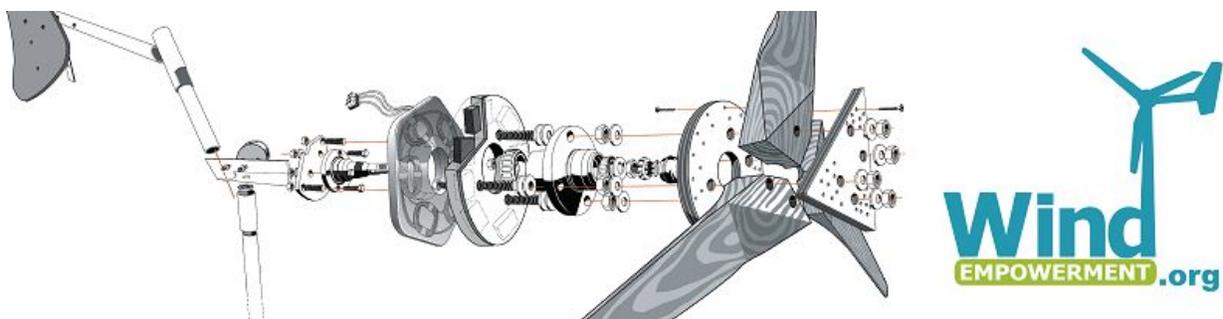


# WIND EMPOWERMENT 2015 ANNUAL REPORT



Written collaboratively by the Wind Empowerment Executive Board  
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January 2016

# Executive Summary

WE is a global practitioners' network which draws together the collaborative efforts of over 40 member organisations and 1,000+ individual participants on the development of locally manufactured small wind turbines for sustainable rural electrification. 2015 has been a productive year for the network, riding largely on the success of the association's second global conference, WEAthens2014.

The association's six Working Groups (WGs) have made significant progress in the following areas:

- Technical WG: MPPT project approved, modular power electronics proposal under review.
- Measurement WG: Development Week for open-source datalogger hosted by Tripalium in Toulouse.
- Maintenance WG: 1st edition of Maintenance Manual available on WE.org, funding for member survey for 2nd edition developed during 1 month placement hosted by Loughborough University, UK, approved.
- Market Assessment (MA) WG: Ethiopia MA completed, Malawi MA set up for early 2016.
- Delivery Models WG: [Projects database](#) launched on WE.org, Master's thesis on the maintenance aspect of SWT delivery models under way.
- Education WG: Digital training materials file sharing set up, Education WG gathering to be hosted by Wind Mobile in Luxembourg in March 2016.

Additionally, two development projects have been carried out with the collaboration of 6 WE members:

- Ethiopia market assessment and pilot projects: in partnership with MercyCorps Ethiopia, 3 STWs manufactured at technical schools and 2 installed at small businesses, market assessment shows STWs have potential in southeast of the Somali region.
- Malawi market assessment: team of 5 recruited for capacity building and market assessment for STWs in partnership with Community Energy Malawi.

These projects have been invaluable in incentivising collaboration and knowledge sharing between WE members, as a shared interest alone is rarely enough. As a result, the focus in 2016 will be on carrying out more collaborative projects, both within the WGs and as broader development and consultancy projects.

During 2014/15, WE earned an income from both grant funding and consultancy, which totalled £60,706. This was spent on the coordination of the association, carrying out the Ethiopia project, running the 2nd global conference, WEAthens2014, the renovation of WE.org and WG projects. In 2016, we plan to raise funds for the coordination of the association, the WGs and the 2016 conference. One key difference from our previous fundraising efforts is that we are now actively seeking funding for the time that we put into the association, both for administration and for specific projects. Whilst the network was created on volunteer labour, we feel that this is now a limitation to its further growth. Funding obtained from external sources for specific projects is expected to make up an even greater share of WE's income in 2016, which will greatly increase the ability of the network to make a direct impact around the world.

The association's newly renovated digital platform, WindEmpowerment.org, was launched in late 2014 and has seen significant growth and refinement in 2015. New features include the [projects, product and vendor databases](#), the mapping feature that links posts to places and a new [events calendar](#). Further work is needed in 2016 to showcase these tools to the membership and encourage members to both use and contribute to them. The Google Groups used by the Executive Board and the WGs have proven to be an invaluable communication tool for collaboration between network partners who live in different

timezones, speak different languages and have different working schedules. In 2015, WE hosted 6 webinars, [the recordings of which are available on WE.org](#) and although live participation has been a major issue, these recordings have received up to 67 views each.

2016 will see our third global conference, which will unfortunately no longer be hosted in Palestine. Fortunately, we have been invited to Argentina by our members INTI, 500rpm, APN & Eolocal, which is very exciting news, as the windswept Patagonian desert is as close as you can get to the ideal context for SWTs. The event is scheduled for the last week in October and a proposal is currently under development.

2016 will also hopefully see WE finally complete its registration as a Charitable Incorporated Organisation (CIO) in the UK. However, further investigation is needed into how restrictive this structure will be for the association and whether an alternative structure is needed to include our profit-making members and activities. Various members of the association were able to present the activities of the network at external events in 2015 in order to raise the profile of the association and it is hoped that this will be even more widespread in 2016.

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# 1 Introduction

Wind Empowerment is an association for the development of locally manufactured small wind turbines for sustainable rural electrification. We represent dozens of member organisations, consisting of wind turbine manufacturers, non-governmental organisations, universities, social enterprises, co-operatives, training centres, as well as over 1,000 individual participants across the world.

1.3 billion people in the world today lack access to electricity and in the right context, small wind turbines can provide a viable solution to this problem, allowing remote communities to harness their own natural resources and break out of the poverty trap.

Wind Empowerment is a knowledge sharing platform that links together these members and participants to share their experiences of what works and what doesn't in the contexts in which they are working, technical advances and other resources so that small wind can become a more viable solution for rural electrification.



*WEAthens2014 Attendees at the NTUA Rafina Small Wind Test Site in Greece.*

WE was founded in 2011 at the World Social Forum in Dakar, Senegal. Following that first meeting, members and participants began to communicate primarily through our web site, as well as a number of in person events, such as our second global conference, WEAthens2014. Our Executive Board meets via Skype and we use various other digital means of communication to share information (webinars, document library, videos, photos, discussion forum). WE bridges the geographical gap between its members by providing a global platform for knowledge sharing, with the overall aim of empowering more people across the globe to be able to harness the power in the wind and provide access to electricity to those who really need it.

## 2 Working Groups and Projects

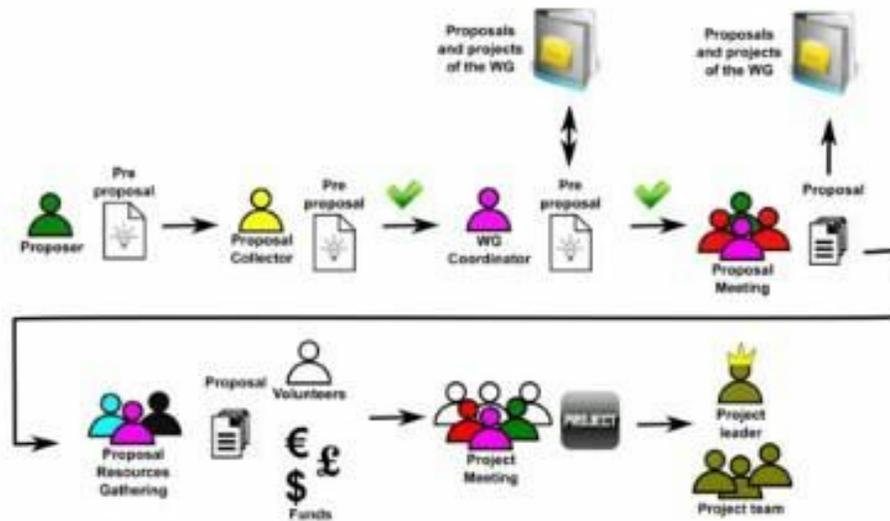
From the 3rd to the 7th November 2014, the Wind Empowerment association hosted its second global conference on small wind for rural development, WEAthens2014. The aim of the event was to stimulate international exchange between the WE members and foster future collaborations. Two forms of collaboration were formed, those of Working Groups and Projects.

During the conference, the participants were divided into Working Groups (WGs), designed to address the key barriers facing small wind for rural development. Throughout the week, each WG was tasked with developing a group vision and a roadmap of short, medium, and long-term actions that would allow them to achieve this. During 2015, the Wind Empowerment association has seen its working groups progressing towards their visions by achieving some concrete tasks, which are outlined below.

In addition to the WGs, Wind Empowerment's first implementation project was completed during 2015 in collaboration with MercyCorps Ethiopia. Such projects seek to assist local groups to use locally manufactured small wind turbine technology for sustainable rural electrification, and potentially develop the necessary conditions for new WE members to be formed. For the network itself, the benefits are multiple, among which strengthening collaboration between the member organisations, sharing skills on delivering educational courses and on implementing rural electrification installations in the Global South.

### 2.1.1 Technology WG

The Technology Working Group in 2015, put together a methodology for developing project ideas within the Wind Empowerment network and made two concrete technology project proposals. The *Ideas->Projects* methodology was developed by Luis Villa and Piet Chevalier and was presented to the network through a Webinar on the 25th of May 2015. This work was the result of the discussion help in the Technology Working Group during the WEAthens2014 conference in order to find a method which can be used to translate ideas from the Wind Empowerment community into research and deployment projects. The process consists of writing a pre-proposal and submitting it on the WE home page using the relevant online application form. Then the Technical or Social WGs coordinator collects the proposal, conducts a preliminary assessment on it and sends it to the relevant WG coordinator. Once the proposal has been considered useful for the relevant WG then a group of relevant actors is organized in order to create a more concrete proposal needed and to create the core team which will drive the project forward. Then the team seeks for funding the project and allocating tasks.



The Ideas->Projects process. [Find out more here.](#)

The Technology WG has put together two project proposals:

1. The first is a collaboration between EolSenegal and a French student from the University of Toulouse to develop, assemble and test a prototype open-source MPPT (Maximum Power Point Tracking) charge controller, the schematics of which will be shared with WE members. This project has been funded by the WE WG flexible funds and will be implemented in 2016.
2. The second project is a Power Electronics Modular Prototype. This is a large joint project that involves WE member organisations WindAid, QMAX, PureSelfMade, ACE, INTI and Re-Innovation. The main objective of this project is to develop an open-source modular power electronics platform which can be used by WE members to create renewable energy based electrical systems. This project has been submitted for the WISIONS SEPS Latin America call.

The technology working group has also done an initial development of a low-cost charge controller during a short development week. The charge controller is designed to be simple to self-build and cheap to maintain. The plans of the charge controller are currently being drawn and will be shared with the WE community shortly.

## 2.1.2 Measurement WG

The Measurement WG organized a Development Week from the 20th to the 24th of May 2015, where a group of small wind experts and electronic engineers converged at Lilegal, near Toulouse, France with the aim of collaboratively developing a design for an open-source datalogger for small wind applications. Whilst many such products already exist, this device is being designed specifically to meet the needs of Wind Empowerment members. Up until last year, a number of Wind Empowerment's members had been independently developing their own datalogging equipment, many of whom were using the open-source electronics development platform, Arduino. At the recent Wind Empowerment conference in Athens, many of them were able to connect and formed the Measurement Working Group. Whilst email and WindEmpowerment.org have allowed them to stay in touch, this event enabled them to dedicate an entire week to familiarize themselves with each others work to date, brainstorm technical solutions, test

out a few of the options and decide upon how to best continue collaboratively developing this design. The Measurement Working Group forum and a live Q&A session offered Wind Empowerment members from Nepal, Palestine, Argentina, Greece and elsewhere a window into the week's events, offering valuable feedback for the participants and greatly broadening the collective knowledge-base. As a result of this week, a new repository for this project has been set up on the open-source software development platform, [GitHub](#). This will act as a central point, where new developments on both the software and the hardware can be collated.



*Jean-Marc speaks to the group about open-source electronics development tools.*

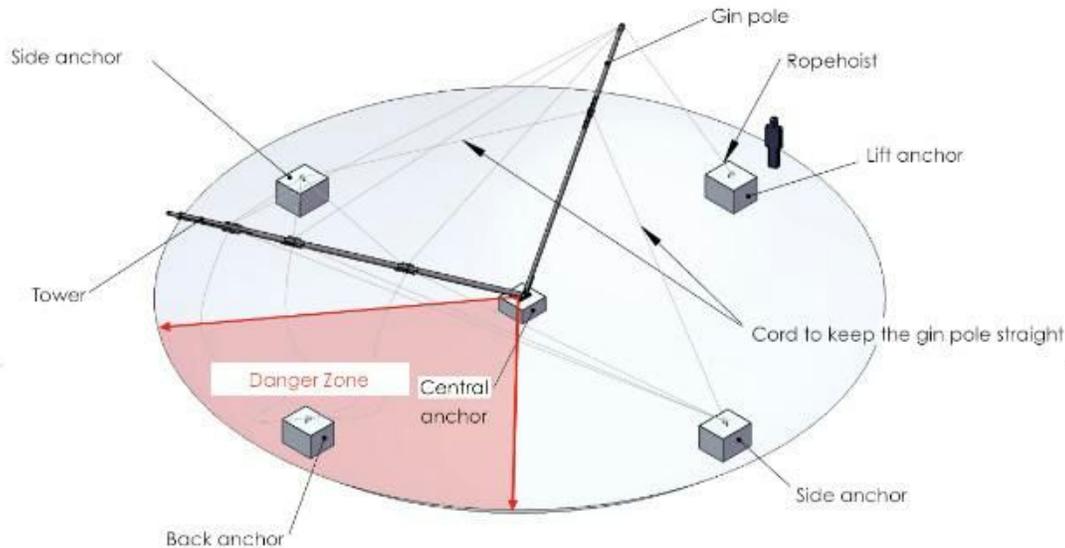
In addition, a visualization of data loggers installed by Wind Empowerment and its members is being prepared by collecting relevant information from all members. This information will be displayed on a world map on the WE website: the location, wind resource data and other information will be available for each measuring device.

Another important initiative of the Measurement WG together with the Technology WG was to co-supervise the development of an Arduino shield by a french student from the AFPA of Toulouse. This knowledge was made available to the WE community through the WE website.

### 2.1.3 Maintenance WG

In 2015, the Maintenance Working Group made their 'Maintenance and Service Guide' available to Wind Empowerment members via WE.org and put together a proposal for producing a second edition of the manual, which would incorporate the results of a new maintenance survey for WE members. The 'Maintenance and Service Guide' is a 14 page document which gathers the experience of many WE members on the maintenance and service of locally manufactured wind turbines. It includes information on precautions and safety measures required while servicing a turbine and while lowering and lifting it,

information on the general control of a turbine, on the disassembly of the alternator and a general troubleshooting guide.



 In winds above 11 m/s (40 km/h, 25 mph), lowering or raising the wind turbine is strongly discouraged.

*Instruction on how to safely lift a wind turbine from the 'Maintenance and Service Guide'*

In addition, a maintenance survey proposal has been put together by [Jerome Strasilla during a month long placement at Loughborough University](#) with Wind Empowerment coordinator Jon Sumanik-Leary and has since been approved for €1,000 from the WE WG fund and will be carried out in 2016. In order to improve the maintenance manual a worldwide quantitative feedback is required and the aim is to achieve this by a survey based on a questionnaire developed by WE. The objective of the survey will be to have a flow chart with all the failures encountered in time and their frequency. The results of this will be open to the public and will be shared with all WE members.

## 2.1.4 Market Assessment WG

This group seeks to define and continuously improve a methodology to analyse the different variables involved in a specific area, to determine whether it is an appropriate region for small wind technology or not. In 2014/15, a second application of this methodology was successfully implemented in a project in Ethiopia, which builds upon the first application of this methodology in Nicaragua in 2012/13. The learnings from this experience are currently being fed into a third application for a new project in Malawi (see below). In the long run, we aim to map the whole world, in order to identify the most viable regions for this technology.

## 2.1.5 Delivery Models WG

This group seeks to analyze different social models to effectively implement this technology in isolated communities. In 2015, Zoe Ben assembled the [WE projects database](#), which enables comparison between the range of delivery models employed by WE members. This forms the basis for Zoe's Master's thesis at the Centre for Alternative Technologies in Wales, which analyzes the ways in which different members address the long term maintenance needs of SWT systems (both technical and economical aspects).

## 2.1.6 Education WG

This group seeks to find best practices from all members within Wind Empowerment to effectively give trainings on how to plan, build, install and maintain small wind turbines. Considering that most of our members give similar trainings in different parts of the world, it is of great benefit for all to share digital training materials. In 2015, a platform was created to share this information. In 2016, we expect to launch a project to effectively organize all this information and find best practices to share with all members. Also, an event within this working group will take place in Luxembourg in March 2016, to move forward this project and debate about other educational proposals that might become projects in the short term.

## 2.1.7 Ethiopia Market Assessment and Pilot Projects

During 2015, V3 power (UK) and Nea Guinea (Greece) joined Wind Empowerment and Mercy Corps Ethiopia, in order to implement a rural electrification project in two phases, phase one in Jijiga, in Ethiopia's Somali region and phase two in Semara, in Ethiopia's Afar region. The project's main goal was to provide productive uses of energy from off-grid renewable energy systems using locally manufactured small wind turbines and solar panels, as part of Mercy Corps' program PRIME (Pastoralists' Areas Resilience Improvement through Market Expansion).

### 2.1.7.1 Electrification of a local shop in Hadew – Jijiga, Ethiopia

The local shop of a rural settlement in Hadew, 15km from Jijiga, was electrified using a 3m rotor diameter locally manufactured small wind turbine, installed at 12m hub height, and 300W of solar panels in order to provide electricity for mobile phone charging, lighting and refrigeration of beverages in the shop. The off-grid electrical system consists of a 500W inverter, a 24V 300Ah battery bank and a diversion load charge controller. A data logger has been installed along with the system in order to measure the wind speed, using an anemometer on the wind turbine tower, and the current provided to the shop loads. The shop's load profile and the power curve of the wind turbine will be logged. The small wind turbine used in the installation was manufactured locally at the Jijiga Polytechnic College during a 7 day course with 22 participants. Graduates, students and teachers of the college participated in the course which included theoretical lectures on small wind turbine technology and applications and practical workshops on small wind turbine construction. The practical sessions were organised in three working groups. The woodworking group carved the three blades of the rotor out of wood, the metalworking group was fabricating the steel frame of the generator and the furling tail, and the generator manufacturing group wound the coils of the stator and fabricated the magnet rotor disks. The wind turbine was then installed with the course participants in the rural community of Hadew, along with the solar panels and the electrical system. To see more photos of the project click [here](#).



*The wind turbine and the solar panels on the roof of the shop in Hadew*

In preparation for the next phase of the project, a wind resource campaign was initiated in the university of Semara in the Afar region, with the installation of an anemometer and a data logger after a one day training course with the student so of the university.



*Anemometer mast and data logger installed in Semara*

### 2.1.7.2 Electrification of a local shop in Sudan Camp – Semara, Ethiopia

The local shop of a rural settlement in Sudan Camp, 50km away from Semara, was electrified using a 3.6m rotor diameter locally manufactured small wind turbine, installed at 12m hub height, and 600W of solar panels in order to provide electricity for mobile phone charging, lighting and refrigeration of beverages in the shop. The off-grid electrical system consists of a 1000W inverter, a 24V 740Ah battery bank and a diversion load charge controller. The small wind turbine used in the installation was manufactured locally at the Semara University during a 7 day course with 22 participants. Students of the university participated in the course which included theoretical lectures on small wind turbine technology and applications and practical workshops on small wind turbine construction. The practical sessions were again organized in three working groups. The wind turbine was then installed with the course participants in the rural community of Sudan Camp, along with the solar panels and the electrical system.



*The wind turbine and the solar panels on the roof of the shop in Sudan Camp*

### 2.1.7.3 Educational installation in the University of Semara – Semara, Ethiopia

A 1.8m diameter small wind turbine was also constructed during the seven day course with the students and was installed in the university campus along with a battery based electrical system for mobile phone charging. The system consists of a 300W inverter and a 24V 150Ah battery bank and will be used for education purposes in the university.



*The wind turbine in the Semara University campus*

### 2.1.8 Malawi Market Assessment Project

Wind Empowerment have been contracted by the Scottish Government to carry out a market assessment for small wind turbines in Malawi in partnership with [Community Energy Malawi](#). This will be carried out between December 2015 and March 2016 and will involve a week long training and planning session in Malawi with Community Energy Malawi staff. A training course will be given by Wind Empowerment to cover an overview of implementing small wind power in a developing country context, how to install wind resource assessment equipment, and how to conduct a market assessment for the technology. Data loggers will be installed as part of the training to capture wind resource information and identify viable sites for installation, and the full market assessment will be conducted by both WE and CEM. The market assessment will determine whether small wind is a viable technology for Malawi, and whether implementing the technology is a viable business opportunity for CEM. At the time of writing, a team of experts has been recruited and is preparing for the in country work, which will take place at the end of January 2016.

## 3 Fundraising and Accounts

### 3.1 Accounts 2014/15

The table below shows the WE accounts for November 2014 – December 2015, as completed on 5<sup>th</sup> Jan 2015. A full breakdown of each project budget can be found in the [master budget](#). During this period, WE earned an income from both grant funding and consultancy, which totalled £60,706. This was spent on the coordination of the association, carrying out the Ethiopia project, running the 2nd global conference, WEAthens2014, the renovation of WE.org and WG projects.

#### Notes:

\* Items financed using additional funding from WEAthens2014.

+ Contracted Income is the total amount promised by the funder/client for each project.

~ Expenditure To Date is how much we have spent so far on fulfilling each contract.

# Outstanding Income is still to be received from the total amounts outlined in “contracted income”. This is not additional funds on top of the contracted income amounts.

& Outstanding Expenditure is what we still need to pay once we have received the outstanding income amounts.

<b>Contracted Income<sup>+</sup></b>			
<b>Project Name</b>	<b>Description</b>	<b>Paid By</b>	<b>Amount</b>
WindWorks	Website redevelopment and integration of Latin American WindWorks network	Green Empowerment	£3,752.00
WEAthens2014	Global Wind Empowerment Conference, held in Athens, November 2014	WISIONS, Terre Humane, Green Empowerment, Crowd Source Funding	£33,202.00
Ethiopia Project	Training courses and Market Assessment of LMSWT in Ethiopia	MercyCorp Ethiopia	£23,752.95
		<b>TOTAL INCOME</b>	<b>£60,706.95</b>
<b>Expenditure to Date<sup>~</sup></b>			
<b>Project Name</b>	<b>Details of Expenditure</b>	<b>Paid To</b>	<b>Amount</b>
WindWorks	Contractor fees for website redevelopment and integration of Latin American WindWorks network	WE contractors, East River Design	-£1,241.29

WEAthens2014	International travel, food, local transport, publicity, hospitality, stationary, crowd source costs	Conference Participants, Local (Greece) suppliers, Nea Guinea, Indiegogo, Paypal	-£15,330.40
Ethiopia Project	International and local travel, contractor fees, per diem, materials	Project team members, Component Suppliers, Ethiopia Travel and Hospitality suppliers	-£12,170.17
Coordinator Role*	Contractor fees to carry out coordination of network	Executive Board Members	-£7,020.00
Administration*	Website fees, membership to fundraising network, bank charges, currency conversion losses	TSOHost, Funds4NGOs, various banks	-£1067.97
DevWeek*	WG Project: Measurement Group Development Week: travel, accommodation, materials	Participants, Material Suppliers	-£742.51
		<b>TOTAL EXPENDITURE</b>	<b>-£37,572.34</b>
<b>Outstanding Income#</b>			
<b>Project Name</b>	<b>Details</b>	<b>Paid By</b>	
Ethiopia Project	Final Instalment, Expected January 2016	MercyCorp Ethiopia	£13,578.00
WEAthens2014	Travel costs for South American participants	Green Empowerment	£4,480.00
WindWorks	Final instalment	Green Empowerment	£2,081.46
		<b>TOTAL OUTSTANDING INCOME</b>	<b>£20,139.46</b>
<b>Outstanding Expenditure&amp;</b>			
<b>Project Name</b>	<b>Details</b>	<b>Paid To</b>	
Ethiopia Project	Contractor fees	Project team members	-£11,564.83
Coordinator Role	Contractor Fees	Executive Board Members	-£3,380.00
Wind Works	Contractor Fees	Contractors	-£2,510.71
		<b>TOTAL OUTSTANDING EXPENDITURE</b>	<b>-£17,455.54</b>
<b>Summary</b>			
		Contracted Income	£60,706.95
		Expenditure To Date	£37,572.34
		Outstanding Income	£20,139.46

Outstanding Expenditure	£17,455.54
<b>Current balance</b>	<b>£2,995.15</b>
<b>Final Balance (after outstanding transactions completed)</b>	<b>£5,679.07</b>

### 3.2 Fundraising Priorities for 2016

This section lists the priorities for Wind Empowerment’s fund raising for 2016. Please note: there is no preference expressed for any particular item, nor is there any guarantee that we will be able to successfully raise funds for any of them. Many of these costs are also likely to be covered by in kind contributions from our member organisations, e.g. venue costs for the 2016 conference.

One key difference from our previous fundraising efforts is that we are now actively seeking funding for the time that we put into the association, both for administration and for specific projects. Whilst the network was created on volunteer labour, we feel that this is now a limitation to its further growth.

It should be noted that it is extremely unlikely that we will be able to find funding for all of the time that each of us puts into the association, as the activities that can be covered will be constrained by what funders want to sponsor or with the limited amount of money we are able to earn ourselves from consultancy services and other income generating activities. The Executive Board will be responsible for determining which activities are prioritised throughout the year, based upon the funds at their disposal and the relative value that each activity offers to the association.

#### Working Groups

- We anticipate funding the WGs on a project basis, either from our limited internal funds or by applying to external sources. Projects could be exchange activities, events, documentation, technology development or other activities designed to achieve the mission of each WG and WE as a whole. Project proposals could include, but are not limited to the following:
  - Materials, components, consumables etc.
  - Human resources
    - WG coordinator’s time to supervise the work
    - Personnel needed to carry out the work
  - Venue hire
  - Individual travel costs\*
  - Overhead for the members participating in the project

#### 2016 Conference

- Human resources
  - Temporary events manager
  - Time that host organisation/s permanent staff members will contribute
  - Time that Wind Empowerment executive board members will contribute
- Individual travel costs\*

- Publicity and documentation
  - Printing of banners, flyers and other promotional material
  - Livestreaming and video recording of presentations
- Host organisation
  - Venue hire
  - Any essential upgrading of infrastructure
  - Organisational overheads

#### Coordinating the network

- We anticipate funding WE's core administrative costs with grant funding. These may include, but are not limited to:
  - Human resources
    - Executive board members
  - WindEmpowerment.org
    - Hosting
    - Essential plugins for WordPress
    - Technical assistance (most likely included as the webmaster in human resources above)
  - Travel costs to represent WE at external events\*

\* Individual travel costs can be broken down into:

- International flights
- Local transport
- Accommodation
- Food

## 4 Digital platform

### 4.1 Webinars

In 2015, we held [six webinars from a wide range of subjects](#). We kicked off the series with Nick Smallman who talked about his Wooden Tower Design project in Brazil with the I Love Wind Power organization. Our second webinar gave us an insight of the measurement working group on their development week in Lilegal, France. The third webinar by Luiz Villa, A method to convert ideas into projects, allows for a better development of a new project with the collaboration of our association members. Jorge Ayarza from Mina Vayu and a team of Engineering students from India and the US shared with us on the fourth webinar the development of a downwind Hugh Piggott turbine. Rim Razzouk a Senior Instructional Designer at Arizona State University described the curriculum development, the assessment and evaluation processes for the VOCTEC (Vocational Training and Education for Clean Energy) project. Juan Pablo Duzdevich and Andrés Zappa from INTI in Argentina wrapped up the series with a presentation on the methodology for obtaining the power curve for wind turbines.

For 2016, we will be focusing on attendance participation from the member organizations since the attendance number for the webinars was lower than the previous year. We plan to use different methods of informing the member organization about the webinars and using other outlets such as social media.

Despite the low number in attendance during the live webinar, we did notice that each webinar received more than 10 views online, the highest one receiving 67 views. Seeing which webinars are being viewed the most indicates to us what our member organizations are most interested in, and we hope we can provide more the following year.

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## 4.2 WindEmpowerment.org

The new Wind Empowerment website which has been launched at the WE conference in Athens in fall 2014 and much of 2015 has been spent tailoring this to our evolving needs. There were lots of small things such as design issues and bugs to be fixed, but also a few bigger improvements to do, such as our donation button.

Two new databases were created this year, the first of which details specific electrification projects implemented by our member organizations, showcasing their work and enabling objective comparisons to be made between the huge range of delivery models employed by our global array of members. The second lists products and vendors of small wind system components, such as permanent magnets. It allows anyone to share their experience with these products/vendors with the rest of the membership by adding a review.

A new calendar system was added to WE.org in 2016, which makes it easier for our members to share their events in a professional looking format with the rest of the network. All member organizations now appear on a colour coded world map, a functionality which has now been added to the databases described above and news articles. This feature allows users to find content relevant to a particular geographical area much more quickly. Both of these features would benefit from further outreach to ensure that members know how to find, use and add content to them.

## Welcome to WindEmpowerment !

WindEmpowerment is an association for the development of locally built small wind turbines for sustainable rural electrification.



*Screenshot of the Wind Empowerment members world map.*

The Google Groups have proved to be an invaluable tool for inclusive communication. Previously long email chains and Skype calls were the standard, however it is easy to miss people off of email chains and time differences and varying work patterns make finding time for Skype calls difficult. Google Groups also have automatic translation, which is especially important for a global network like WE. The fact that all messages are archived allows anyone to join in the conversation at a time that is convenient to them. The fact that they are able to not only send email updates, but also receive emails into discussion threads greatly increases participation, as users only need to log onto the forum once to sign up rather than regularly in order to check for updates. However integration of Google groups into our website could be improved and unfamiliarity with this particular communication tool is still a major barrier to their use..

Last but not least a lot of interesting blog articles, reviews or pictures have been published on the website which is steadily growing to a real source of knowledge for all different topics related to small wind technologies.

## 5 WE2016 Conference

The Wind Empowerment association's follow up to the hugely successful WEAthens2014 has been under development since mid-2015, however this has not been a straightforward process. Due to the recent escalation in violence in the occupied Palestinian territories, we had to take the regrettable decision to cancel the 2016 conference that we were planning with colleagues at Comet-ME. We would like to thank both Elad and Noam for their kind invitation and for all of the preparatory work they had already carried

out for what was set to be a very exciting and truly original event. We really hope this current wave of violence does not directly affect them and that one day the situation may be stable enough that we may be able to see the incredible work they are doing with the people of the South Mount Hebron Hills with our own eyes.

Fortunately, plans are already well under way with colleagues in 500rpm, APN and INTI, who have kindly offered to host our 2016 conference in Argentina. This is a very exciting opportunity, as Argentina has one of the highest potentials for small wind turbines in the entire world due to the relentless winds that whip around the Southern Ocean and across the remote Patagonian desert in the far Southern tip of South America. Many thanks to Esteban, Manuel, Fernando, Juan-Pablo and Andres for their kind invitation. We are currently developing a proposal for this event, which we hope to share with the rest of the network in early 2016. The most likely date that this event will take place is in the last week of October (24-30) 2016.

## 6 Legal Registration

For the past two years, WE has struggled to determine what legal form the organisation should take. Over a year ago after consulting with the membership, we began the process of applying to become a Charitable Incorporated Organisation. This is a new legal structure in the UK that allows us to operate both as a charity and a company that would allow us to apply for charitable grant funding and obtain tax exemptions, whilst at the same time, being able to trade to earn an income.

After a long consultation process between the UK Charities Commission, WE's Executive Board and Board of Trustees, WE has finally been granted charitable status on the condition that only non-profit/charity members are allowed to vote on the strategic direction of the association. For-profit members would still be members of WE and equal to voting members in all other ways.

As Jay Hudnall of Ti'eole pointed out, our charter states that we aim to make decisions by consensus wherever possible and therefore, voting should only be a last resort anyway. The voices of the for-profit members would still be able to be heard via the Executive Board forum in much the same way that they are now.

Our membership currently consists of:

- 21 non-profits/charities
- 8 for-profits (3 of whom have stated that they are not concerned by potential exclusion from voting)
- 18 unknown (vast majority inactive members)

As our Trustee, Emma Green, advised, if we find that whatever structure we choose now doesn't work for us, we can always change it later and transitioning from a CIO to a company is much easier than the other way around. Its also possible for us to have two entities, a for-profit and charity/non-profit, a model used by many in the development sector who raise money from both grants and trading, such as Engineers Without Borders UK and Practical Action.

The Executive Board recommend that we should continue with the CIO registration and at the time of writing are in consultation with the membership to see if they share this view.

## 7 New Members

Two important initiatives have been put in place regarding new members in 2015. The first is the use of [an online form to streamline the membership request process](#). Institutions aspiring to become new WE members fill up their details, what they do regarding small wind turbines, their expectations regarding WE and their potential contribution to the network. The information provided by the aspiring member is forwarded by the secretary to the Executive Board forum and board members comment on the candidate. If all board members agree, through the forum, then the new member is informed as quickly as possible on their newly acquired membership and given some space in the WE.org website.

The second innovation was the new members pack initiative, which contains general information regarding how WE functions and how new members can interact with the network. The new members pack is nearly completed and will be given to all new members joining the network in 2016.

During the year of 2015, 7 new organizations have been granted membership of WE:

1. **Solar Energy for West Africa** - A German NGO based in Ouagadougou, Burkina Faso.
2. **Renewable Energy Innovation** - An UK based small company currently working with electronics for wind energy systems
3. **Instituto Nacional de Tecnologia Industrial - INTI** - An argentinian University which has a group currently working with small renewable energy systems.
4. **Aire de Conception Energetique - ACE** - A french student association dedicated to the manufacturing of small wind turbines, humanitarian projects and electronics for renewable energy systems.
5. **QMAX** - An argentinian small company that produces electronic equipment for hybrid wind-solar renewable energy systems.
6. **Bright Planet Education** - An UK based charity that has developed its own wind turbine and shares knowledge with South America.
7. **Wind Mobile** - A Luxemburg based organization that has educational projects using small wind turbines.

## 8 Representing WE

In April 2015, international experts from several parts of the small wind industry, companies, researchers and NGOs came together in Vienna at the International Small Wind Conference, which took place at the [Technikum university of applied sciences](#). WE.org Web Master, Jonathan Schreiber represented both WindEmpowerment and WE member organisation, [PureSelfMade](#).

In October 2015, Jonathan collaborated with WE Secretary, Luiz Fernando Lavado Villa to deliver a general lecture on small wind turbines. The session formed part of the special Masters in Renewable Energy Systems in Developing Countries of TUMat at the Munich Technical University.



*Luiz Villa and Jonathan Schreiber with their host Johannes Winklmaier at TUM.*

In September 2015, WE coordinator, Jon Sumanik-Leary represented WE at the annual gathering of the Royal Geographical Society (RGS) in Exeter, UK, which attracts a global audience of over 1,000 people. The WISIONs programme at the Wuppertal Institute supports not only Wind Empowerment, but also two other practitioners networks, RedBioLAC and HPNet. In partnership with Carmen Dienst, we presented these networks as a means of empowering rural communities in less developed countries by linking together the various “knowledge hotspots” that have emerged around the world using online platforms such as WindEmpowerment.org and exchange activities. The Measurement WG DevWeek that took place in Toulouse this April was given as an example of such an exchange activity, where network members with specific skills are brought together to share them with other network members in a practical workshop environment.



*WE coordinator Jon Sumanik-Leary and Carmen Dienst of the Wuppertal Institute (a Wind Empowerment member organisation).*

A few days later, Carmen and Jon chaired a session on delivery models for sustainable energy access in less developed countries. WE trustee, Heather Cruickshank, shared her latest thinking on the topic, having supervised Annabel Yadoo's groundbreaking PhD work that opened up this field of research. Zoe Ben also presented her Master's research on the comparative analysis of a diverse range of models used by WE members to deliver energy access with small wind turbines in their local area.



*WE's Delivery Models WG coordinator, Zoe Ben, presenting her research on Delivery Models for SWTs.*

Later on that week, Jon joined WE Treasurer, Aran Eales at the Centre for Alternative Technologies in Wales to attend Practical Action's Small is Beautiful Festival. The event aims to provide a forum for debate and practical skill sharing on the theme of appropriate technology. Aran Eales represented both Wind Empowerment and V3 Power, facilitating two practical wind turbine sessions designed to introduce participants to the basic concepts behind the operation of small wind turbines and, of course, the local manufacturing process. Aran and Jon also ran an hour long session presenting the application of small wind turbines in remote areas of less developed countries and the role that Wind Empowerment plays in facilitating this process.



*WE Treasurer, Aran Eales, representing both WE and V3 Power (a WE member organisation) at Practical Action's "Small is..." Festival at the Centre for Alternative Technologies in Wales.*

# 9 Key learning points from 2015 and focus areas for 2016

## 9.1 Working Groups and Projects

Projects provide motivation for collaboration, as a shared interest alone not enough to facilitate knowledge sharing for most people. In 2015, the WGs that have had one main project to focus on (e.g. the open source datalogger under development by the Measurement WG) have made real progress, whilst those that have not have stagnated. In 2016, each WG should have one main project to focus on.

## 9.2 Fundraising

The WISIONS team have expressed their continued support for WE by inviting the submission of proposals for the coordination of the network and the 2016 conference. Whilst this offers some level of stability to the network, it would be beneficial for Wind Empowerment to obtain a more diverse funding portfolio to avoid reliance on one particular source. In particular, unrestricted funds are particularly desirable as they can be reassigned at any time to the area of greatest necessity. Projects offer the possibility of obtaining a somewhat irregular supply of unrestricted funds through overheads. The process for translating ideas into projects developed during 2015 is expected to play a crucial role in finding external funding to turn the visions of our members into reality, whilst at the same time providing additional income for the network as a whole. In 2016, WE should focus on maintaining the strong relationship we have built with WISIONS, whilst also looking to build similar relationships with other donors.

## 9.3 Digital platform

Webinar content is excellent, however participation is low, so the focus for 2016 should be on publicity. Google groups are a more inclusive means of communication than emails or Skype, but further work to do to overcome unfamiliarity with this digital form of communication. There are many new features on WE.org, but few members are aware of them, so targeted outreach should be conducted in 2016.

## 9.4 Conference

Much of the work of the network in 2016 will be geared towards our third global conference, which is expected to take place in late October. Care should be taken to ensure that the learnings from WEAthens2014 are taken into account, particularly with regard to the timeframes for planning and the participation of members from the Global South.

## 9.5 Legal Registration

CIO registration seems to be the most logical path for WE in 2016. Further investigation is needed into how restrictive this structure will be for the association and whether an alternative structure is needed to

include our profit-making members and activities, however this can be done in parallel with the charitable registration, rather than as a mutually exclusive alternative.

## 9.6 Representing WE

Whilst 2015 saw the network gaining more visibility, in 2016, it should be a priority to expand upon this even further in order to ensure that the network is well positioned to take advantage of as many of the opportunities available in this sector as possible. This can be achieved by representing the network at more high level and/or specialist events, such as the UNESCO Tech4Dev Conference, and linking into high level global initiatives such as SE4All.