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Keystone.

KELLIE, C.

2023


Keystone

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Summary

Within the North Sea oil industry, a transition is slowly taking place.

Starting from a place of purely extractive energy production, a journey towards net zero is underway. Simultaneously, on-shore renewable energy production, most notably renewable wind energy production is also increasing. Turning barren Scottish moorland (traditionally used for field sports) into spaces inhabited by wind turbines.

Featuring contributions from industry stakeholders and academics within the field of energy transition and renewable production, this documentary looks to explore the shared challenges and difficulties in moving towards net zero. The film seeks to question the feasibility of reaching the Scottish Government's ambitious targets for renewable energy production and achieving net zero.

Production

The film was originally produced for presentation at the Energy Ethics: Financing the Future conference at St Andrews University. With the abstract accepted, the pre-production process began in late November 2022. With initial research and scoping works being undertaken, with the hope to begin production in early 2023. Film archival research and visual development artworks were also produced alongside the desk-based research.

Contributors were then identified, and interviews tabled to take place in February and March of 2023. With a view that principal photography would be completed by April to allow sufficient time for the film to be edited.

The editing process was integral from the very beginning of the production as a means of identifying the core themes as well as the visual motifs of the film. This resulted in a series of so-called *Sketch Edits*. These sketches were short tonal vignettes that mixed a variety of footage, both archive and material shot for the project. They functioned as an experimental test bed for both the editorial and visual content of the final film.

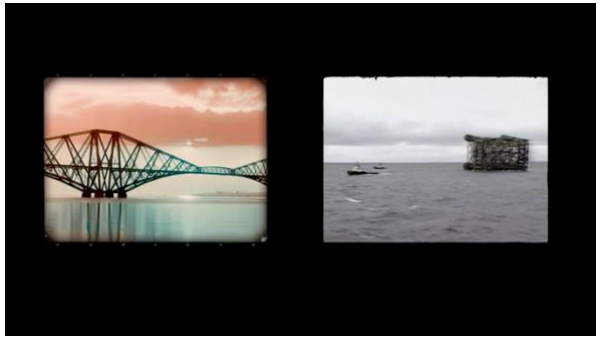

Figure 1: Still from archive-based sketch edit.

The initial intention was for the film to include significantly more archive and fewer interviews. Resulting in a more poetic rumination on the subject of transition interspersed with occasional short

interview pieces to give detail and context. However, as the editing process progressed, it became clear that this was forcing the film to try and be two different things at once. At this stage I decided that the film needed to be bifurcated into two distinctly different outcomes. The first being *Keystone* and the second being a more fine art orientated piece titled *Mirrored Transition*.

Mirrored Transition is a silent film, consisting entirely of juxtaposed archival footage and accompanying subtitles. The film was projected in the foyer and bar areas of the Byre Theatre in St Andrews during the Energy Ethics conference. Exploring some similar ideas, *Mirrored* explored some of the precedents within Scotland's industrial history for transition and the cyclical nature of these transitions. It explored the impact these industrial transitions of had on their surrounding communities and hinted at the fact it will happen again if lessons are not heeded.


Figure 2: Installation view of *Mirrored Transition*

This separating of the original film into two discrete pieces allowed *Keystone* to become a much more focused film in regard to the questions it explored. Despite this, some of the original themes and visual elements found the sketch edits remain visible in both films, particularly the treatment of archive material.

Completion of the film was delayed with the edit being locked in early June. Some of the delay was caused by key interviews only

being feasible in mid-May. Despite this, the edit was completed in ample time prior to its premiere at the conference.

The film was generally well received by the conference audience, with some discussion surrounding the lack of representation of affected communities within the film. This is a valid criticism, but is a story that I feel is deserving of a film in and of itself.

My ambition was to produce a film that would not look out of place on a mainstream broadcast or streaming platform. And despite the technical, logistical, and editorial challenges of attempting this as a sole shooter and editor, I feel that I have for the most part accomplished this goal.

Moving forward I wish to explore these themes and ideas further, with a follow up piece to *Mirrored Transition* currently underway. I also wish to produce a new film exploring the motivations and fears of communities who now find themselves under the shadow of an increasingly accelerating energy transition.

Presentation History

Originally produced for the Energy Ethics conference held at the university of St Andrews, the film has now been shown at other internal RGU events and film festivals including.

Energy Ethics 2023: Financing the Future

St Andrews	6th – 8th June 2023

Rayany Creators Film Festival

Aberdeen	17th – 18th February 2024
Shortlisted awards:	Best Documentary
	Best Cinematography
Winner	Best Documentary

Contributors

James Baird	Coriolis Energy
Jean Boucher	XR Aberdeen
Thibaut Cheret	OEUK
Sumin Kim	RGU Energy Transition Institute
Paul de Leeuw	RGU Energy Transition Institute
Gavin Shirley	RES

Film Credits

Director	Callum Kellie
Editor	Callum Kellie
Cinematographer	Callum Kellie
Drone Photography	Callum Kellie
	Murdo Macgillivray

Film Specifications

Project Type:	Documentary
Runtime:	22 minutes 53 seconds
Completion Date:	June 2, 2023
Country of Filming:	United Kingdom
Shooting Format:	Digital
Resolution:	4K
Aspect Ratio:	16:9
Film Color:	Color

Keystone Transcript & Imagery

00:00:05:01 - 00:00:41:16
Narrator

In nature. Keystone species are animals who alter and shape the environment they live on. They exert a gravity, greater than their numbers would suggest. In ways that are not always clear. The economic landscape is no different. Keystone Industries shape the financial and industrial landscape. Out competing their contemporaries for resources and labour. Oil is one such keystone.

00:00:41:18 - 00:01:37:07
Narrator

But what happens when the impact the Keystone exerts on its landscape is no longer sustainable? When it is time to turn to the next iteration of industry and to find a new Keystone.

Oil has opened so many possibilities for Scotland. It has generated the wealth and investment that has created the industrial monuments of our age. But again, as with all heavy industry, oil has unleashed more into the world than could possibly have been imagined at the time of its development.

00:01:37:09 - 00:01:57:17
Narrator

Forces both powerful, and terrible. But why must we act now to confront these forces? What is the need that compels us to act?

00:01:57:19 - 00:02:23:10
Jean Boucher

The need. The ice caps are melting, and if anyone has any idea of thermodynamics or physics. To get the ice caps to melt, you need a shitload of energy. And if you want to reverse that energy, you need a shitload of something else to reverse that whole. So there's a there's some thermal energy embedded into our planetary system that is mind boggling.

Figure 3

Figure 4

Figure 5

00:02:23:12 - 00:02:45:20
Thibaut Cheret

So there's a necessity to reduce the overall emission emitted by the entire energy system. Currently the energy system is mainly made of fossil fuel, who actually generate those emissions. So we need to move from the existing system to a new system where you'd have much less emission towards net zero in 2050.

00:02:45:22 - 00:03:05:02
Sumin Kim

We need to take the action now. So we are all having one journey called net zero, the same journey. Everyone has a different starting point. But we are looking to get to the same destination. And energy transition is a part of it to make the net zero happen.

Figure 6

00:03:05:04 - 00:03:24:15
Paul de Leeuw

So why do we do an energy transition? If you want to get to net zero and have a sustainable planet, we need to change the kind of energy we use now. Currently, around three quarters of all the energy we use in the United Kingdom come from fossil fuels. That's coal. It's gas, it's oil. And we need to get to a net zero world.

Figure 7

00:03:24:15 - 00:03:41:18
Paul de Leeuw

So we need to completely transform what is now a fossil fuel based economy into a renewables economy with wind, solar, hydrogen, carbon capture and storage and other energy sources being central to our new energy solution.

00:03:41:20 - 00:04:12:16
Jean Boucher

I think of it a little bit like Russian roulette, and then some people have a little bit more information and privilege to, you know, maybe pass the as the pistol goes around the table. We need to redo what humans are about and how humans create meaning and get, how to be human. Because petrocultures, and Petropolis and carbon, and I mean all this stuff. Car culture, all this stuff, we're so embedded in it, we don't even can't even tell. And it's got to change.

Figure 8

00:04:17:02 - 00:04:32:14
Narrator

Whilst vanishingly few people would deny the need for renewable energy. There is still a notable number of people who have difficulties with it when it becomes visible on their horizon.

00:04:32:16 - 00:05:01:00
James Baird

I would say it would be unusual to have a wind farm project which didn't have some element of objection from somewhere within a local community. I don't think I've had any proposals which have a completely clean bill of health from that perspective. Wind farms are, they obviously represent a landscape change, so it does attract interest particularly within rural communities. Not everyone's really aware of what the environment used to be like two or 300 years ago.

00:05:01:02 - 00:05:22:23
James Baird

A lot of sites we work on, in moorland environments may used to of been wooded. With sort of native broadleaf trees, whereas now they've been cut back and it's a moorland environment. So we are coming across sites which are severely degraded and we feel would actually benefit from the wind farm being in place by improving the peatland environment through peatland restoration works.

00:05:22:23 - 00:05:50:03
James Baird

I think it's fear of the unknown and fear of change with respect to communities, which is a big challenge for developers. One only has to take a step back and look at public responses to any development proposal. You know, similar matters of concern are raised across the board onshore wind, solar, housing, roads.

00:05:50:04 - 00:06:18:11
James Baird

You can expect to get a level of objection from, as I say, parts of communities it might be one individual or it might be a community body.

Figure 9

Figure 10

Figure 11

That said, you also can find a lot of support from local communities as well. I think. Well, they represent a landscape change to many people, those who represent a shift away from traditional sources of fossil fuels and more towards a sort of clean, renewable energy future. So we also get feedback from communities around that as well.

00:06:18:13 - 00:06:29:00
Gavin Shirley

I think the key challenge is keeping the public informed whilst managing their expectations.

00:06:29:02 - 00:06:48:07
Sumin Kim

I think it has to be communicated, its everyone should be involved in this transition. We cannot miss any single person, if we don't understand what we are actually looking at, what is the problem and how we can get there and what do we get to get ready. It will not happen. So yes, the communication will be the key.

00:06:48:09 - 00:07:08:20
Jean Boucher

We do know there's something of a visibility effect. Like if I get solar panels on my house, it's more the chances of my neighbour getting solar panels will increase if I have an electric car and I get to see the generator or hybrid car, I get to see now how I'm generating energy when I press on the brakes, it changes how I use that energy.

So there's there's different ways of making people more aware.

00:07:12:06 - 00:07:40:11
Thibaut Cheret

And I think to be honest, thing is it's a blind spot of government nowadays is this acceptance of the change, and we help people along the change. And we in industry we have to work together with government to help people. If people understand things they think of, if things are done to them, it's harder for them to get to be on board.

Figure 12

Figure 13

Figure 14

00:07:40:13 - 00:08:15:02
Narrator

But unlike previous industrial transitions, this one has now been instigated by technological innovation or new discovery. This transition is unique. This transition has been set in motion by the acceptance that we are in the midst of a climate emergency, and that a change in our energy system is crucial in how we address this. With wind energy being seen as playing a key role within this change.

00:08:15:04 - 00:08:42:07
Paul de Leeuw

So in the United Kingdom, we are extremely blessed with a fantastic strong winds, particularly in the North Sea regions. So we have a massive opportunity to build both onshore and offshore new wind capacity. Putting up new wind turbines and use that kind of wind to transported to the shore and to a new system, new grid system to actually decarbonize our homes, decarbonize our transport, decarbonize the industry.

00:08:42:09 - 00:08:57:20
Sumin Kim

There is an urge from general public that the company needs to do the right thing. But also, government is leading a policy also to set a target to where they want to go, where the country is heading to.

00:08:57:22 - 00:09:18:04
Paul de Leeuw

So the UK is extraordinarily well positioned because it's just simply a windy place, but also the government put in a really helpful policy, saying yes, we want to get to 50 gigawatts of new wind capacity by 2030 compared to what we currently have in 2023, around 12 13 gigawatts of installed capacity. So its a massive growth for wind.

00:09:18:06 - 00:09:26:07
Thibaut Cheret

And that actually drives a huge amount of investment, a huge amount of new jobs and a huge amount of economic activity in the country.

Figure 15

Figure 16

Figure 17

00:09:26:09 - 00:09:48:10
Jean Boucher

I don't think there's a lot of money to be made. That's the problem. That's a big problem. I think this is something that is not part of the discourse and we don't talk enough about. Saving the planet isn't going to be a profitable endeavour. I mean, there'll be less pollution. There'll be all kinds of wellbeing benefits, all kinds of other things that we don't really measure, and we don't really track.

00:09:48:12 - 00:10:10:09
Paul de Leeuw

The scale of what we need to do to get to net zero. In Scotland by 2045 and by 2050 in the rest of the United Kingdom is massive. We need all players and there's room for all and need for everyone. With the existing players who currently produce oil and gas but now are transitioning to lower carbon energies but also new players coming in.

00:10:10:11 - 00:10:23:17
Thibaut Cheret

I think it's important we have a real diverse kind of group of players because we need all the expertise, all the kind of investment capability and also the collaborative behaviour so they can build a new energy system fast.

00:10:23:19 - 00:10:39:22
Jean Boucher

Everybody, no question. Everybody. Poor, rich, white, black, race, sexuality, gender, like we all need to get at the table and start whining. Artists, poets, engineers, accountants, everybody.

00:10:39:24 - 00:11:16:09
Narrator

Corporations of any kind, need to remain relevant to the business landscape they find themselves in. They need to ensure that their business offering is what the market requires. If they fail to do this, they will fall into irrelevancy. If oil companies are seeking to increase their business with renewables rather than to replace a damaging one with a more sustainable offer, you'd be right to question their motives.

Figure 18

Figure 19

Figure 20

00:11:16:11 - 00:11:36:21
Thibaut Cheret

So we'll still need oil and gas for a long time and actually post net zero, we'll still need oil and gas. While not a product we burn, but a product we use in everyday life. And actually, some of the new energy system like renewable will need that. You know, if you look at an electrical cable, it has plastic around it, that's coming from the oil and gas industry.

So still needed. And we will be part of that.

Figure 21

00:11:40:22 - 00:11:56:11
Sumin Kim

And the company itself, they can see that oil and gas is a declining industry at the moment, and naturally declining production in North Sea. So obviously they have to look for something else as well. So it's a combination of both.

Figure 22

00:11:56:13 - 00:12:15:20
Paul de Leeuw

So, yes, there is room for players like BP and Shell who are very traditional oil and gas players. But they've already come out in a very big way to saying the future for us is in the lower carbon world, in the renewables world. It's a transition, not a switch over. So we will see that happening over time.

00:12:15:23 - 00:12:42:01
Thibaut Cheret

The oil and gas industry is very clear, especially in the UK. The players are very clear they have to be part of this. And actually, they can bring they're know how, and they are actually quite critical for the success of, of delivering it. If you look at the five biggest operator of wind farm in the UK, they all actually have a background in fossil fuels. Why? Because it brings out the expertise of be able to operate those projects and capital and capital intensive programs.

Figure 23

00:12:42:03 - 00:13:02:03
Sumin Kim

If there is a will that they are planning to or they want to move from oil and gas to renewables. I think they can do, because looking at the past the oil and gas development over the last 50 years, it wasn’t an easy journey. But if they've done it, I'm sure they can do for renewables as well.

00:13:02:05 - 00:13:21:01
Jean Boucher

Well, I'm also a researcher and I did a lot of work on habits, mostly about individuals, personal habits. But at you, as you start ramping up in at a social level, you start getting into what I would say, collective habits and organizational habits. I don't know that oil companies know how to do anything else.

00:13:21:03 - 00:13:47:10
Sumin Kim

I think it's in everyone's interest at the moment, who was or who are current still involved in the oil and gas industry. So if we look at some example companies, for example, Wood. They have moved from oil and gas to renewables successfully. Most of their business is in renewables and BP Shell, they are looking for investment. They are looking into how to invest.

00:13:47:12 - 00:14:13:00
Jean Boucher

So for any corporation to start saying, we're going to we're going to start ramping up our wind and our and our solar accounts of our. I don't, they're going have to go buy another company or they're going to have to go do something else. They're going have to spend money, whereas they have all these sunk costs already in oil and in the platforms and all that stuff.

Figure 24

Figure 25

Figure 26

00:14:13:02 - 00:14:37:16
Narrator

Oil companies may recognize that they need to be central to this transition for their business to survive. But in Scotland, onshore wind developers have been working towards this goal for decades. And their experience in developing renewable energy is vital if we are to achieve the government's targets.

00:14:37:18 - 00:15:01:11
James Baird

It varies, on some projects we have a situation where the landowners come to us and suggest that they have a good site for a wind farm project. Other opportunities come about by us identifying a decent site for wind farm development and we would then approach the landowner. So it varies, the land owner might approach us, or we might approach a landowner.

00:15:01:11 - 00:15:31:24
Gavin Shirley

Alongside new solar, onshore wind is the cheapest form of electricity generation. And once consented and conditions satisfied, a project can be built in 12 to 24 months. It can power tens of thousands of homes, carbon free electricity. And we're in a climate emergency, a nature crisis, cost of living crisis, and face issues with security of supply. So onshore wind addresses all of these.

00:15:32:01 - 00:15:53:20
James Baird

You probably do have a set of steps in the development process. Sometimes one might come before the other. But I suppose once you've decided that a wind farm is viable, that a wind farm site is viable. You might then look to get landowner agreements in place, to make sure that you're actually able to develop that wind farm within the legal agreements.

Figure 27

Figure 28

Figure 29

00:15:53:22 - 00:16:11:12
Gavin Shirley

Once you have got that, we'll go into phase two with our pre-planning phase. And that's where our main site land options are secured, the grid connection is identified. We will undertake our environmental impact assessments

00:16:11:14 - 00:16:28:07
James Baird

so that you can start key surveys and get your design and assessment underway. Once you've got your wind farm fixed, your turbine locations fixed, your infrastructure fixed. You can then start to carry out your assessments and to determine whether there be any significant impacts.

00:16:28:09 - 00:16:49:23
Gavin Shirley

With the aim of coming up with a layout which addresses the significant adverse effects, provides mitigation and enhancement where possible. And that phase ends with a decision on whether to submit the application.

00:16:50:00 - 00:17:22:15
Narrator

Building the infrastructure and growing the supply chain for a mature renewables industry will take a monumental effort. But also take money. It will take investment and a speed and scale that is incomparable outside of wartime. But who's paying for this infrastructure? Where's the money for a transition coming from? And can government do more to encourage investment?

00:17:22:17 - 00:17:51:04
Paul de Leeuw

Of course, to repurpose and transform our energy system will take a huge amount of money and huge amount of investment. Some will come from the private sector, some will come from state support to actually make things happen. But the vast majority will come from energy companies who actually want to invest in the energy transition. And we

Figure 30

Figure 31

Figure 32

see already a massive ramp up in activity, particularly in the areas of solar around the world and wind around the world. So we see massive investment coming in. The vast majority will come from the private sector.

00:17:51:08 - 00:18:18:04
Thibaut Cheret

There is, you know, short term taxation measures might not be beneficial from the long term. That really needs to be looked through. And the danger is to look at short term benefits and long term damage because we all want this system to be in place that, you know, you create more jobs in the UK and you have the benefit to the end consumer.

So that has to carefully thought and it has to be stable for decades because these investments are for decades.

00:18:29:01 - 00:19:02:08
Sumin Kim

So government plays a really important part in energy transition. Government can create or make better the current policy to lead to energy transition. There are lots of challenges to move to this new world. So for example, we need more funding to understand where to and how to move the supply chain to an offshore wind industry.

So government can create better policy and better funding, and they can encourage industry to invest where and at the right time.

00:19:17:10 - 00:19:42:15
Narrator

The need to work towards a net zero future with a transition in our energy system is clear. The ambition from government, industry, stakeholders and the people of Scotland to be world leaders in this is there. But are we working fast enough to make a difference? Will it be enough.

Figure 33

Figure 34

Figure 35

00:19:42:17 - 00:20:05:19
Sumin Kim

If we get there, it may look very differently in the future. There will be much less use of fossil fuels and of more renewables, but we are already starting to see these changes. We are seeing more electric cars on the road. That's the beginning of small changes, I believe.

00:20:05:21 - 00:20:14:05
Jean Boucher

I'm not optimistic, but I do what I do because I feel like I have a moral duty to do what I do.

00:20:14:07 - 00:20:21:10
Paul de Leeuw

Though I'm realistic about a transition. I mean, it is a transition to switch over. Of course, we all want to go faster.

00:20:21:12 - 00:20:33:09
Gavin Shirley

Certainly the timelines we are looking at need to be truncated. The same quality of work will go in, but we need effectively speedier decision making.

00:20:33:11 - 00:20:44:02
Thibaut Cheret

We need to be very careful with all this talk about acceleration. We need to put the right things in place now to make sure we can accelerate.

00:20:44:04 - 00:21:05:04
Paul de Leeuw

That needs and that will require an enormous level of collaboration between government, industry, regulators, and of course, the community to find a way to do it in the best possible way.

00:20:56:06 - 00:21:15:05
Thibaut Cheret

So bringing targets forward without putting in ground bases in both regulation streamlining and the economy. The you know, the difference, the supply chain transformation. If you don't do that, you're going to trip yourself up by trying to accelerate. You're actually going to delay the entire thing.

Figure 36

Figure 37

Figure 38

00:21:15:07 - 00:21:28:03
Sumin Kim

Personally, 50 giga watt is quite ambitious, but I believe once we have a vision, we can at least 90% or 80%. That won’t be bad.

00:21:28:05 - 00:21:51:01
Jean Boucher

I don't know, I don't like a lot of this focus on the next generation and they're going to it's up to them to do that. We left them a bunch of shit and they're going to have to, you know. No we're still here and you know, as adults, we need to still engage this this thing right sociologically, cultures and societies reproduce themselves pretty well in a scary way.

00:21:51:03 - 00:22:10:23
Jean Boucher

So we need to ramp up educational programs which teach people to be citizens and to get involved in engaging their governments. I'm going to stand up and use my voice, even though. I don't know, so when I'm on my deathbed, I could look back and say, well, I tried to do what I tried to do.

END

Figure 39

Figure 40

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