTENANCE costs was required to MAXIMISE system RESILIENCE

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Though not required by Legislation, Harlaw Hydro have Registered for Vat. The effect of being Vat Registered is to allow any Vat on Costs to be recovered, which helps Cash Flow.

The projected INTEREST payment of 5%, up from 3% last year, is the Maximum currently permitted by the RULES.

15 – The Harlaw Hydro Balance Sheet is very uncomplicated and is in good shape.

- The original plant purchased of over £300k is depreciated by 5% annually, to coincide with the expiry of the FIT payment which is made over 20 years.
- The Bank position is very healthy and growing steadily to cope with future demands.
- We have now made Investments of £26k in Green Energy projects. Further Investments are planned for this year.
- Provisions against POTENTIAL future Liabilities now total £38,000

The most significant point to make about the Balance Sheet is the shift from Negative to Positive RESERVES, RESULTING from the very healthy Surplus this year.

16 - I wanted to briefly share the progress made by Harlaw Hydro since start-up in 2015.

I can do so by using an abbreviated Income & Expenditure and the Balance Sheet.

If you look along the INCOME row, it is clear how INCOME varies considerably over the years, PRIMARILY due to WATER availability.

The EFFECT of INCOME PERMEATES right through the Inc & Expense a/c, AND the Balance Sheet. This is illustrated so well by COMPARING last year with a Deficit of £(17)k, to this year and a SURPLUS of £31k.

The 2018-19 Deficit effectively prevents an increase in the Bank Balances and caused a large increase in Negative Reserves.

Whereas the current Surplus results in a large Bank Balance increase, and the creation of POSITIVE Reserves.

Net Assets are now £398k, represented by the Share Capital of £392k and Reserves of £6k.

Verification

Gordon Mavor carried out an Independent Verification of the Finance records shortly after the Year End.

Gordon has confirmed all is in order, and that he will be happy to continue his services in the future.

Finally Gordon expressed his thanks to his co-directors, for all the time they commit to Harlaw Hydro.

Thanks also to Martin Petty, Andrew Clark and Alister Skinner, with whom I have the most day to day contact. I do appreciate their ongoing guidance and good council.

The Board communicate frequently, and they all have the best interests of Harlaw Hydro on their radar.

Also thanks to our Members for the support that enabled a successful Village enterprise.

Voting on Finance

29 members voted to approve the statutory accounts, 0 voted against.

29 members voted to approve an interest payment of 5%, 0 voted against.

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29 members voted to approve the verification of the accounts, 0 voted against.

Engineering - – Andrew Clark (slides 22 - 35)

22 - Last year we concentrated on Resilience of our systems to cater for failures.

This year we have looked at possible optimisations.

23 - This is our main control system cabinet. We used to have a single UPS supporting everything, but that was only sized to provide about 20 minutes of power to keep the control system going in the event of a grid outage. We have had several outages longer than that.

We have now added another UPS in main cabinet to supply the By-Pass valve that opens when the turbine is down. The UPS at the front of the picture now supplies that so it operates even when the grid is down.

We now have a second cabinet with another UPS supplying the CCTV system and all our comms equipment. The large battery on the bottom shelf will keep it going for days in a major outage so that we can still see remotely what is happening.

24 - Now that we have 5 years' worth of data we have been able to look at quite a lot of useful trends and potential optimisations.

25 - This Plot shows the last 2 years of Reservoir level data – a Bad Year followed by a Good Year

The bottom line of the blue area is the reservoir level over time.

The zero level represents the notch in the spillway. We don't really want anything above that as it is lost generation to us.

After a meeting with CEC last year initiated by Gordon Macdonald MSP all interested parties (Fishermen, CEC Flood Dept, HH) agreed a target level for the reservoir at -900mm. You can see the change mid-way along the graph. It gives us a much higher head to generate from = more power!

So in 2018/19 we were down to as much as 2500mm below the spillway and we were actually only generating 11 kW at that point.

We did not have much rain that year. In this last year we had more rain but also a higher head on average to generate from.

26 - I have enlarged this part of the graph to show you what happens when we get a heavy rainstorm forecast.

We draw down the reservoir to a lower target of -1200 to make more headroom by generating at our maximum power.

Then the storm arrives, Threipmuir goes over its spillway and Whoosh! In a matter of hours we go over the top of Harlaw by 500mm.

We would like our control system in future have input of rain forecast and Threipmuir levels data to better predict these situations.

27 - We have also been looking at head losses in the pipework system. This is a sketch of the Harlaw Inlet Tower.

Water enters only through a single valve at the bottom of the tower as shown by the arrow on the left.

The valve dates back to Victorian times and is considerably smaller in area than the Penstock Pipe which runs under the dam to the turbine.

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This results in a significant head loss at high flows, meaning less power gets to the turbine.

28 - To illustrate what happens here is a screenshot of the turbine control system running at 68kW.

The graphical representation in dark blue top left shows the respective levels of the reservoir (the - 845mm) and the lower level of the water inside the tower (-4000mm). The difference between these readings is the head we have lost passing through the restriction of the Inlet valve.

So we decided to do some analysis of the flows and see what might be done to counteract these losses.

29 - One idea was to overcome the head losses caused by the relatively small tower inlet valve in high flow conditions by putting a pump-primed syphon over the top of the tower to reduce the drawdown. Our analysis shows that it would generate a few more kW but is still hard to cost-justify for the occasions that our historical data tells us that it would benefit, mainly because two-thirds of the losses occur further down the Penstock pipe including the tower outlet valve and a 45 degree branch at the end of the penstock.

30 - This is a spreadsheet model we built for a syphon. We found it would need at least a 250mm dia pipe to get an additional 100 l/s of flow during high level conditions.

31 - Another idea looks at the bottom of the Inlet tower – this is 20m down - where the flow conditions between the Inlet and Outlet valves are far from ideal.

This is Victorian engineering with 18” thick stone walls and quite restrictive valve shapes. And a ladder in the way!

32 - This is the tower Outlet valve, which is even more restricted as you can see. Behind this is our 24” dia Penstock Pipe – much larger than the valve that feeds it...

33 - The diagram on the left is a plan showing what might be happening to the flow as it hits relatively static water in the tower then goes into the narrow outlet slot that you saw in the previous picture.

One possible solution would be to fit a perforated flow guide as the cross section on the right shows, to prevent the flow forming eddies.

The difficulties with this solution are that it would need to be removable to allow CEC to inspect the valves annually and also that we have a 20mm grille right across the outlet valve to stop debris going down the pipe to the turbine. That would get in the way.

34 - Finally we are looking at amending or rewriting the current Control System. It was originally designed for a run-of-river scheme and is not ideally optimised for our reservoir situation

Election to the Board (Slides 37 - 38)

We can elect up to 9 directors from the membership and at present have 7. Each year 3 directors retire in rotation and are eligible for re-election.

This year Gordon Grassick, Alister Skinner and Martin Petty are all retiring, and all are standing for re-election.

29 members voted to re-elect Gordon Grassick and 0 voted against.

29 members voted to re-elect Martin Petty and 0 voted against.

29 members voted to re-elect Alister Skinner and 0 voted against.

Balerno Village Trust and the Community Chest – Emma Galloway (slides 40 – 46)

Emma outlined the work that BVT carries out, the largest activity is the monthly Farmers Market which is very much a community event with local organisations taking stalls as well as traders. During the

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COVID lockdown the physical market of course has stopped, it is due to restart in July, but a virtual farmers market has been successful. There has also been a virtual scarecrow competition this, and the Friends of the Main Street have continued to weed and plant for everyone's benefit. With no income from the Farmers Market more than ever BVT is grateful to Harlaw Hydro for providing them with the funds that have enabled such things to happen.

A project which has come into the BVT fold this year is the re-use/ re-purposing on the Red Telephone box in Harlaw Road, to be a community resource for walks, reading material an interesting brew etc.

Each year BVT contributes 10% of the funds it receives from Harlaw Hydro to the Community Chest. Community Chest is a joint venture with Currie Balerno Rotary that awards small grants (max £500) to local organisations for specific projects. Slide 46 provides a snapshot of the type of projects supported and of the geographical spread. At present Cala also provide £2000 a year to the fund.

Q & A

Before the webinar closed questions and comments submitted through chat and Q&A were addressed. In no particular order . .

- The Zoom webinar had worked well, while some had felt that the technology was too big a hurdle it had enabled participation from further afield e.g. Gloucestershire, Anglesey, and Aberdeen. It was agreed that next years AGM, which will hopefully by a physical meeting, will also be broadcast.
- The suggestion of taking a video of the site and the powerhouse so that those who are more remote from Balerno could see the facilities was agreed to.
- Virtual meetings also reduce the carbon footprint as no travel is needed.

5th July 2020

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Appendix 1

Annual A/C's to 31 March 2020 - Q&A

- 1) Why has Income increased very substantially this year?
Quite simply - water supply.
Careful manipulation of the turbine settings, coupled with continuously high reservoir levels from Oct 19 to March 20 resulted in near maximum electricity generation.
- 2) Would it be sensible to consider Income for the year to 31/3/20 as exceptional ?
YES indeed. Income generation averaged just £74k over the last 3 years.
- 3) What significant Board proposals were agreed prior to preparing the annual a/c's ?

Balerno Village Trust	Donation up from £20k to £30k
Provisions	Repairs, and Share Redemption up from £3k to £7k each
Shareholder Interest	Increase from 3% to 5%

These increases are all possible due to the exceptionally high level of Income.
- 4) Accumulated Provisions total £38k - Does the Board have a target total for Provisions?
A £50k Provision for a major turbine repair is considered prudent.
A suitable Provision level for Share Capital Redemption is however more subjective.
- 5) Have there been any unusual transactions or expense during the year ?
Solarplicity bought electricity from Harlaw Hydro from scheme inception in 2015.
Unfortunately Solarplicity entered Administration in Aug19, leaving a Bad Debt of £11k.
In anticipation of their failure, a contract was made with Limejump (a Shell subsidiary).
- 6) Apart from the above mentioned Expenditure, have any other costs increased much?
A contract has been placed for 6 monthly and annual plant Maintenance for circa £2k.
Essential improvement and upgrade was required to system controls, costing circa £5k.
On a positive note, a very generous £5k donation of redeemed share capital was made.
- 7) The Surplus of £31k for the year is very substantial. How has this been utilised ?
Accumulated Reserves were a negative £(25k) at last year end.
The Board intention has been to move towards positive Reserves. Consequently the current year Suplus was used to convert Reserves to a small, but positive £6k.
- 8) Why do Debtors and Creditors both show big increases from last year ?
These balance sheet captions primarily reflect the increase in electricity generation (Debtors), and the proposed for payments to Balerno Village Trust and for Share Interest (Creditors).
Such future payments are accrued at the year end, and are paid in the new year.