Good Morning everyone,

first of all, I feel very **honoured** to be on this panel, and **thank you very much** to the Impact Hub and the Forum for giving me this opportunity.

Let me start with the big picture. It's one of the habits I like to keep from my life in Corporate Strategy. Using Powerpoint is another such habit, but I'll try to break that today, so you have to actually LISTEN to what I am saying.

Since the industrial revolution, we have been using almost exclusively **energy from the past**.

A while ago, it still looked like there would be a good chance that fossil fuels would conveniently just run out BEFORE climate change becomes a problem. But the last 8 years have shown a very **inconvenient truth:** engineers will just keep finding new ways of getting to the stuff, and it is actually becoming cheaper, not more expensive.

So in order to avoid dangerous climate change (and the word dangerous was already part of the UN convention from 1992), **we essentially need to keep a lot of fossil fuels in the ground, even though we COULD easily get them out**!

I see broadly three options to do this:

- 1: Use less energy: it's the option that should always be considered first, but it can only ever be part of the solution, and it's especially hard to explain to developing countries
- 2: We could also agree global emission constraints - but the Paris Agreement unfortunately came up with little more than the definition of the word "dangerous" (or 2 degrees warming). And if you think about it, it has taken **23 years to specify the meaning of one word!** So of course this UN process should continue, but it is fair to say that it may not be fast enough
- And the third option is **to make renewable energy cheap enough, fast enough**

The beauty of renewables is that they are the opposite of "energy from the past": once you have installed the wind turbine, it will **produce energy for free far into the future**. And it IS getting cheaper: against a background of really cheap fossil fuels, 2015 saw a worldwide record of solar and wind power capacity being added.

But as we build more of this capacity, another problem becomes apparent, **and this is a problem with the present**. What if all our solar panels together produce more power than we can use? What about a night without wind?

Unfortunately ELECTRICITY is not only the best form of energy to **generate from renewable sources, but it is also the hardest to store.**

And this storage problem makes renewable energy **more expensive again.**

Well, you might say, we have created the problem by digging and building things, why not solve it using the **same methods**? We could build big power lines to Norway, we could dig big air pressure systems under the earth, or we could cover the Alps with new pumped storage hydro plants...

The trouble is not only that these are all high-cost, centralised, big-project solutions that all require new hardware. They also require pretty strong interventions in nature.

I believe we need a **different approach**. You could call it a newly enlightened approach, one in which we do **not try to dominate but in which we adapt to nature in a much more humble way**. And that should somehow involve every single one of us being **more aware** of what nature does, being **more connected** with it. **And most importantly, this alternative would make everyone of us part of the solution.**

What should this approach be called? So the name of the venture came up when I recalled the film AVATAR, which many of you will have seen, and which reflects much of this philosophy with its beautiful story and visuals.

So **what would it mean** to create a storage solution that is distributed and operates essentially within the system that **WE** live in, that we have already built? It would mean turning the whole logic of the energy system upside down: the system is now built entirely to follow power demand, but can we make our power demand follow nature instead?

And this is not some kind of fantasy. Of course it is possible. In a way many people who have a solar panel are already trying to **shift their consumption to the times** when the solar panel is producing. But firstly not everyone has a solar panel, and secondly, we also need to address the problem with wind.

We thought we need to bring this **awareness to everyone**. First, people should understand that power **PRICES** follow nature already: power is traded on an hourly basis, and prices even already go negative sometimes when the solar and wind forecast is high. So we decided to be the **first energy supplier** to pass on these hourly exchange prices to customers: **the windier and sunnier the weather, the cheaper it gets!** And the information is available every day, for everyone to see.

But of course information and incentives are not enough: mostly, electricity is taken for granted and wanted instantly, and therefore we need the help of

automation. And this is where the rapidly evolving Internet of Things comes in. In principle it can work with many applications, but it will work best at first with two: 1) batteries, including those in electric cars, will definitely have a role to play, and we are on the case as the market grows, 2) but the faster opportunity is in heating and cooling of buildings, and we are focusing first on what I would call the hidden stars of the energy revolution: heat pumps.

They are not necessarily as well-known or as good-looking as a Tesla, but they are also really cool, as they need only one unit of electricity to provide 3 or more units of renewable heat. And we are confident that in our new partnership with IDM Energie, a Tyrolean manufacturer of heat pumps, who is courageous enough to let me announce this here today, heat pumps **will automatically shift their consumption to the best hours of the day according to our prices, and the only thing that needs to happen to enable this is a software update that is delivered via Internet.**

For the customer that means: cheaper power prices and being a part of the storage solution, all in one package with the existing comfort level.

That makes it all sound very easy, and of course it is not.

- Of course we have to solve real-world technical problems of billing systems, and making things talk to each other, and that is tricky enough...
- But in many ways, getting to the people in the first place is the really tricky part. It is not enough to have an exciting product, and we are constantly looking for partners who have sales channels, access to customers, now also for market entry in Germany.
- But partnering requires trust, and building this is one of the biggest challenges for startups, especially in Europe, which is still an environment that is pretty afraid of failure; as our partner, you will just have to live with the fact that our credit rating is still way lower than the industry average.

So in a way, all of this is what Corporates have, lots of engineers, existing customers, marketing budgets, financial prowess; so why are they not doing this, why does it have to be me who is talking to you about all this? And part of the answer lies in **how the approach of social entrepreneurs can make a real difference...**

- First answer: by having nothing to lose! Only as entrepreneurs can we escape the **"Innovators Dilemma"** where something new tends to cannibalise existing activities: one easy example is why should existing suppliers educate customers on hourly prices and show them the benefits if that is going to reveal the rather healthy margins they are making on the exchange prices now? The point there is aWATTar does not have much of an existing portfolio, and we do not need to lose time over discussing stranded assets.
- And maybe there is also a generational issue: I think I am 2 years too old or something, but everyone else on the team is a real "Millennial". As David Burstein says in his book "**Fast Future**", "**Millennials see social change not as something to demand but as a project to work on.**" And it is true, in the 70s people went out on the street to prevent nuclear power plants, and today we just meet at the Hub, and the Internet gives us a lot of tools to simply construct prototypes and communicate with customers. This is not a value judgement, but there is an important difference in attitude: we can make an impact by just DOING things.
- And by just doing things, we are sometimes the first to discover **problems with the regulatory conditions**. We discovered for example that the Austrian market model treated consumption data from smart meters in a way that was totally against our business model. Regulatory authorities should listen to social startups. In our case **we actually helped them** identify the problem, and they have now proposed a solution to the industry.
- And lastly, social startups will also worry less about **protecting their solution from being copied by competitors**. That drives openness and learning. We want our ideas to spread as well as to earn returns. And yes, investors want patents, as I learned at university and then again in practice on a well-known Austrian TV show. But what WE want is impact investors, and **the way to recognise a real impact investor is to ask whether they care a lot about patents.**

And to wrap up, we will push further now to do 2 things:

- Give energy customers a more meaningful way to relate to and support renewable energy, and

- Empower this aWATTar community to shift as much consumption as possible to the times when we have present power from nature

This will have the same effect as building large storage projects, and it will be much cheaper, with less environmental risk. That will help make renewables cheap enough fast enough, and that will make sure we can keep those fossil fuels in the ground.

And so I can just enlighten you in the fastest possible way about today's power prices: here is my second and final slide!

I wish you all a nice sunny day in sync with nature here in Alpbach!