

REVOLVE



N°18 | WINTER 2015/16

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Urban Logistics 10 | Peat Power 60 | Climate Politics 68

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Contributors

Based in New York, **Lindsay Clinton** ('Business Model Innovations', p.18) leads SustainAbility's thought leadership on business model innovation, producing the research series *Model Behavior*, focused on mapping the landscape of and building the case for business model shifts that bring positive societal, economic and environmental benefit.

Louise Elliott ('Innovation in Water', p.26) is the Business Development Director for Isle. She has over 10 years of experience in the water industry and has been instrumental in organizing events and conference ideas for Isle. Her knowledge of the water industry enables her to come up with innovative events that have a technology spin.

Adrian Vickery Hill ('Evolving Urban Logistics', p.10) is a Brussels-based freelance planner and strategist focused on systems and systemic change within the built environment. He has a background in urbanism, sustainability, environmental planning and design.

Piet Holtrop ('Regulating Renewables in Spain', p.52) is founding partner at HOLTROP S.L.P. Transaction & Business Law has been member of the Spanish renewable energy industry organization (APPA) since 2001. HOLTROP S.L.P. was awarded the Solar Price 2015 of the Spanish section of EUROSOLAR.

Stephanie Illner (Cover: 'Bull Sharks', VIEWS, p.35) is a Mexico-based underwater photographer and multimedia designer. See more of her work here: www.deepdownmedia.com.

Charles Mahoney ('Lost Legacy', p.68) is Assistant Professor of Political Science at California State University, Long Beach. His research focuses on transnational security challenges and United States foreign policy. Professor Mahoney received his Ph.D. from the University of California, Los Angeles in 2011. His previous work for Revolve includes "Mercenaries in Mexico" (cover) Issue #1, Winter 2010/11.

Based in New York, **Rochelle March** ('Business Model Innovations', p.18) works with SustainAbility clients in the consumer goods, pulp and paper and financial sectors. She is interested in enterprise risk management, organizational design, and natural capital valuation. Additionally, Rochelle assists with SustainAbility's work with researching and helping companies stimulate business model innovation.

Ismo Myllylä ('Transparent Energy Peat Production', p.60) is Editor at Viestintä-Paprico Oy, a communications agency based in Jyväskylä, Finland. Ismo has written extensively about peat and bioenergy in the last twenty years for numerous Finnish publications.

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CONTRIBUTORS

Lindsay Clinton
Adrian Vickery Hill
Piet Holtrop
Stephanie Ilnér
Charles Mahoney
Rochelle March
Ismo Myllylä
Stuart Reigeluth

PHOTOGRAPHERS

Dan Boman
Sven Dowideit
Emilio García
Stephanie Ilnér
Iranah
Gustau Nacarino
Michel Petillo
Eugenijus Strašinskas
Ricardo Teles
Teemu Tervo

GRAPHIC DESIGN

Filipa Rosa

WATER ADVISOR

Francesca de Chatel

MOBILITY ADVISOR

Jean-Luc de Wilde

RESEARCHER | COORDINATOR

Marcello Cappellazzi

COMMUNICATIONS ASSISTANT

Anouck Snickers

PROJECT MANAGER, FOREST CITY

Wieteke van Schalkwijk

FOUNDER AND CEO

Stuart Reigeluth



Revolve Media is a limited liability partnership (LLP) registered in Belgium (BE 0463.843.607) at Rue d'Arlon 63-67, 1040 Brussels, and fully-owns Revolve Magazine (ISSN 2033-2912).



Printed with vegetable-based ink on chlorine-free paper; REVOLVE uses FSC approved paper (for more on how REVOLVE is a sustainable magazine see p.82).

Visit our website: revolve.media

Cover image: Bull sharks in Playa del Carmen, Mexico. Source: Stephanie Ilnér.

10



18



26



35



68



76



REPURPOSING

07 | Three start-ups stood out this quarter: Karün making sunglass from fishing nets, Analog's wooden watches, and REFOIL uses aluminum for hairdressing in Australia!

INNOVATION

10 | Adrian Vickery Hill explains how the complexities of urban logistics can be addressed more simply and ultimately lead to more healthy cities.

SUSTAINABILITY

18 | Business models are changing. The triple bottom line of society-environment-business is going into full effect. These are some innovations to emulate.

WATER

26 | Want to know how to connect water and energy? Learn more about the technologies that are being pitched in Abu Dhabi 'shark tank' with Isles Utilities!

VIEWS

35 | A photo essay by Stephanie Ilnér scuba-diving with bull sharks off the coast of Playa del Carmen, in Yucatan Peninsula, Mexico.

RENEWABLES

52 | Piet Holtrop testifies about the detrimental Spanish policy of pulling feed-in-tariffs for integrating renewables and pleads in favor of new regulation.

FOCUS

60 | This is not geothermal energy and fracking, this is another kind of energy from the earth; this is about the power of peat to heat our homes and cities.

POLITICS

68 | In the lead-up to the U.S. national elections in 2016, Charles Mahoney provides insights into the Republican Party and their relations with climate change.

CULTURE

76 | This series of cartoons about "Oceans in our hands" fits the mood of the annual winter climate talks and the water theme tying this issue together, perfectly.



Discover our ongoing **REPURPOSING** series about companies that reuse materials to make new products

Visit: revolve.media/repurposing

Stuart Reigeluth, Source: Michel Perillo



Revolve Magazine Turns Five!

Five years ago, in the winter of 2010/11, we created a first issue of the magazine that you are holding and that at the time mimicked our first website. We went through three or four websites since then, and we are proud to say that the magazine has now taken on a truly international breathe of content and contributors.

It took us five years to get here, five years of constant improvement to reach this level where the driving theme of sustainability permeates everything we do. Sustainability is that intangible current that makes society better, that creates thriving long-term business, and that makes the environment a source of investment. Beyond generic corporate exercises of social responsibility, there is durability.

And in these five years of making magazines, of trying to transmit a critical but realistic view of the world, I want to thank all the people who have contributed to making Revolve what it is today.

We're still a young company. We have the creative agility and the time flexibility that others don't. I like to say we're a small agency with big projects. Feel free to contact me to see how we could me more effective together.



One of my favorite covers from 2012 when we won best publication of the year for **Water Around the Mediterranean** that would inspire our new **Revolve Water** platform

Looking back, we have done country reports on Tunisia, Brazil, Turkey, and India, plus industry reports on water, on cables, and heat pumps. We've diversified to include photo exhibitions and communication services: we now train the next generation of young media professionals in communicating more effectively about the value of water.

With the goal of leading knowledge transfer for positive change, we are registering our non-profit **REVOLVE WATER** as I write these lines, and we are implementing a new editorial line to have each quarterly issue of this magazine be dedicated to the themes of Water (Winter), Forests (Spring), Energy (Summer), and Mobility (Fall). All the rest is about sustainability.

Stuart Reigeluth
Founder of Revolve Media
stuart@revolve.media
 t.: +32 318 39 84

REPURPOSING

Brands + Sustainability

Innovative start-ups from around the world are recycling and reusing waste to make new products. By incorporating sustainability into their brands, they can provide eco-friendly products that consumers can buy with a clear conscience. *Revolve* looks at three brands that repurpose the old to create something new.

Refoil

www.refoil.com.au

refoil
for colourists who care

Refoil has been blazing a trail for environmental issues ever since it introduced its first recycled aluminium hair colouring foils in 2012. Saving as much as 95% of the energy and water needed to make aluminium from scratch, Refoil is making inroads into the huge waste of resources associated with the use of traditional, non-recycled foils. As well as supplying planet-friendly products, Refoil has a vigorous education campaign encouraging hair salons to recycle all their used foils and aluminium colour tubes and help cut the 1 million kilos of aluminium waste sent to landfill each year by Australia's hairdressers.

How big are
your balls?



Analog Watch Co.

www.analogwatchco.com

"Our goal here at Analog Watch Co. is to design beautifully simple and well crafted watches made from all-natural materials. Our first collection features the Carpenter Watch, a minimal yet playful work of art hand crafted from beautiful pieces of wood," said Founder, Lorenzo Buffa. "Our love for nature runs even deeper - which is why we have committed to planting a tree for every watch we sell."

The Analog Watch Company produce a series of minimal and eco-friendly wooden watches.

Our work is a minimal, uncluttered, iconic design with clean lines, a unique texture, and is sustainably manufactured to boot. We are dedicated to exploring new ways of considering materials. We stand by our product and our commitment to nature: our partnership with Trees for The Future, a 501(c)(3) non-profit, ensures that a portion of our profits for each watch purchased will pay for the planting of a tree. Not only that, but our design is 80% biodegradable.



Karün means "we are nature" in Mapundungun, the language of the indigenous Mapuche people. With our sun glasses, we want to change the way people see the world and remind them that we are part, and not the owners, of nature.

Karün is an eyewear company based in Chile created by people sharing values about a way of life in harmony with the planet. Focused on creating the highest quality eyewear based on beauty and respect for nature and its inhabitants, with an absolute minimum impact on the environment while building deep connections with local communities.

Unique eyewear made with timeless craft using natural and noble materials, Karün sources raw materials from the Pacific coast, the desert and the deep native forests of Patagonia.

Karün
www.karunworld.com

THE OCEAN COLLECTION

See Revolve's Spring 2014 issue #14 for more about Bureo's reuse of fishing nets for skateboards.

Plastic pollution in the oceans is one of the biggest problems in the world and fishing nets represent about 10% of that plastic! The Chilean company Karün and the Californian company Bureo worked together to turn used fishing nets into cool sun glasses of the highest quality. The Ocean Collection frames are made 100% from recycled fishing nets, sourced in small fishing communities of Chile, and made in one of the best factories in Italy. Proceeds from the Ocean Collection help fund education programs for those Chilean communities most affected by ocean waste.

Evolving Urban Logistics

Getting Around, Futures for Urban Logistics

Logistics may be the life-blood of cities yet burdens urban areas with high pollution levels, congestion and noise. With new technology and changing shopping patterns, the industry has a chance to be re-invented. How can urban logistics change in the 21st Century and where are the opportunities for users and businesses alike?

Writer: Adrian Vickery Hill







An urban myth has it that the typical urban supermarket would be bare within a few days of typical shopping if they could not be restocked. Welcome to urban logistics – the un-sexy topic that slides under our noses but keeps cities alive. Logistics may be the life-blood of cities but it consumes some 20% of energy for motorized traffic, results in 20-30% of PM pollution and is responsible for a large percentage of urban noise pollution. It also employs some 2.5% (in cities like London) while it is worth around 3% of the EU economy. If we are talking about sustainability, or reducing energy demands, or moving to renewable energy,

electric and biofuels may
be the most attractive
new energy future

or local economies, or just making cities more attractive, then we really must get our heads around urban logistics.

We have never before been so dependent on worldwide flows of goods. The challenge for most is that we are simply not aware of how urban logistics relates to cities. While cities have always been founded on trade and movement of goods, urban logistics remains a mystery even to public authorities and urban planners as much of it involves loosely regulated and highly protected private businesses. Urban logistics really is the beginning and end in a much larger story of consumption of goods, production, jobs and the construct of urban society at large.

Urban logistics is beginning to evolve with new technology, 'hacks' to the system and innovative planning. This is certainly offering an improvement to our lives as changes in urban

logistics reduces wasted travel time, can deliver more efficiently (reduces cost of the item) and through technology minimize the existing environmental impacts of transports. We will look at a few relevant themes of how logistics may be changing and some interesting innovation areas to keep an eye out for. We'll end by looking at the cause and effect of things moving around the city and between cities.

Images: (pp.10-11): Drones: Will sustainable urban logistics be completely automated with the likes of drones?

Source: European Institute for Sustainable Transport

(this page): Low Emissions Zones: Zoning ever more pertinent after the VW scandal, forcing urban logistics to change. – London low emission zone signage.

Source: European Institute for Sustainable Transport

(next page): Electric trucks: rail may not be the only form of inter-urban electric transport.

– Electrically powered truck at the Siemens eHighway. Gross Dölln, Germany.

Source: Scania / Dan Boman

Technology and Space

When one thinks of urban logistics, images of a lorry or courier may come to mind. Technical changes, however, have systemically shifted how we relate to buying or selling things. It is not just about the van but the actual commercial platform that is shifting.

Transportation

Transport is one of the most obvious points for tech-innovation as it is simply a change in vehicle, while the delivery itself remains conventional.

Mode - Transport modes can make a difference to logistics. Where innovation remains to be explored is how each of these modes forms a multi-modal network so each mode works most efficiently according to its environment.

Truck/Van: The conventional mode for most transport of goods. It is flexible but highly polluting due to diesel, not energy efficient, creates traffic, can get stuck in congestion and so on.

Inland Water: A slow but energy efficient way of moving heavy goods, very impractical however boats are seen as possible moving distribution hubs for urban logistics. While cities like Venice, Amsterdam and Tenochtitlan were built on water-based cargo, the most efficient pre-motorized mode, it rarely features in contemporary urban logistics. Utrecht's electric barge called the 'Bierboot' services bars along the canal but it provides a fraction of the inner-city's logistics.

Rail: A very energy efficient but poorly used mode for goods transport due to inflexibility of the network. Cargo trams have been explored in Amsterdam, Dresden (CarGoTram for the Volkswagen factory) and Zurich (Cargo- und E-Tram) but with relatively little success.

This is possibly due to poor integration with other modes such as with bikes.

Cycle: Peddle power is an increasingly attractive mode - particularly now with electric assistance. Bikes are light, low cost, can be much faster than vans in the inner city, and are quiet, low maintenance, low energy costs and don't get parking tickets.

Other: Drones that can deliver a book within minutes (Amazon) and automatic cars (Uber, Google and others) are on the horizon but in practice could face a decade of technical and legislative hurdles before and if getting a green-light.

Transmission - One significant change emerging is in fuel – there is little to match the convenience of fossil fuels. Conventional fossil fuel technology is reaching its efficiency capacity in terms of emissions and energy consumption while other modes are not offering either the range or power to match. Cities are beginning to institutionalize 'Low Emissions Zones' (LEZ), areas where heavy diesel based vehicles cannot enter and both large (London, UK) and small





cities (Piemonte, IT) are institutionalizing them quickly. Read more here: urbanaccessregulations.eu

Conventional: Diesel based trucks and vans are currently the norm but haunted by the recent emissions scandals.

Biofuels: Biogas and diesel are an attractive alternative to fossil fuels however remain a scandalous fuel due to competition with food. Second generation biofuels may solve this problem but need development.

Electric: Trains, trams and increasingly cars, small trucks and bikes are currently limited by battery size but as vehicle costs come down and fuel costs are assumed to go up, they are becoming increasingly attractive. The high side is that they are very quiet and have no local emissions.

Hydrogen: Fuel cell technology are oriented to boats and trucks as it is much more powerful than electric. However, hydrogen remains far less efficient than diesel/petrol so extra fuel or shorter range can be a concern.

Other: Hybrid has been around for some time but hybrid electric and biofuels/hydrogen may be an interesting low emissions long-distance alternative. Compressed air technology has been around for a century and now Honda and Peugeot have shown signs of moving in this direction.

Vehicle size - Vehicle size is often limited by road size and companies often prefer larger vehicles to reduce trips but this may be changing due to cost.

Large: Big trucks, trains, and boats that bring things in bulk often service outer urban areas likely will turn to biofuels and hydrogen as diesel alternatives. Inter-urban electric trolley-trucks have been explored by Siemens.

Medium: Transport that can bring large amounts of stuff but can also negotiate small urban streets and chaotic traffic conditions. Electric and biofuels may be the most attractive new energy future.

Small: Great things in small packages: increasingly online shopping is requiring greater attention, particularly for

last-mile delivery. Consider the Cargo Hopper (NL) that shifts goods into smaller electric vehicles for inner urban distribution within Utrecht and Amsterdam. Freight by bike is increasingly common too – a mode that can escape congestion or LEZs.

Depot

Warehouses have always been located closest to transport. In the past, this was located in the inner city, which over the last few decades have turned into lofts and office space. This has meant the inner city areas rarely have decent sized and accessible spaces for storage and distribution. Therefore, there is no other solution but using large and noisy trucks to transport goods from the edge of the city to the center. The question now is how to adjust smaller scale depots closer to where people live.

Fringe warehouses: Large distributed warehouse space located on urban fringes where land is cheap and close to freeways: the generic solution. The problem here is this model creates a lot of traffic.

Centralized inner-city: A possible solution focused on an inner-city distribution hub. There have been a few case studies to do this based on public private partnerships, however financing and systemic change have not given them a chance to become viable solutions.

Distributed inner-city: Containing larger numbers of smaller drop-off points. This would involve private storage spaces now explored by Sugaris in Beaugrenelle and Chapelle in Paris.

Users

Something strikingly new is how we shop and how shopping arrives to us. Online shopping is allowing us to avoid wasting time and distractions in shops. But by online shopping we're increasingly distancing ours from contact with producers, growers and the source of the materials we're acquiring.

Ordering - Online shopping is nothing new and the market with stable

growth – except it is not necessarily a replacement for the experience of bricks and mortar shopping.

Conventional: Buying things from traditional shops has not ended, as many forecasted but is becoming more experience and service driven.

Shopping online: The rise of online shopping has been dramatic and is very likely to continue rising; in the U.S. e-commerce accounts for over 7% of retail trade and is growing.

Hybrid: We have not lost the glamour and leisure experience of shopping. The cost of retail space is forcing some companies to treat their floor-space simply as a show-room with actual shopping occurring online. Many shops (particularly technology showrooms such as Apple) create a different retail experience online at the same price. This is an area that retailers are coming to grips with and is feeding marketing agencies attempting to connect physical and online environments.

Delivery - All delivery systems are enjoying the benefits of computed ITS systems, tracking and GPS technology which is helping find the shortest and most effective route. But beyond this the actual delivery mode is evolving.

Conventional: Conventional postal or courier style delivery services may be and remain a staple.

Centralized: Postal companies are beginning to offer deliveries at central points where users pass regularly. This skips the need to actually deliver to individuals but rather to deliver to a box. BPost in Belgium has 24-hour post-boxes at major stations.

Organized: Disruptive app-based platforms such as UberRUSH are introducing a service combining that of a courier and a butler.

Hitch-hiking: An area to explore is the use of typical drivers to pick-up and drop-off goods on routes they would be travelling – an informal variation of Uber. This is hitch-hiking for small goods.



Social Impacts

Urban logistics offers mixed blessings on a social dimension. On the one hand it brings us vast amounts of stuff such as technology, manufactured goods, exotic food and so on, but on the other hand we suffer the consequences of noise, polluting particulate matter, congestion, accidents and so on. Is technology actually going to improve conditions? Superficially yes it will.

We have been losing the concept of where things come from, how to make things

and the consequences of moving things around. Since the Second World War, the West has slowly shifted industrial jobs out of cities. Western cities now make relatively little of what they consume. Our H+M shirts once made in China are now

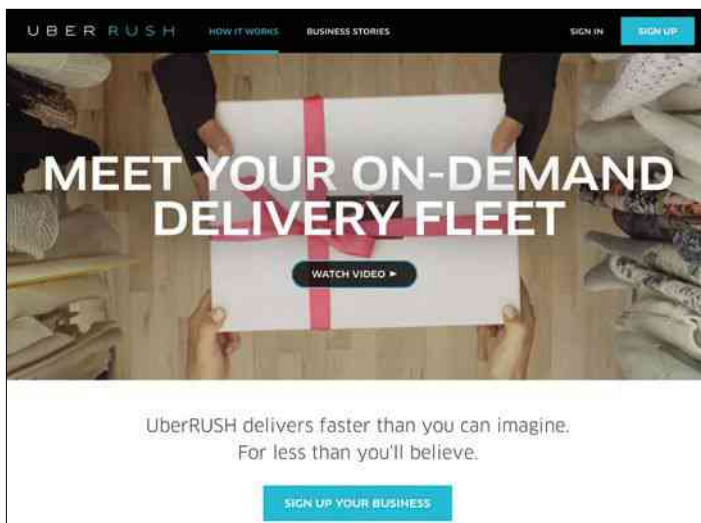
We have been losing the concept of where things come from, how to make things and the consequences of moving things around.

made in Bangladesh – but who cares? While post-industrial economies may see manufacturing as a dirty job, one of the consequences of logistics is a loss of the cross-section of skills and the poor employment conditions for those countries

that actually make stuff. In many European cities, this has meant that lower-skilled jobs are reduced to lorry drivers and cleaners. Only now, as

economies begin to readjust, and unemployment rises in some areas, do we need to blame the convenience of logistics?

Interestingly in the last couple of years, with the reduction in capital and the need for local innovation, small-scale urban entrepreneurs are looking at local low-cost and low capital business models. We are seeing a rise in local manufacturing and slower forms of urban distribution (such as cargo bikes) to match. As a result, young start-ups with poor funds choose lower cost and lower impact forms of urban logistics, such as cargo bikes.



Images: (p.14): Existing infrastructure: Trams and passenger trains could form the backbone of a multi-modal system. – Cargo Tram in Zurich, 2007. Source: Sven Dowideit / Flickr

(p.15): Smaller and electric: In Utrecht small electric vehicles are quiet, nimble, fast and can deliver all day. – Cargohopper. Source: Cargohopper

(this page / top): Screenshot of UberRush website. Source: Revolve / UberRush

(this page / bottom): Urban logistics hubs: Chronopost are innovating in Paris with central underground sorting and electric vehicles. Source: Le Groupe La Poste

(next page): Local production + manufacturing: With production returning to cities, logistics function differently. Source: Permafungi





The Economic Dimension

Urban logistics is creating a fissure in urban areas. The economics of congestion, pollution, consumption of space, cost of infrastructure (such as roads), noise and so on are becoming increasingly clear and paid for out of all of our pockets. Technically, urban logistics has much to gain by moving into smaller, lighter and more localized distribution systems. A major system overhaul is required. More importantly, we must carefully consider the local

urban logistics has much to gain by moving into smaller, lighter and more localized distribution systems

consequences of carelessly moving stuff around the city and from city to city. As ordering things online becomes more of the norm, we are becoming entirely desensitized by where things come from and we are losing the value and meaning of personal contact.

It is clear that post-crisis, post-growth Europe will need to be much craftier about the use of resources. We don't need

economic activity by simply selling more stuff manufactured in foreign lands. We need better locally-produced and useful

products. Likewise, new automated 3D manufacturing technology will see a rise in local production. The access-based and sharing economy is becoming not only increasingly attractive but the most viable

solution for having things when they are needed. Moves to value resources, such as the circular economy and short-circuit food production, will need to be underlined by urban logistics to reprocess 'waste'. In short: access to goods, local production and resource valuation is an area requiring reliable logistics and a great opportunity for business growth.

Urban logistics is exciting terrain for innovation and development. The electrified 21st century city is beginning to create great new options for urban areas which will require an entire re-think of how things get around the city. This ranges from vehicles, to distribution networks and shopping conditions. The challenge is not to find more effective ways to move more things around, but to get most value out of the things that we do distribute within urban areas while having the lowest possible impact on inhabitants. 

"There is an urgent need
for fundamentally different
approaches to value creation."

Business Model Innovations

Business model innovation today is being driven by challenging business conditions and other emerging factors that create both constraints and momentum that necessitate or encourage new approaches that result in more sustainable outcomes. Resource scarcity, climate change, urbanization and changing demographics make it difficult for many companies to maintain the status quo. They also present an opportunity to do business differently—and more sustainably. Meanwhile, emerging factors such as digitization and the rise of the collaborative and circular economies point to increasing momentum that may put the wind in the sails of companies that choose to harness these forces.

Writers: Lindsay Clinton and Rochelle March

NOKIA

syngenta



Mondelēz
International

IBM

Coca-Cola

MARS



SIEMENS

VALVE

RENAULT

Adobe



Three Key Elements for New Sustainable Business Models



The External Landscape

Business model innovation today is being driven by challenging business conditions and other emerging factors that create both constraints and momentum that necessitate or encourage new approaches that result in more sustainable outcomes.

Resource scarcity, climate change, urbanization and changing demographics make it difficult for many companies to maintain the status quo. They also present an opportunity to do business differently—and more sustainably. Meanwhile, emerging factors such as digitization and the rise of the collaborative and circular economies point to increasing momentum that may put the wind in the sails of companies that choose to harness these forces.

Images: (right): Training program for Andela software developers in Nigeria. Source: Andela
(next page): Aerial view of a forest owned by the paper-making company Fibria in Aracruz, Brazil.
Source: Ricardo Teles / Fibria

Examples of constraints:

- Urbanization has also put more strain on companies' infrastructure and distribution networks within cities, making it more difficult to meet demand. The prospect of urban opportunity lures rural workers to cities; as a result, many companies, particularly those dependent upon smallholder agriculture, such as Nestle, Mars Inc, Mondelez International and Syngenta, grapple with workforce and supply instability.
- Growing water scarcity has pushed companies like Coca-Cola to hedge their bets by investing in companies like Keurig Green Mountain that might enable them to reduce centralized water extraction in water-poor communities through self-service home soda makers but still get their products into the hands of consumers.
- Novelis, Renault and Waste Management are adopting closed loop models in the face of market volatility.

Examples of momentum:

- Andela, a growing social enterprise in Nigeria, uses technology to address a skills gap—the shortage of qualified software developers. Andela has created a four-year program that provides remote training in basic coding. Students then divide their time between schoolwork and real projects for IT companies in need of talent. Clients include Microsoft and Segovia.
- Earlier this year, IBM announced a partnership with Yarra Valley Water, the largest water and sanitation utility in Melbourne, Australia, to enhance the management of the utility's assets and customer service to over 1.7 million people and 50,000 businesses. The partnership will leverage IBM's experience formulating cloud-based systems, combining it with their skills in big data collection and analytics to make Melbourne's water management smarter, thereby reducing the cost of managing water by 15%





The Company's Internal Culture

Culture plays a significant role in enabling teams inside firms to respond to these external conditions and create new models. A review of mainstream innovation literature cites four factors influencing corporate environments to allow for innovation: supportive senior leadership, non-hierarchical structures, freedom to fail, and an ethos that encourages collaboration. Internal innovators can leverage and/or work to foster these elements to drive business model innovation for sustainability.

Example of non-hierarchical structures in companies

- IDEO, a leading design and innovation consulting firm, attributes part of its success to its flat organizational structure that allows all employees to contribute and build upon each other's ideas. The company's mentoring system, or reverse mentoring where a junior person mentors someone more senior, is a unique aspect of this structure
- At Valve no employee reports to anyone else; decisions are made through consensus and spontaneous subcommittees
- Likewise at Gore, a team-based, flat-lattice organizational structure allows open communication. Leaders emerge naturally, appointed by their peers rather than top-down promotions

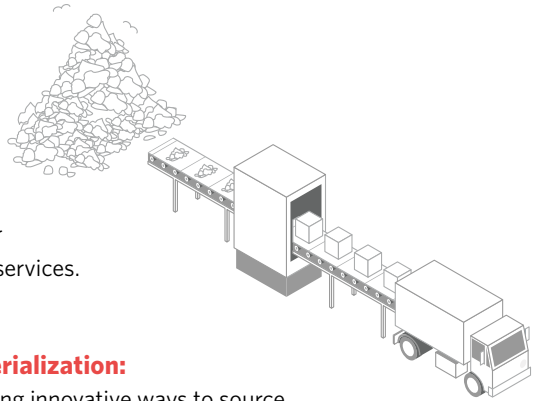
Example of ethos of collaboration:

- At Intel, part of the responsibility of the corporate finance unit is to apply its expertise to help quantify the impact of sustainability activities across the business. This internal collaboration is advantageous for achieving effective integration of sustainability into the company and its business model.
- Many companies have experienced much higher levels of innovation when collaborating outside their four walls. For example, in Zambia, the pharmaceutical company GlaxoSmithKline (GSK) and Barclays bank are removing the financial barriers to healthcare access, while simultaneously building a new marketplace by offering micro-insurance and support to new businesses. The aim is to create improved economic conditions for growth, providing value to each company and the communities in which the program is rolling out.



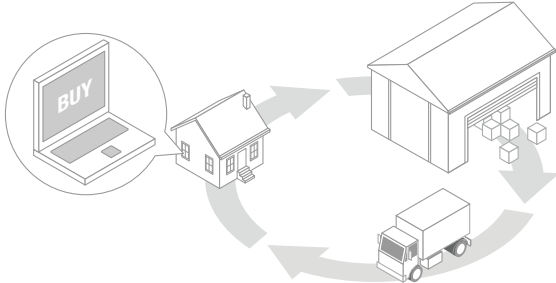
Model Behavior

20 Business Model Innovations for Sustainability



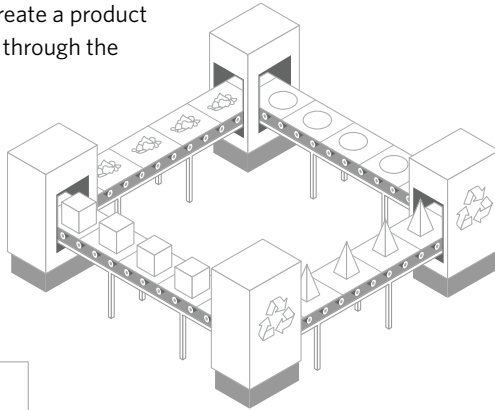
Physical to Virtual:

Replacing brick and mortar infrastructure with virtual services.



Closed-Loop Production:

The material used to create a product is continually recycled through the production system.



Rematerialization:

Developing innovative ways to source materials from recovered waste, creating entirely new products.

Environmental Impact



Produce on Demand:

Producing a product only when consumer demand has been quantified and confirmed.

Pay for Success:

Employing performance-based contracting, typically between providers of some form of social service and the government.



Freemium:

Offering a proprietary product or service free of charge, but charging a premium for advanced features, functionality or virtual goods.

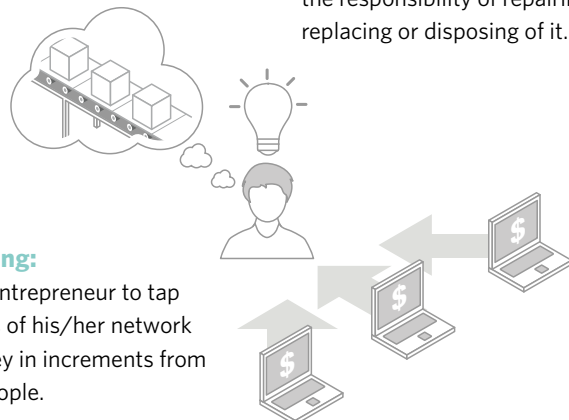
Innovative Product Financing:

Consumers lease or rent an item that they can't afford or don't want to buy outright.

Subscription Model:

Customers pay a recurring fee, usually monthly or annually, to gain ongoing access to a product or service; model has been used to lower barriers to entry to the purchase of green innovations.

Financing Innovation



Crowdfunding:

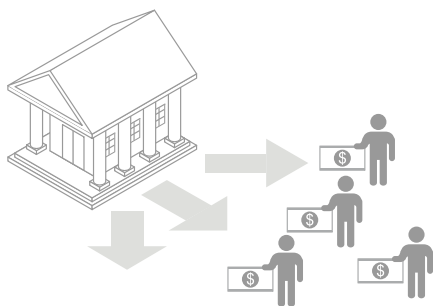
Enabling an entrepreneur to tap the resources of his/her network to raise money in increments from a group of people.

Product as a Service:

Consumers pay for the service a product provides without the responsibility of repairing, replacing or disposing of it.

Building a Marketplace:

Delivering social programs, adapting to local markets, and bundling with other services like microfinance and technical assistance enable companies to build new markets for their products.



Microfinance:

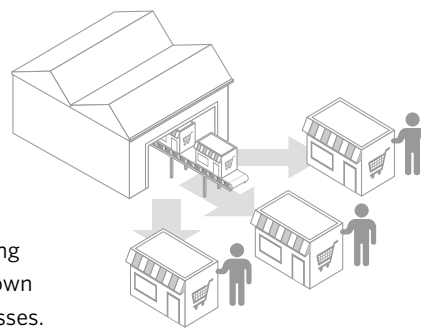
Providing small loans—and in some cases access to financial services—to low-income borrowers who do not have access to a traditional bank account.



Base of the Pyramid

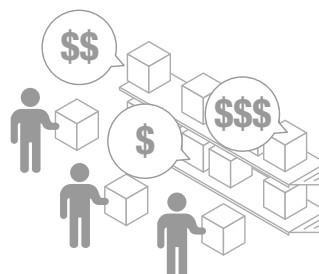
Differential Pricing:

Realizing customers may benefit from the same product but have different payment thresholds, companies charge more to those who can afford it in order to subsidize those who cannot.



Micro-Franchise:

Leveraging the basic concepts of traditional franchising, but specifically focusing on creating opportunities for the poor to own and manage their own businesses.



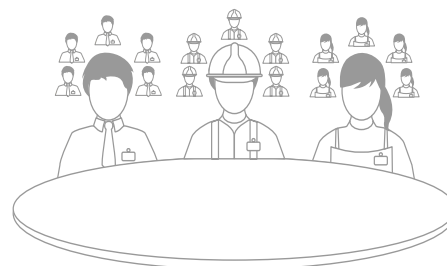
Buy One, Give One:

Selling a specific good/service and using a portion of the profits to donate a similar good/service to those in need.

Social Innovation

Inclusive Sourcing:

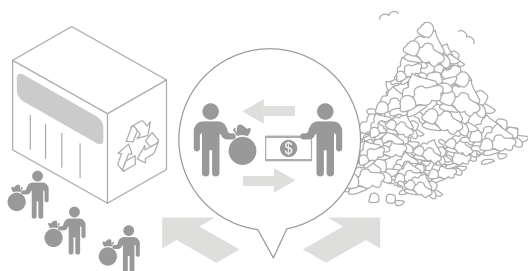
Retooling the supply chain to make a company more inclusive, focusing on supporting the farmer or producer providing the product, not just the volume of the product sourced.



Alternative Marketplace:

When a company circumvents a traditional method of transaction or invents a new type of transaction to unleash untapped value.

Diverse Impact

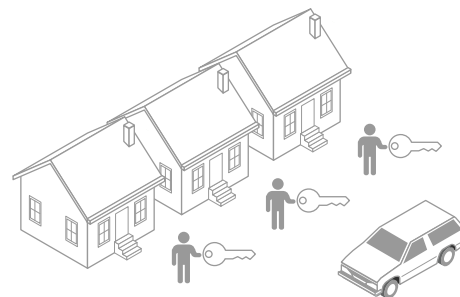


Behavior Change:

Using a business model to stimulate behavior change to reduce consumption, change purchasing patterns or modify daily habits.

Shared Resource:

Enabling customers to access a product, rather than own it, and use it only as needed; often dependent on the participation and generosity of community members to share their goods with others.



This infographic is an extract from the report, **Model Behavior: 20 Business Model Innovations for Sustainability**

Download the full report at:
www.sustainability.com/model-behavior

"One of my success metrics is about getting more people inside the company talking to each other."

Manoj Fenelon, Director of Foresight and Innovation, PepsiCo

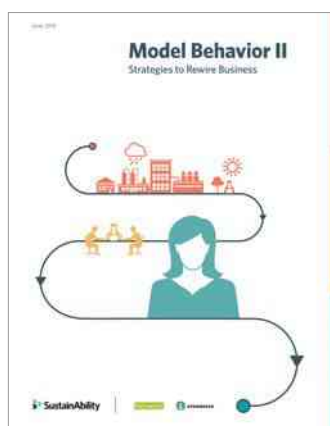


The Actions of the Innovator

Our interviews and research, as well as our experience running innovation workshops, demonstrate that thoughtful and ambitious sustainability leaders can foster business model innovation thinking, if not entirely new business models. These entrepreneurial leaders build networks and connections inside a company—a measure of success for one such internal changemaker is how many people across business units he can connect to one another to pursue business model innovation. The leaders introduce the concept and promise of business model innovation through tools that highlight areas of risk and opportunity for their company. They focus dialogue on value creation rather than new products or outputs.

Description of Tools:

- **Mine the Network:** The myth of the “lone innovator”—that only individual geniuses can produce groundbreaking innovations—is subsiding and for good reason. Today, innovations are increasingly brought to market by whole networks of internal collaborators or even networks of firms that operate in a coordinated manner. However, corporations are often organized into hierarchies and silos, causing challenges for those trying to shift mindsets or influence a new way of doing things. When trying to get buy-in for a new idea or to encourage teams to generate breakthrough ideas, tapping into the right networks and bringing diverse subsets of the business to the table is vital.
- **Map the Model:** A key step towards business model innovation lies in mapping the current business model, sustainability priorities, and potential risks that lurk outside the company. Surprisingly, studies show that between 60% and 85% of most firms’ employees do not know or understand their organization’s strategy, including its business model. Simply educating employees about how the company generates value and examining this through a sustainability lens, amongst other lenses, can advance dialogue about business model innovation.
- **Focus on Value:** Whereas many companies focus solely on financial value creation, business model mapping with a lens focused on social and environmental value creation, too, can more effectively convey a company’s externalities, positive and negative, and demonstrate whether it is equipped to be part of a sustainable future.
- **Build the Business Case:** As with any new innovation, the business case for action must be clear when gaining internal buy-in for a business model innovation focused on sustainable outcomes. Selling an innovation internally, with solid financial estimates, that are competitive with mainstream models or programs, will enable it to gain broad appeal and turn an idea into action.
- **Align Metrics:** Metrics are an important driver for innovation at the corporate level, but they can also incentivize innovation for sustainability by steering individual performance. Aligning employee performance metrics with innovation goals, for example, by making them part of a quarterly or annual performance review, is an important enabler for business model innovation. If employees are not incentivized to innovate, or are discouraged from innovating because their performance rating is more dependent on other metrics, this can block progress towards a business model shift.



This report focuses on telling the stories of companies that have shifted their business model to become more sustainable because it made business sense. Through several in-depth case studies of large, multinational companies from multiple industries—Fibria, Novelis, Starbucks and Syngenta—we put these points into relief and reveal the process and evolution involved in transforming a business model. In the case studies throughout the report, readers will learn about how shifting to recycled aluminum made more financial sense for Novelis than continuing to source virgin, primary aluminum. Starbucks had to differentiate itself from competitors at the high and low end of the market and green building provided a solution. Fibria, the largest pulp company in the world, realized that while demand for its traditional products would remain strong for many years, it was risky to depend on historic patterns of demand. The company had to shift its mindset. Syngenta changed its sales approach as part of a larger effort to retain its core customers, farmers.



SustainAbility is a think tank and advisory firm. We inspire and enable business to lead the way to a sustainable economy. We believe in the power and responsibility of business, working in partnership with civil society and government, to create a just, prosperous and sustainable economy. We believe that leadership is key to making this transition. We understand the need to reconcile long-term sustainability with short-term results. That's why we focus on both the journey ahead and delivering value here and now. Our unique blend of thinking and advice inspire and enable leaders to drive change inside companies, within value chains, across markets and through systems.

SustainAbility is trusted to deliver high-value insights and thinking that help companies understand sustainability issues and make better decisions. We are objective but not neutral because we never forget that we are advocates for a sustainable future. We influence at senior level and help leaders integrate sustainability into core business strategy and operations. We design and facilitate powerful dialogues and collaborations because only by building great relationships can we accelerate progress at the pace and scale required.

Image: (above): Bales of crushed aluminium cans at a Novelis recycling plant. Source: Novelis

Innovation in Water

The water industry has a unique influence and impact on the sustainability of the environment. With ever increasing demands to remain efficient and compliant, water companies must look to new and innovative approaches.

Writer: Louise Elliott





Bringing New Technology to Market

Isle Utilities (Isle) is an independent technology and innovation consultancy, with a strong track record in identifying novel and often cutting-edge technologies and solutions for the water and built environment sectors, and accelerating their uptake in line with the needs of the market. We do this by engaging directly with water utility end users through our bespoke forum for collaboration - the Technology Approval Group (TAG). The TAG model, first launched in the UK in

2005, has now been established in different geographical regions including; wider Europe, North America, Brazil, Philippines, Singapore, Middle East and Australia, with several other new territories on the horizon.

Innovation, particularly when linked with sustainability and increased cost efficiency, is a hot topic across many business sectors. This is no different for the water industry, with a plethora of water

innovation reports commissioned by various government bodies and businesses to examine how innovative the sector is and whether it is well placed to meet the challenges ahead of it. Studies have shown that innovation creates economic growth, a powerful driver not only for the water companies but also for their customers and the supply chain.

Within Isle, all our services revolve around the strategic implementation of emerging





Image: (pp.26-27): Testing drinking water for microorganisms.

(below): Sedimentation basin in water treatment plant.

Source: Shutterstock

technology and innovation. As technology companies develop and grow, they often find themselves cash constrained and in need of investment, Isle also facilitates introductions to appropriate funding bodies and external investors, as well as potential delivery partners. This stakeholder engagement process between technology companies, end-users, delivery partners and investors has been instrumental to the successful uptake and commercialisation of numerous technologies from around the world. We also facilitate many collaborative projects, through the trialling and assessments of emerging technologies in the market.

Isle is made up of in house technical teams of engineers and scientists alongside market and commercial experts. We maintain a completely unbiased approach to our research activities and have successfully worked with a diverse range of organisations including the public sector, charities, product suppliers and large multinationals. Our teams are located in the UK, USA, Australia and the Netherlands, further strengthening our capabilities as we are able to offer our clients a global perspective by tapping into this network as required.

innovation creates economic growth,
a powerful driver not only for the
water companies but also for their
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Innovation in Action – Technology Approval Group

Water utilities require innovative technologies to meet regulatory, environmental, financial, technical, and growth targets. However, with the road between R&D and commercialisation being long and with significant roadblocks, most technologies developed never make it to the commercial world due to their inability to make this crossover. The reasons for this include businesses and investors failing to understand the true market potential of a given technology, businesses like water companies not having the means to invest directly in the development of innovative products and services and technology companies (typically start-ups and SMEs with limited financial and personnel resources) finding it a difficult and time consuming process

to engage directly with the relevant end-users they have developed solutions for.

Isle identified an opportunity to develop an end user innovation forum connecting receptive innovation managers from water utilities (TAG members) with novel emerging technologies, in an easily accessible network. The approach needed to incentivise technology companies to go through a stringent due diligence process with the prize of trials, demonstration or commercial sales. The TAG platform needed to be funded by the end users who would ultimately gain benefits from the technologies once deployed. The final task was to identify financial investors who could support the growth projections of



the emerging technology companies once the water utilities had highlighted market applications.

Therefore through TAG, Isle sought to overcome the challenges above by addressing the three key factors that play a role in the successful development and commercialisation of innovative products and solutions:

- > Ensuring that innovation and development is needs driven – the solutions presented at TAG are selected because they meet pre-identified needs within the industry;
- > Accelerating deployment of novel innovative solutions, thereby ensuring that the benefits of each new innovation can be rapidly realised by the industry and that the supply chain remains committed to innovation;
- > Attracting external investment into the industry by de-risking potential investments through the demonstrable engagement of end-users.

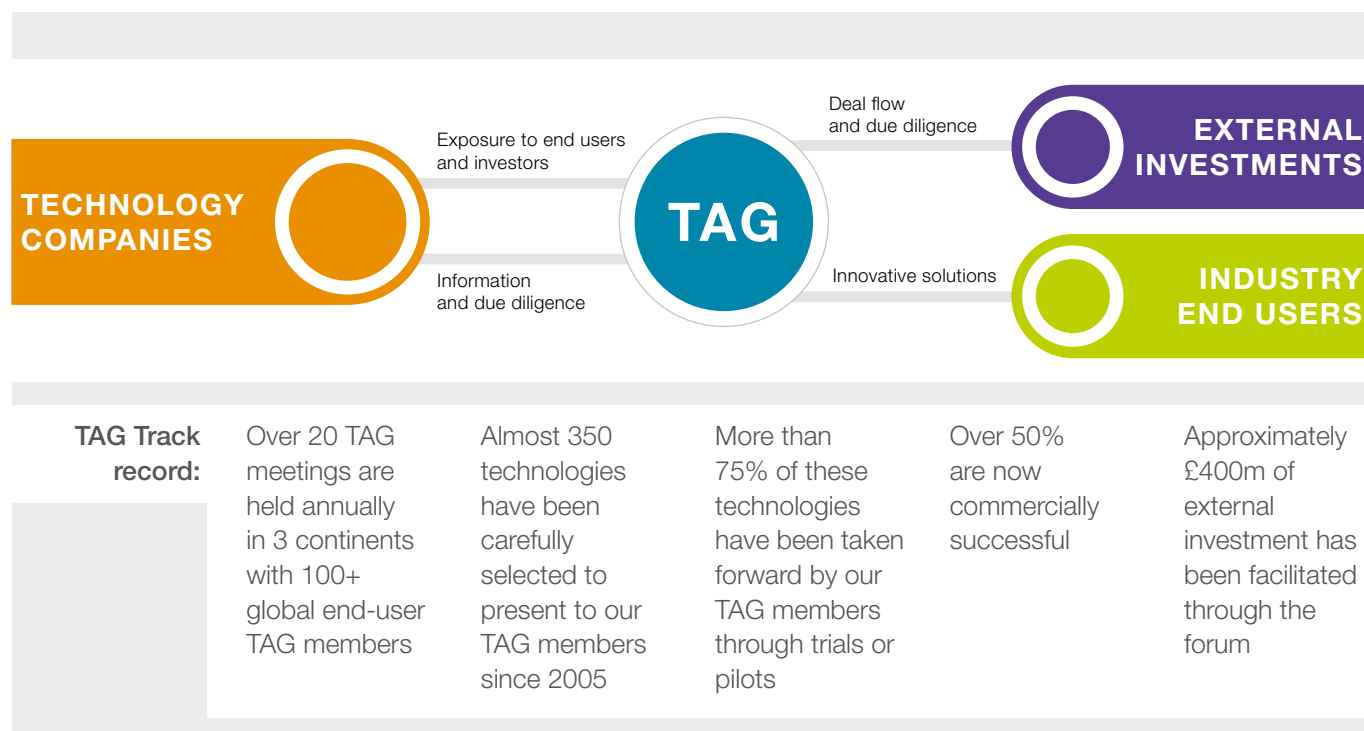
So, while investment can be sourced externally to the water industry, the role of the water companies as end-users of technology is clear: demonstrable customer engagement not only ensures that innovation is needs-driven, but importantly it creates a positive environment to attract external investment. It is this engagement that has heralded TAG such

a success – over the last ten years the role of TAG has become pivotal in engaging with the water companies' current and potential supply chain. The innovations that have been showcased, and subsequently adopted, have delivered direct benefits not only to the industry, but also to the technology companies and the venture capital community.

Image: (right): Waste-water in coal mine. Source: Shutterstock
(p.32): Ferdaws, Iran, July 2013, a water reservoir close to Kuh Qale. These reservoir are called Haws Anbar by the locals. July 20, 2013. Ferdaws, South Khurasan, Iran. Editorial use only. Source: Iranah / Shutterstock

“Water is a top priority for R&D programmes in the UAE”

– Professor Bruce Ferguson,
Masdar Institute for Technology





Innovate@IWS

Isle's experience through the delivery of TAG has afforded expansion into other technology-led activities, including Innovate@IWS, an exciting showcase of novel solutions for the water industry in the MENA Region.

Water innovation is becoming a top priority for leading utilities within the UAE and they are driving the way in becoming one of the world's leading water hubs. For the last two years Isle have delivered the Innovate@IWS event in Abu Dhabi which has proven to be a successful platform for developers of technological solutions that can address the challenges of the region to meet and engage with end users and investors.

As Patrick Decker, CEO of Xylem said during 2015 conference: "The UAE has become one of the leading innovation hubs for water in the world, alongside Singapore."

At the 2015 International Water Summit (IWS), 16 finalists were selected in three water categories – municipal, industrial and real estate. At the conference, com-

pany representatives were brought before a panel of judges representing high-level expertise in water technology across the Middle East and North Africa (MENA) region, in a "Dragon's Den" or "Shark Tank"-style competition to determine the most promising technologies for enhancing water security in arid regions.

The winning technologies demonstrated excellence in three key areas: uniqueness, business potential, and long-term vision. The winners below received dedicated meetings with potential stakeholders from the investment, end-user, and partner communities:

Municipal: Trevi Systems, a California-based desalination company, developed a forward-osmosis desalination process for use in a wide range of applications, from saltwater to brackish water, as well as industrial wastewater with a proprietary draw solution.

Industrial: French company BGH took top honors for its original Zero Liquid Discharge

(ZLD) technology, which provides an effective treatment of high Total Dissolved Solids (TDS) waters, making it ideal for treating industrial wastewater in the hydrocarbons, mining, and nuclear sectors.

Real Estate: In water for real estate, the winner is THERMOWATT Energy and Building Ltd., a company based in Hungary, won for its heat-pump technology that uses energy residing in wastewater to cool and heat larger buildings.

Professor Bruce Ferguson of Masdar Institute, who was also one of the distinguished judges at the event stated: "Water is a top priority for R&D programmes in the UAE." Building on the success of last year, the 2016 Innovate@IWS will be just as exciting with a broad spectrum of water technologies having applied for a place on the stage.

Visit www.revolve-water.com to discover more about the 2016 winners.



Q&A

Nada Abubakr

Managing Director of Isle's Middle East Business talks about some of the challenges facing the Middle East and how Isle's Technology Approval Group are looking to address these.



We have seen a tremendous effort to ramp up water sustainability in the MENA region, especially in the Arabian Gulf. Innovation is playing a big role in introducing state-of-the-art technologies, practices and solutions, as well as to leapfrog existing technologies. Water will continue to become a diminishing resource in the Middle East; thus increasing its inherent value as a result. In recent times, we have witnessed a slow shift towards water efficiency initiatives however, this renewed interest in water technologies will need to be combined with a willingness to invest in water R&D and the adoption of early stage technologies.

“Water will continue to become a diminishing resource in the Middle East thus increasing its inherent value as a result.”

- Nada Abu Bakr, Managing Director,
Isle Middle East Business

What do you think are the biggest challenges facing the Middle East in terms of technology and innovation?

Some of the regular hurdles innovators are faced with when developing technologies for the Middle East region include the lack of access to capital and high risk investors (i.e. VCs), and availability of experienced local mentors that can provide guidance to start-up companies who are trying to move

their innovations past the prototype stage. In addition, as with most water industry end users, the appetite to adopt technologies that are new to market and with no local case studies is low.

What types of technology innovation are they looking for?

Novel desalination technologies are always in high demand in the water space, especially ones that offer significant energy savings and increased productivity. Water is a scarce commodity in the Middle East, especially in Arabian Gulf countries that rely heavily on desalinated water source. In light of this, technologies that can increase water efficiency and reduce water loss such as leakage management, smart metering, demand management tool, and so on are also a priority. With regards to wastewater technologies, there is an increasing demand in water reuse and sludge management technologies.

What are Isle's main activities in the Middle East and plans for the future?

Isle has recently delivered its first TAG forum in Abu Dhabi, hosted by the Environment Agency of Abu Dhabi, focusing on technologies that address Abu Dhabi's specific needs in the efficient management and conservation of groundwater resources. Isle is now working with key local stakeholders to roll out its global municipal water and wastewater TAG forums across the UAE and eventually across the entire MENA region. 🌐



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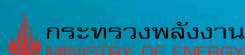
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VIEWS

Bull Sharks

A photo essay by Stephanie Ilnier





Humans have always seen sharks as a threat, especially since Steven Spielberg's 1975 movie based on Peter Benchley's novel "Jaws" (1974), which depicts sharks as vicious human-killing monsters.

On average, only 8 people per year die from shark attacks, which is not much in comparison to the approximately 100 million sharks killed by humans every year. Many of these sharks die as undesirable by-catch of the commercial fishing industry. Others fall victim to shark-finning, where the fins are cut off the living animal, and the rest of its body is thrown back into the ocean, left to die a cruel death. Sadly, shark fins are one of the most desired and expensive seafood products.

The killing of sharks has been going on to such an extent, that many shark species are near extinction, and the marine ecosystem is threatened by the disappearance of this apex predator that is at the top of the food chain and helps balance the marine ecosystem. Sharks have inhabited this planet for over 400 million years and belong to the oldest species known to man.

Cover page: Diver spying on bull shark.

Top: Bull sharks (*carcharhinus leucas*) are diadromous, meaning that they can swim between salt water and freshwater. They can be found in tropical to subtropical coastal waters worldwide as well as in many fresh water rivers, lakes or other fresh water systems.

Bottom: Bull sharks - known to be one of the three most dangerous sharks to human kind.

Next page top: Bull sharks don't often travel alone. They mainly feed of bony fish, and other small sharks, including other bull sharks. They like to hunt in murky waters, attacking their prey with the bump and bite technique.

Next page bottom: Stingray and co. Other animals can be spotted on shark dives as well.









Located on the Yucatan Peninsula along the Caribbean Sea, Playa del Carmen – once a small fishing village – has become one of Mexico's main tourist destinations. It is also one of the world's top scuba-diving sites, and shark-diving is one of its main attractions.

Every year, between mid-November and the end of February, bull sharks (females mostly and many of them pregnant) appear in the shallower waters in front of Playa del Carmen. These sharks come close to the shoreline to give birth in the fresh water systems along the coast of the Riviera Maya. There the young sharks can grow up free from predators before they return to the ocean.

The annual bull shark season of Playa del Carmen has become an astonishing scuba-diving experience, and bull shark diving has become for many dive operators in the region a crucial part of their business. Scuba-divers from all over the world travel a long way and pay good money to dive with the Playa bull sharks.



Top: Contemplating the sunset after an amazing dive.

Bottom above: Photographing bull shark.

Bottom below: Bull shark dive.

Next page: Bull sharks cruising below divers during safety stop.







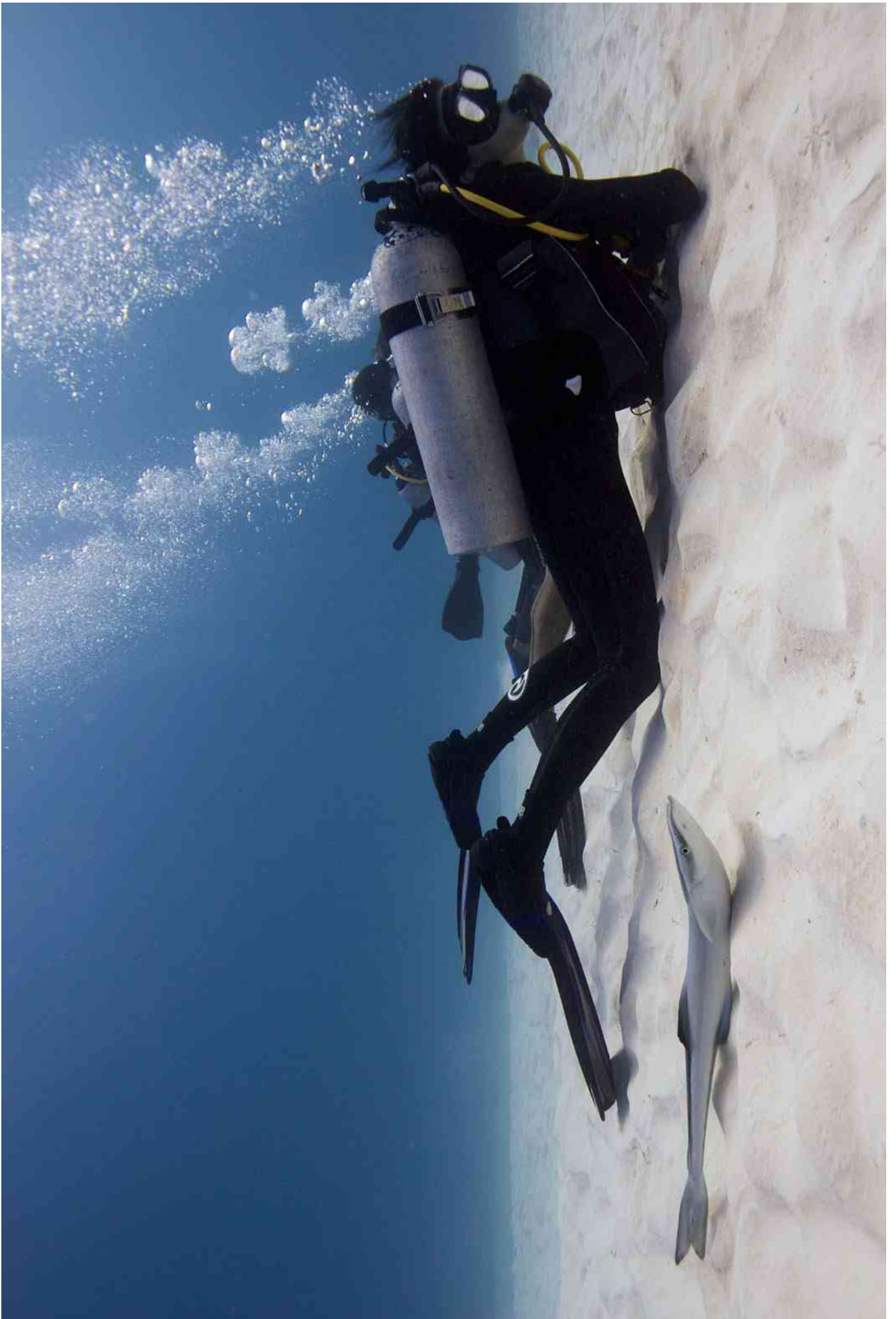
There are three types of bull shark-dives available in Playa del Carmen: the first and most common one is a normal dive, where divers rely on just a bit of luck to encounter these amazing animals. The other two kinds of dives rely on attraction. One of them uses the smell of fish blood that it sprayed into the water during the dive. During the other dive, the sharks are actually fed by a shark feeder.

On all three dives, divers get extremely close to a many bull sharks that are known to be one of the three most dangerous sharks to humans and are registered as a main player in shark attacks. Against all expectation, the interaction with the bull sharks during those dives is rather peaceful and cages are not used to protect the divers from the animals.

Of course, bull shark diving is creating controversy. Arguments about the danger of this activity, the alteration of shark behavior due to human interaction, and other shark topics are popular among Playa del Carmen's diving community and the local tourist industry.

Top: Diver blowing bubble rings during safety stop while bull sharks are cruising below.
Bottom: The bull shark feeder is wearing a special shark protection suite.





In Playa del Carmen, shark-based activities have become a multi-million dollar business, from which the entire local tourism industry is profiting. The diving community is arguing that keeping the bull sharks alive and using them as a tourist attraction is economically more valuable than fishing them out and selling the animals at a one-time price.

As a main argument, the economic factor is helping the local diving community to actively protect these beautiful animals. Also with bull shark-diving, they are promoting a shift in consciousness, away from the aggressive killer machine towards an animal threatened by near extinction and a vital element for a healthy marine ecosystem.

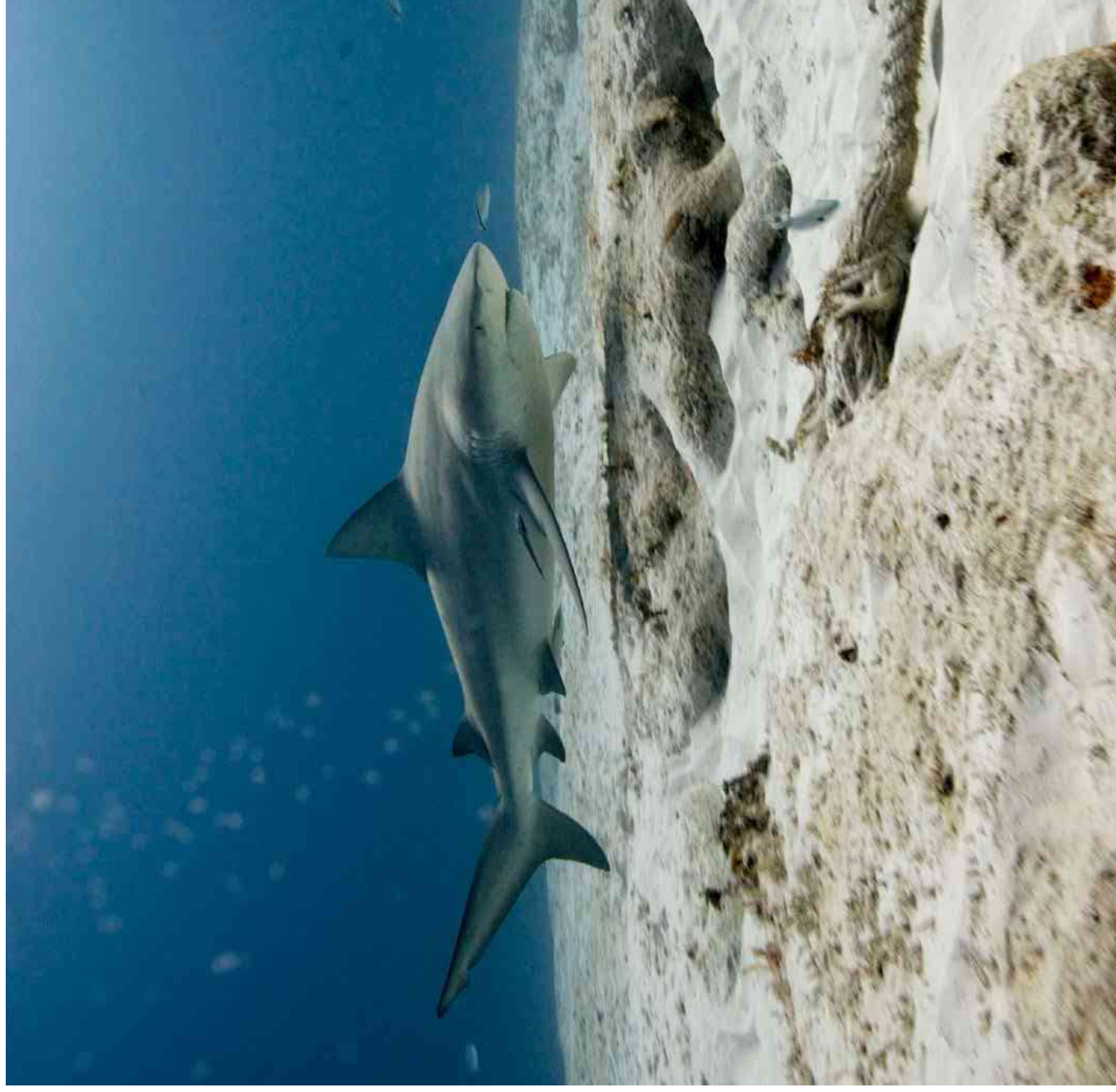
Playa del Carmen is not alone in its shark activism. Shark tourism, shark protection programs, and shark awareness campaigns are more and more common around the globe and are good indicators that we are changing our perception of this animal.

For more info on bull shark diving visit:
www.deepdeepdown.com

Top: Divers waiting for bull sharks..

Bottom: Bull shark. On average, an adult female bull shark is 240 cm long and weighs 130 kg, the slightly smaller adult male measures 225 cm and weighs 95 kg. The maximum size reported is of 350 cm, and the maximum weight of 315 kg.

The average life span of a bull shark is between 12-18 years, reaching the age of maturity at 9-10 years. The pregnancy lasts for about 11 months, and a bull shark may give birth to 4-10 baby bull sharks.





Top: Cats and sharks.
Bottom: Bull shark passing by. The bull shark is currently listed as "Near Threatened" by the World Conservation Union.
Next page: The remora docks onto the bull shark for transportation.





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Easy Does It: Regulating Renewables in Spain

The Spanish energy system is and has been a matter of priorities between moving towards a new economic model and conserving the status quo of the current oligopoly system of utility companies in Spain. Renewables are and have been seen as intruders in the archaic system and as such a clear and present threat. How did we get to where we are? Why is the Spanish FIT system a disaster?

Writers: Piet Holtrop





The easiest way to have prevented the disaster of the 2007 Spanish renewable energy feed-in-tariff (FIT) system would have been for then energy minister to approve a subsequent remuneration system. Considering the bluntness with which that minister ignored very direct signals from the office of the state attor-

ney and the former National Energy Commission (Comisión Nacional de Energía - CNE), and the national energy regulator in the dubious file of Competition Transition Costs (CTC) overcompensation (now subject to investigation by the European Commission), the issue is probably not due to a lack of insight.

“You can cut all the flowers,
but you cannot stop spring.”

- Pablo Neruda

Feed-in-Tariff

A feed-in tariff (FIT) is an energy supply policy that promotes the rapid deployment of renewable energy resources. A FIT offers a guarantee of payments to renewable energy developers for the electricity they produce. Payments can be composed of electricity alone or of electricity bundled with renewable energy certificates. These payments are generally awarded as long-term contracts set over a period of 15-20 years.

FIT policies are successful around the world, notably in Europe. Currently there are six U.S. states (California, Hawaii, Maine, Oregon, Vermont, and Washington) that mandate FITs or similar programs. A few other states also have utilities with voluntary FITs. There is growing interest in FIT programs in the United States especially as evidence mounts about their effectiveness as framework for promoting renewable energy development and job creation.

FIT policies can be implemented to support renewable technologies including: wind, photovoltaics (PV), solar thermal, geothermal, biogas, biomass, fuel cells, tidal and wave power.

Some of the benefits and impacts of FIT policies include:

- The rapid renewable energy development seen in jurisdictions with FIT policies has helped reduce the environmental impacts of electricity generation, while providing valuable air quality and other environmental benefits.
- Fixed prices created by FITs for renewable energy sources can also help stabilize electricity rates which can entice new business and attract new investment.
- Due to the guaranteed terms and low barriers to entry offered by FIT policies, they have been highly successful at driving economic development and job creation.
- Data from countries like Germany and Spain (previously) demonstrate that well-designed FIT policies can positively impact job creation and economic growth. A growing body of evidence from Europe and Ontario, Canada demonstrates that FIT policies have on average fostered more rapid RE project development than other policy mechanisms.

Source: National Renewable Energy Laboratory (NREL), USA.





The FIT disaster resulted in a multitude of lawsuits, including 27 international arbitration procedures, along with numerous complaints before the European Commission against Spain, concerning its electricity sector. This resulted in countless court cases and catastrophic consequences to those affiliated with this regulatory crisis.

In 2004, the governing Popular Party (Partido Popular – PP) approved legislation RD 436/2004, giving way to an over-

hauled FIT scheme that would boost the wind energy capacity of the country. The FIT was designed as a percentage value of an “average regulated tariff”, which operated as a “pegged” basket of values – amongst others the oil price.

This became a serious threat a few years later when emergency measures were taken by the subsequent Spanish Socialist Workers Party (Partido Socialista Obrero Español – PSOE), resulting in the redesigning of the scheme through legislation RD 661/2007. This did not imply a cutback since the future returns under RD 436/2004 were still broadly respected. What was not foreseen was a dynamic FIT for photovoltaics (PV) that were still evol-

ing in the system. The applicable FIT at the time was petrified, lacking foresight into future changes.

In 2007, after the RD661 scheme, events escalated due to another mistake by the Ministry of Energy: the regulation foresaw a 12-month notice within which participants in the system could still participate, but the energy ministry did nothing to approve a new scheme, which was not in place until well after its expiration. This created tremendous pressure on any participant with any stranded costs in PV projects around Spain to connect to the grid before expiry of the notice period, since any other action would put these costs seriously at risk.

Image: (pp. 52-53): Solar thermal plants in southern Spain. Source: Bilfinger / Flickr

(above): Wind power generators in Spain, near an Osborne bull. Source: Wikimedia

Another error was that the ministry did not limit the amount of PV connected to the grid on a first-come first-serve basis, nor did the ministry do anything else. It took more than two years for the State to act, and when it did, it did so without the precision required. The minister punished the sector for reacting to an arbitrary and discriminatory cutback.

It was the new PP government that took over at the end of 2011 and abstained from voting on their predecessor's cutbacks. Sentiment was that legal certainty

would be restored in the country. The unfolding reality of PP thinking on renewables proved to be quite the contrary. The first regulatory act of the new government was a moratorium on all renewable energy projects making a jump from the frying pan into the fire.

The motivation for the initial cutback was wrong: the tariff deficit in Spain is caused by an artificial separation of the liberalization process in which regulated costs are separated from production costs. This separation is artificial because some

regulated costs are for productive units, such as the FIT and CTCs – these CTCs represent a heavy overcompensation, and should have been settled by the government in the first cutbacks.

The regulator may not recognize or properly estimate all of the regulated costs, like CTC's, and for that reason a regulatory deficit appears. This deficit was aggravated by the economic crisis, and its effect was thought to flatten out as soon as the demand in the electricity sector would recover.



The overcompensation of the CTC's was repeatedly addressed by the National Energy Commission and argued by the State Attorney's office to be legally claimable to the oligopoly. The amount would have been globally sufficient to cover the first cutbacks to the deployment of renewable energies. The CTC file is now under investigation partly because the Spanish Platform for a New Energy Model has complained about this in a lengthy document. We are optimistic that the European Commission will open a formal investigation.

Legal certainty needs to be established to develop the new emerging energy model.

Image: (left): Wind turbines near Tebar, Castille la Mancha, Spain.

Source: Emilio García / Flickr

(p.58): Solar panels fill the roofs of mausoleums at the cemetery in Santa Caloma de Gramenet, near Barcelona in 2008. Spain got 47 percent of its electricity in March 2015 from renewable sources like solar power. Source: Gustau Nacarino



Bad Regulation and Bankruptcy

After the moratorium of January 2012, the PP approved an environmental tax that – ironically – taxes the environment, in a global setting where generally the opposite is meant to be done. A year later, Mr. Soria (Minister of Industry) and Mr. Nadal (Energy Secretary of State) designed a new FIT system which replaced the previous system.

Two details are important here: the moratorium is still in place, and therefore the new system does not apply to new installations; and second, the new system replaced the old system by means of a tiny transitional clause for all installations connected to the grid thereby creating another severe cutback, this time for all renewable technologies. The new system renders these assets toxic, with cutbacks of up to 50% of the FIT these assets were granted originally.

Bad regulation has given way to thousands of Spanish court cases, in – and it is worth repeating – as many as 27 international arbitration procedures and a multitude of complaints before the European Commission and the Petitions Committee of the European Parliament. All these dossiers have one thing in common: they are directed towards the Court of Justice of the European Union (CJEU) in

Luxembourg. These cases may reach the CJEU either by preliminary Ruling or the European Commission.

Both liberalization of the electricity sectors, as well as its renewable energy involvement in Member States stems from EU regulation. Subsequently, national regulations must meet the requirements set out in the EU policy instruments affecting them and the general principles of EU law. This was expressed clearly in the IBV case of 2013 (C-195/12 - IBV & Cie).

Other developments show that EU law can also affect international arbitration cases, in a different manner than seen this year. The Micula case (SA.38517 Micula vs. Romania (ICSID arbitration award) shows that winning an arbitration and executing the arbitration award may well be very different issues. It now seems that the European Commission is likely to contest any intent of executing an arbitration award in Member States as unlawful state aid.

While of course the situation of legal uncertainty and creeping expropriation is terrible to anybody, on a personal investment level, or on an institutional investment level, as we saw, some are in the relatively comfortable position of bank-



ability. Others are not. Individual investors with typical 100 kW PV installations are simply ruined. These people generally have collateralized their installations with their habitual residence, as project finance generally was not available for them. These families risk losing their homes if they cannot generate sufficient income for debt servicing with their banks. Many of them have had to accept losing their entire investment to the banks in order not to lose their homes, and thus are left without their savings. For these people, the direct call made by the State in the early years of the last decade, promising a safe return backed by the Official Gazette has left them without their pensions.

The End of the Tunnel?

Just before Christmas 2015, general elections will be held in Spain. Their outcome is highly contested. Litigation would have to be brought to a successful end in order to provide for the damage suffered by clients during the prohibition years of the PSOE and PP, and most of all to set limits to regulatory arbitrariness and discretionary power in general in an EU law regulated sector. Legal certainty needs to be established to provide the future development of this sector. Renewable energies – in particular solar power – are showing sharply declining costs.

Even though current regulation on self-consumption needs drastic improvement, it is not prohibitive and renewables in Spain still can flourish. Crowd-funded (joint equity ownership) and crowd-financed (cash lending) wind energy projects are developed in Spain to compete without support measures, and in the meantime PV has become so competitive that several newly developed large scale PV plants are being developed to compete in current circumstances in the liberalized marketplace but this market needs serious reforms to accommodate the new emerging energy model. ☀

HOLTROP
TRANSACTION & BUSINESS LAW

HOLTROP S.L.P. represents the owners of +3,500 renewable energy production units in PV, wind, small hydro and co-generation as directly affected parties, and the Spanish Platform for a New Energy Model as volunteers, and APPA, the Canarias wind energy association AEOLICAN, as well as ACER, the Canarias renewable energy association. The firm has filed seven complaints before the European Commission and two before the Petitions Committee of the European Parliament.



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Transparent Energy Peat Production

Have you ever been on a peatland? Untouched peatlands, known also as mires, are wetland ecosystems that are characterized by the accumulation of organic matter. Peat forms when organic matter is produced and deposited at a greater rate than it is decomposed. You may have come in contact with peat when handling growing media for flowers and vegetables, but peat is also used for energy.

Writer: Ismo Myllylä

EPAGMA

The **European Peat and Growing Media Association** represents peat and growing media companies and associations at EU level. **EPAGMA** is committed to the highest environmental practices in peat extraction, to the responsible use of peat as a local energy source, and promoting the importance of growing media for horticultural plant production in Europe.

EPAGMA currently has 17 member companies and 9 associate members based in 14 European countries and has operations in all 28 Member States of the European Union.



Peat is a CHP cornerstone in Finland

The Finnish energy system is characterized by CHP using wood and peat as fuel. Peat plays an essential role in the big picture, as it ensures the continuity of power plant operations during the coldest times of the year, and if wood fuels are unavailable. Peat differs from wood fuels in the sense that it can be stored for extended periods of time without a significant reduction in its energy value.

There are 60 CHP power plants in Finland. In addition, there are some 120 heating plants that use peat (and wood) as fuel, and hundreds of smaller peat-fueled heating centers located at farms, greenhouses, amongst others. The homes, schools and workplaces of approximately one million Finns are heated entirely or partially by peat. The production and use of peat directly and indirectly employs more than 10,000 people in Finland.

Finland emphasizes the use of biomass and the impact of advanced biofuels on the improvement of energy security as native sources of energy, cost efficiency and competitiveness in energy efficiency as well as the significance of peat as domestic fuel that can be utilized regionally.



Peat has traditionally been used as fuel in some Nordic countries, in Baltic countries and in Ireland. The thermal value and storability of peat has seen it become an industry that presents a domestic alternative to imported oil and coal in Estonia, Sweden, Ireland, Latvia, Lithuania and Finland, while also creating badly needed jobs and development in sparsely populated rural areas. Local fuels mean security and safety when produced near to consumption of heat and power.

In the early 2000s, the producers and users of peat recognized that the world around the peat industry had changed in a way that threatened the business as a whole. Peat production was previously perceived as a threat to pristine mire habitats, and the climate impacts of energy peat became a subject of debate.

This called for clear and transparent guidelines to facilitate the responsible production of peat, a need that was met

by the European Peat and Growing Media Association (EPAGMA) that published the Code of Practice for Responsible Peatland Management in 2009, followed in 2014 by the Energy Peat Transparency Policy 2014–2016.

These documents have been highly significant to peat production and its public acceptance, as EPAGMA's members have committed to applying the principles in their operations. This has also led to the increased availability of information on peatlands, peat production and the use of peat for all parties interested in peat and assessing its use for energy.

Images: (Previous page) One million Finns have their homes, schools or offices heated fully or partly with energy peat. Source: Shutterstock. (Below) Sod peat ridger in the peatfield of Ežerelis in Lithuania. Source: Eugenijus Strašinskas. (Next page) Sotkamo power plant in Eastern Finland is an example of combined heat and power (CHP) plant, where peat is co-fueled with wood. Source: Teemu Tervo



Peat improves energy security in Lithuania

Lithuania's position among European countries is exceptional with regard to its energy supply. It is an energy island with very limited access to European gas and electricity networks. With this in mind, Lithuania sees peat as part of the solution for improving its energy security. In 2015, the Lithuanian Government approved "the National Heat Sector Development Programme 2015–2021", providing opportunities for wider usage (5–11% of the total energy balance) of energy peat in the Lithuanian heating sector.

The peat industry already employs more than 1,300 people in Lithuania and is an integral part of the country's heating palette. With Lithuania's peat reserves suitable for production estimated at 248 TWh, there is potential for much wider use. Taking advantage of these reserves would create the opportunity to supply 1.8 million households with heating and reduce natural gas imports correspondingly.





An important local fuel in Estonia

Peat has been included as a fuel source in the Estonian National Development Plan for the Energy Sector until 2030. One of the main goals of the plan is to produce most of the country's heating energy from renewables and peat. Considering peat's significant energy potential, local origin, availability and low cost, the possibilities for using peat-fueled facilities should be increased to the same level as other fuels.

In line with these plans, the use of peat in energy production has increased in recent years in Estonia. The country currently has two peat-fueled combined heat and power plants (CHP) and 21 district heating plants.

Peat also has regional significance, particularly in heating production, and in electricity production. Some 82,000 Estonians use heating produced by peat, and production operations provide jobs for more than 300 people. While these may not sound like large figures, the local impact is significant in such a small country.



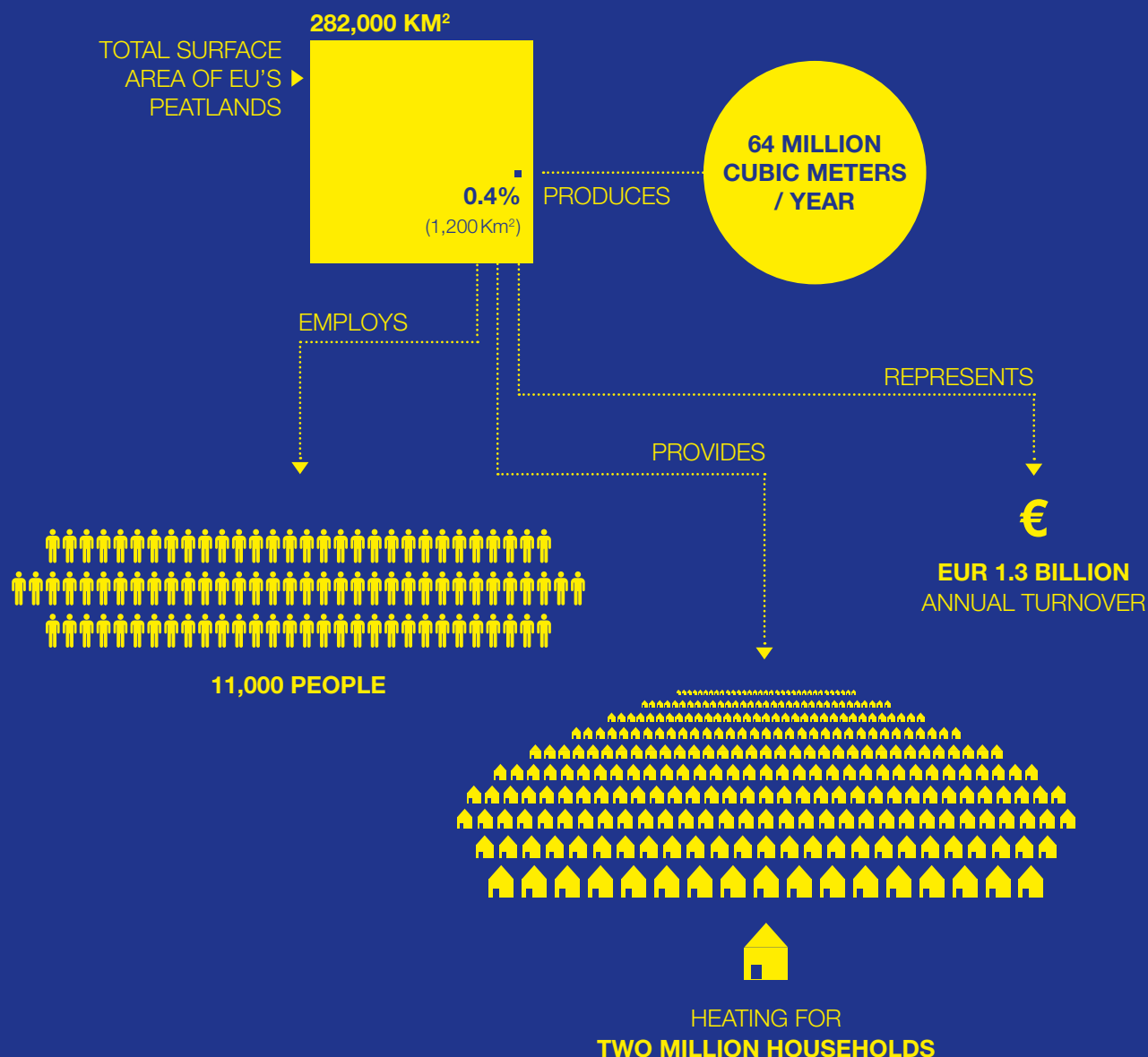
Peat Production and Mire Habitats

Peatlands are rare in most European countries. Either there were none in the first place, or they were drained over time to serve the needs of agriculture, forestry and for settlements.

The situation is completely different in the EU countries that use peat for energy production, as they all have substantial peat areas. In Estonia, for example, peatlands account for 22% of the total land area, in Finland for nearly 30%, Ireland 17%, Sweden 16%,

Latvia 10%, and Lithuania 10%.

Some peatlands have been drained in these six countries to create arable land or forests. One of the key principles of the Code of Practice for Responsible Peatland Management is that peat must only be produced in drained areas that, usually, have lost their nature value as a mire habitat. This ensures that peat production does not endanger peatlands in their natural state, most of which are also subject to separate conservation efforts.



Peat in the European Union

The total annual volume of peat production in the European Union is approximately 64 million cubic meters. The total production area is 1,200 square kilometers, which is 0.4% of the total surface area of EU's peatlands, 282,000 square kilometers. Peat production employs a total of approxi-

mately 11,000 people in various member states and the annual turnover of peat and growing media production is EUR 1.3 billion.

The majority of the peat producers operating in the EU are small and medium-sized enterprises. They have a very significant local employment effect, typically

in areas that otherwise have few jobs available.

Peat represents a very large indigenous EU energy source. It contributes to the heating of two million households during cold winters, ensuring the security of supply. Co-firing with biomass, it improves energy efficiency and reduces carbon emissions compared

to use of imported fossil fuels. It can also eliminate or reduce the emissions arising from ditched peatlands.

Unaltered peatlands accumulate carbon in the same way as forests, but because the formation of peat takes a long time and carbon is locked permanently under water, peat is not classified as renewable.

Peat is the ideal growing medium

Energy production is just one way of taking advantage of the special characteristics of peat. The most widespread use of peat internationally is as a growing medium constituent. For instance, peat can also be used for soil improvement, and as litter used in animal husbandry.

Today, peat remains the main constituent for most growing media mixes as no other material offers the same combination of many favorable characteristics. It is favored due to its high water holding capacity and good aeration. As the pH and nutrient content of peat are low, almost any kind of growing medium can be produced with the addition of liming material and fertilizers.



Latvia sees major potential in peat

One of the goals outlined in the Latvian Energy Strategy 2030 is “to promote use of local energy resources, including peat extraction.” This view is also supported by the Latvian Energy Guidelines 2014–2020, which state “There is potential for peat extraction. Energy peat extraction at peatlands that are already prepared for extraction, with an existing license, can be started in areas totaling around 4,000 hectares.” The Guidelines further indicate that there is a need to “evaluate the opportunities of effective use of peat and acquisition-related conditions.”

Latvia’s use of peat for energy is the lowest among Europe’s peat-producing countries. Peat is mostly used by individual households. However, as the Latvian Energy Strategy states, peat is seen as having major potential. This is understandable since imports account for 70% of Latvia’s energy consumption. Latvia is highly dependent on natural gas and has a shortage of energy. The energy value of Latvia’s peat reserves suitable for production is estimated at 663 terawatt hours (TWh). Increasing production to 700,000 tons would enable the generation of 2.1TWh of energy per year.



Peat complements wood fuel in Sweden

In its 2009 Energy Bill, the Swedish Government stated that peat is an indigenous energy source of significant importance for energy security. It also stated that peat has a role to play in a sustainable energy system as complementary to wood fuel.

This remains accurate to this day. Sweden primarily uses peat in combination with wood fuels at more than 20 heat and power plants. The combination of peat and wood fuel leads to more efficient combustion and a cleaner furnace, thereby reducing maintenance costs. Co-fuelling also broadens the fuel mix, contributing to greater security of supply.

More than 140,000 Swedes use heating generated from peat. The peat industry employs some 600 people in Sweden. Peat production and use is a particularly significant source of employment in sparsely populated areas.

Smart Peat Production Benefits the Climate

Allocating production to previously ditched peatlands is a good solution from the climate change perspective. Peat in ditched peatlands gradually oxidizes, releasing greenhouse gas carbon dioxide into the atmosphere. When used for energy, the same carbon dioxide is released in boilers when peat is extracted from those drained areas. Peat is used for electricity and/or heat production instead of simply escaping into the air. Moreover, if peat is used in a combined heat and

power (CHP) plant and co-fueled with wood fuels, then the use of wood fuels becomes more efficient. This is because of the different properties of the fuels.

The land area underneath peatland is available for other uses after peat is extracted. Those areas are typically reforested, used for agriculture or rewetted. New vegetation absorbs carbon dioxide and a carbon sink is formed again on the former peatland site. Life-cycle assessments indicate that peat produced under these principles may be superior to coal from the climate perspective: the carbon dioxide emissions, based on measurements taken at the top of the boiler chimney, are similar, but when you account for peat production areas turning into carbon sinks, the peat's CO₂ emissions lifecycle can be lower than coal's.

Image: (Above) Västkärr is a part of Skagershultamossen in central Sweden near to Örebro. This area has been restored to a wetland of importance for breeding and migrating birds as swans, ducks and waders. The picture shows the restored peatland, the pristine mires in the background and an active peat production area to the left. **Source:** Hasselfors Garden arkiv.

Studies on the subject include the PhD thesis of Dr. Sanni Väisänen, Lappeenranta University of Technology in Finland. According to comparison of the life-cycle greenhouse gas emissions of different energy sources, the climate impact of energy peat extracted from previously dried eutrophic

peatland rich in nutrients is 72.7 g CO₂-eq/MJ based on a life-cycle analysis (LCA), which contrasts with the combustion emission figure of 107.5. For reference, the LCA value for coal is 111 g CO₂-eq/MJ. Swedish studies show even lower results for peat taken from forestry drained peatlands.

After-use of Peatlands

Transitioning of peat extraction sites after peat production to new uses is another key area of the Code of Practice for Responsible Peatland Management. This is important from the climate perspective and represents broader responsibility in the peat industry in the form of a commitment to not leaving behind scarred and unattractive landscapes.

Traditions for peatland use and ecological conditions vary between countries. After-use may include rehabilitation of the peatland ecosystem, alteration of land use to forestry, agriculture, recreation or urban development, or a combination of different land use forms. National legislation,

land owners, and environmental policy guidelines set the outlines for possible after-use regimes in many countries.

As many peat extraction sites are located in low-lying areas, they begin to accumulate water naturally after peat production ends. This creates the opportunity for paludification and the creation of wetlands and lakes. This is done in Finland, Sweden and Ireland, where they often become very popular with bird species that require wetland habitats. Former peat extraction sites are often also located in remote areas, which makes them well-suited for wind and solar power generation, as shown in Ireland.

Information Widely Available to the Public

Operating in accordance with the Code of Practice for Responsible Peatland Management takes into consideration the environment and the EU countries' goal to increase their energy self-sufficiency. Peat producers offer

practically everyone the opportunity to verify that they genuinely operate according to these principles. Their commitments under the EPAGMA Energy Peat Transparency Policy 2014–2016 include the following:

- Providing essential peat extraction information concerning production and environmental impacts for citizens by the end of 2016.
- Displaying the environmental licenses of production sites and the environmental figures required by these licenses by the end of 2016.
- Providing appropriate channels and opportunities for interacting with citizens as well as local and European authorities through events, websites and site visits. 



Ireland's most important domestic fuel

Ireland primarily uses peat for electricity generation, which makes it different from the other peat-producing countries where the emphasis is on heating. There are three major peat-fuelled condensing power plants in Ireland, producing over 6% of the country's energy demand. Peat is also traditionally used for heating individual buildings. In total, approximately one million people in Ireland use peat to heat their homes.

Next to wind, peat is currently Ireland's most significant domestic energy source. Its importance is stressed by the fact that 89% of Ireland's energy is produced from imported fuels. The energy peat industry employs 1,500 people. Privately harvested energy peat provides an estimated 8,000 - 9,000 additional jobs.

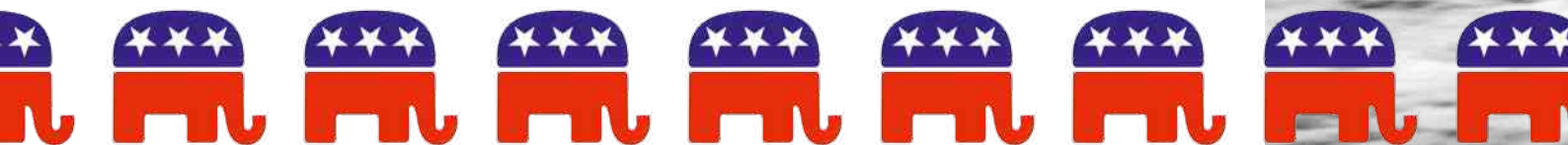
The importance of peat is also recognized at national level. The Irish National Peatland Strategy published in 2014 states that peat production for energy remains important for local and national economies. However, peat production will decrease in Ireland by 2030, as the peat extraction sites controlled by Bord na Móna will be used up. Areas released from peat production are nevertheless used for continued energy production: wind energy generation has already begun and both solar and energy crop possibilities are being developed.

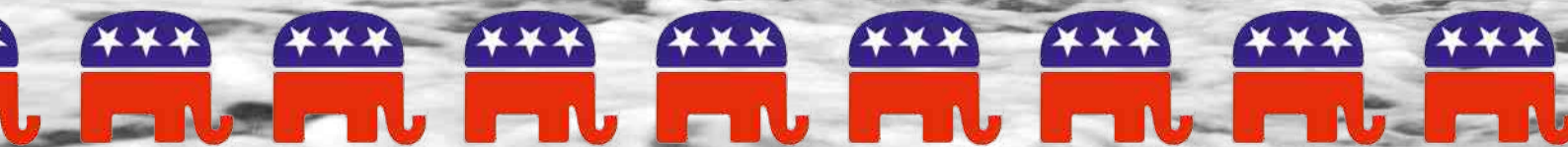
Lost Legacy

How Republicans Are Stalling the American Transition to Renewable Energy

Republicans consider the United States the world's "indispensable nation"; but, when it comes to addressing the challenge of global warming, they are obstructing the shift to renewable energy and making America anything but a leader.

Writer: Charles Mahoney





The shadow of Ronald Reagan loomed large at the second Republican Party Debate of the 2016 presidential cycle, held at the former commander-in-chief's Presidential Library in drought-ridden Simi Valley, California. As the eleven "top-tier" candidates stood in front of the very same Air Force One that President Reagan flew on for an astounding 660,000 miles, the message coming out of their mouths was clear: a vote for them would be a vote for an extension of the Reagan legacy. Unfortunately, with respect to the pressing issue of climate change, the current crop of Republican contenders could not be more out of step with Reagan's political record on the environment which, while not perfect, was based on scientific consensus, ideological fluidity, and even policy reform in some key areas. Why do contemporary Republicans make constant reference to Reagan's example while proposing environmental policies that directly contradict his record? And what solutions do the current Grand Old Party frontrunners propose to the existential challenge posed by global warming?

Reagan's mythos is central to the contemporary conservative narrative because there is no other Republican president in the past fifty years who can be held up as an archetypal chief executive. Democrats have Bill Clinton, John F. Kennedy, and Franklin D. Roosevelt to choose from when making reference to an institutional pattern of party leadership and national progress (even Jimmy Carter's post-White House career of human rights advocacy and democracy promotion has improved his historical standing). Republicans can look only to Reagan for contemporary historical legitimacy and for this reason the scope of his mythos has grown dramatically in recent years. When discussing almost any policy – foreign or domestic – current Republican candidates allude to the Reagan years and their supposed direct ideological link to "The Gipper." This constant reference to Reagan has expanded the narrative of his actual record to the point of absurdity, making him a sort of mythological American creature: part free-market Superman, part anti-Communist crusader, part folksy grandpa who singlehandedly did everything from end the Cold War to create an American economic boom.

Of course, the reality of Reagan's policies is more nuanced. A close examination of his record demonstrates that on many of the key issues of his time – some of which have direct parallels to today's campaign – he acted more like a moderate than a hardcore conservative. For instance, the Immigration Reform and Control Act of 1986, signed into law by Reagan, granted legal status to millions of undocumented individuals; an action that would be considered blasphemous by conservatives today. Similarly, when it came to ozone depletion caused by chlorofluorocarbons (CFCs), the central environmental challenge of the 1980s, Reagan performed like a downright liberal. When scientific consensus overwhelmingly demonstrated that CFCs were destroying the earth's ozone layer, Reagan acted. On April 5, 1988, he signed the Montreal Protocol, putting into effect laws in the U.S. regulating the use of ozone depleting substances (ODS). At the signing statement, Reagan said that the Protocol represented "an extraordinary process of scientific study, negotiations among representatives of the environmental and business community, and international diplomacy." To Reagan's credit, as a result of the treaty, the global use of ODSs has dropped off and the hole in the ozone layer over Antarctica has begun to shrink.

Reagan: part free-market Superman, part anti-Communist crusader, part folksy grandpa who singlehandedly did everything from end the Cold War to create an American economic boom.



Images: (pp.68-69) Iceberg melting.
Source: littlevisuals.co

(above): Official Portrait of President Ronald Reagan.
Source: Wikipedia

(right): Anacortes Refinery (Tesoro), on the north end of March Point south-east of Anacortes, Washington.
Source: Wikipedia

A Changed Political Landscape

How times have changed in the Republican Party. Like in the 1980s, the scientific community has identified an environmental challenge with potentially devastating implications for humanity: global warming caused by carbon emissions from the burning of fossil fuels. However, even though scientists have demonstrated a clear relationship between carbon dioxide levels and increases in the Earth's temperature, the majority of the Republican Party is reluctant to address the problem. Why did Reagan address the ozone challenge head-on while Republicans today largely deny that global warming is occurring?

The primary explanation lies in fossil fuels – the major source of carbon emissions – and their fundamental relationship to the global economy. While the use of CFCs was widespread in refrigerants and aerosols, there were relatively easy, more environmentally-friendly substitutes for these substances that

could be transitioned smoothly into industrial use. More importantly, CFCs were not the lifeblood of the global economy in the same way as oil and coal have been for the past century. Transitioning from fossil fuels to sustainable energy has not been an easy process and the change threatens to restructure the entire global economy while causing significant financial dislocation in its wake. If this is the case, how can the shift to sustainable energy be made in a timely yet economically stable fashion?

In the United States, the public debate surrounding this conundrum has been rancorous, and the shift to renewables slow, primarily due to the obstruction of policy reform by

the Republican Party. Republican politicians, however, are not the only culprits. In fact, their positions are a symptom of a larger problem in North American politics, namely the influence of special interests on the legislative process.

Why did Reagan address the ozone challenge head-on while Republicans today largely deny that global warming is occurring?

After all, elected officials in a democracy are ultimately accountable to their constituents, and in the United States that means to their campaign donors and financial backers. For this reason, politicians do not simply act according to their personal beliefs, but rather to ensure a steady stream of campaign funding. Therefore, the fundamental impediment



to a swift energy transition lies not directly in American conservative ideology, but rather in the underlying business and energy interest groups that comprise the Republican Party's primary donor base, and who have much to lose from a speedy shift to renewables. To ensure that their businesses remain intact, these companies have lobbied heavily and funded generously a Republican party that is now dependent on their largesse.

Nowhere is the influence of the oil and coal lobbies on the Grand Old Party more apparent than in the current presidential primary campaign, in which not one Republican candidate has proposed a set of environmental policies to address the challenge of global warming. Instead, contenders have adopted three approaches to obfuscating the debate over climate change that are intended to slow down or halt any meaningful policy reform:

- 1) outright denial of the overwhelming scientific consensus
- 2) claiming that the "climate science debate" is not yet settled and that policy reform must wait
- 3) arguing that no unilateral policy solutions to the problem exist and therefore that the USA should not do anything that would have negative consequences on the national economy

Climate Change Deniers

Several top Republican contenders, including Donald Trump, Senator Ted Cruz, and Dr. Ben Carson, fall into the first category of proud climate change deniers. In an interview with CNN in September 2015, Mr. Trump bluntly

said: "I don't believe in climate change." Similarly, in a conversation with The San Francisco Chronicle Dr. Carson stated: "there is no overwhelming science that the things that are going on [global warming] are man-caused and not naturally caused."

Senator Cruz, whose electoral strategy on every issue is to stake out the position farthest to the right of the pack, has been perhaps the most vocal candidate of the science underlying global warming. In an interview with Katie Couric, Cruz insisted that climate change is a "pseudoscientific theory" and that "satellite data shows there has been no significant recorded warming . . . climate change is being driven by politicians who want more control over our lives."

For Trump, Carson, and Cruz, the stance against acknowledging climate change is purely political. They seek to appeal to the party's most radical factions, who refute that global warming is real for no more logical reason than that the American left recognizes it as a reality. In the cases of Cruz and Carson, rejection of the science behind global warming is also necessary to assuage the fears of energy interest groups whose financing is important for outsider candidates.



Images: (left): Rick Perry Caricature.
Source: DonkeyHotey / Flickr

(right): Caricature of the Republican Elephant.
Source: DonkeyHotey / Flickr



Meaningless Mantras

In the second group are those candidates who claim that scientific studies examining climate change are indeterminate and that further inquiry is necessary to come to a conclusion about how much the earth is warming and whether that warming is caused by human activity. These candidates, who include Jeb Bush and Rand Paul, are strategically trying to play both sides of the conservative electorate. They generally admit that some global warming has occurred, but they argue the causes of warming are unclear. By doing this, they appear less obstinate in the face of overwhelming scientific evidence about global warming, but also placate the base of the party by implying that humans are not responsible for rising global temperatures.

Republicans adopting this second rhetorical position have embraced two much ridiculed mantras.

The first is “I’m a politician and am not qualified to assess climate science.” The position that ignorance must result in policy inaction is, of course, absurd because elected officials make decisions about issues they are not experts on all the time. For example, most politicians are not economists, but they routinely make choices that impact the economy. In reality, for Republicans feigned ignorance is a tool used to pursue a strategy of “slow-walking” on a transition to clean energy. That is, by arguing that the climate science debate is ongoing, they can delay any significant policy change.

The second mantra we hear Republicans in this camp repeating is that “the climate is always changing.” This position is, in fact, a denial of anthropogenic global warming and contends that natural processes are primarily involved in recent climate change. In the fourth Republican debate in Milwaukee, Wisconsin, Rand Paul articulated the logic behind this position saying: “I think man may play some role in our climate, but I think nature has a role [...] we’ve had times when the temperature has been warmer, we’ve had times when the temperature has been colder.” Of course, scientists who study climate change have demonstrated that the rapid increase in temperature levels are not the result of “natural” processes but of carbon emissions produced by humans.

The Do Nothings

Finally, in the third group are Republican candidates who accept that global warming is occurring, and who believe that it is caused by humans, but who argue that no unilateral U.S. solution to the challenge exists. These candidates claim that since greenhouse gases are produced collectively by the world's industrialized countries – and that since China, Russia, and India which account for over 30% of greenhouse gas emissions do not appear likely to significantly reduce their output of greenhouse gasses – transitioning to clean energy in the U.S. is a futile endeavor that will have no outcome but harming its economy.

Senator Marco Rubio (Florida), and Governor Chris Christie (New Jersey) are the two leading voices advocating this third position. For instance, at the second Republican Debate Senator Rubio claimed that he was not a climate change skeptic, but he also argued that adopting progressive climate policy reform “would destroy our economy and make it harder to do business in America.” He went on to state: “we are not going to make America a harder place to create



Images: Caricatures of Marco Rubio (left) and Chris Christie (right). Source: DonkeyHotey / Flickr

jobs in order to pursue policies that will do absolutely nothing to change our climate.” Following Rubio’s statement, Governor Christie chimed in claiming that government policy was not the solution to global

warming. Like Rubio, Christie asserted that unilateral U.S. policy would have no impact on climate change and that the USA “should not destroy its economy to pursue some wild Left-wing idea.”

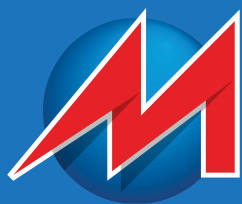
If the USA is to be truly
“exceptional,” it must
lead the world forward to
address perhaps the greatest
transnational challenge
humanity has ever confronted.

Of the three approaches to global warming adopted by the Republican candidates, perhaps the third is the most paradoxical when examining the larger narrative of Republican foreign policy and its critique of the Obama administration. Senator Rubio and Governor Christie acknowledge that climate change is a serious threat to the future of the United States; however, neither of them is willing to address the problem because other countries will not act. Their position is that the U.S. should not lead on climate change, but in other areas of foreign policy, Republicans have doggedly harangued President Obama for passing the responsibility of

global leadership onto others. Whether it be allowing Russia to carry out military operations in Syria or permitting Iran to create a sphere of influence in Iraq and the larger Middle East, Republicans claim that challenges cannot be met unless the U.S. plays its role as the world’s “indispensable nation.”

When it comes to global warming, the ‘inconvenient truth’ for Republicans is that no solution exists without U.S. leadership. If the USA is to be truly “exceptional,” it must lead the world forward to address perhaps the greatest transnational challenge humanity has ever confronted. If the current Republican presidential candidates cannot look beyond short-term financial interests, craven political concerns, and oil and coal lobbies, their legacy will pale in comparison to Ronald Reagan’s. ☠

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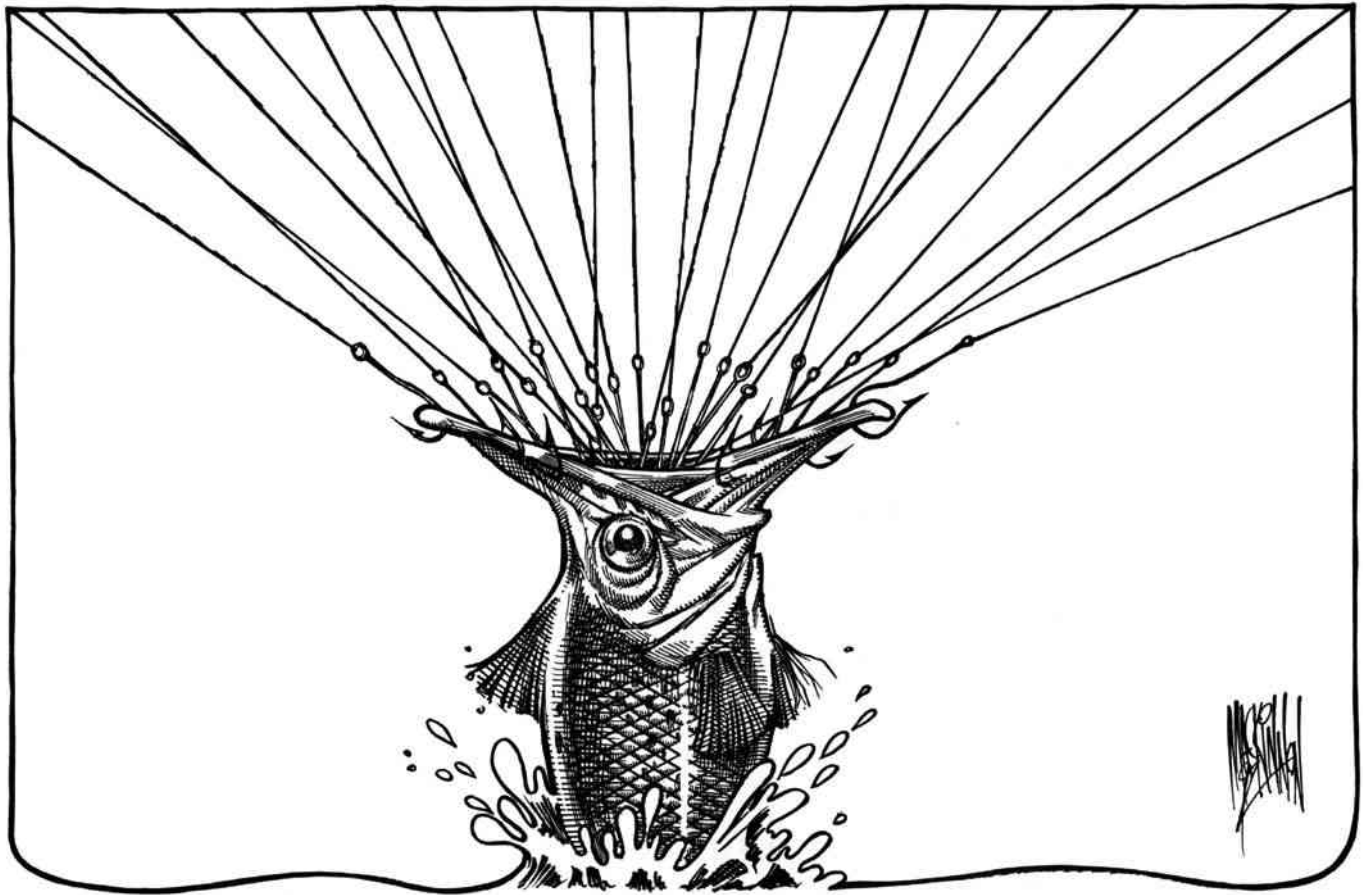
Oceans in our Hands

The 2014 edition of the Niels Bugge Cartoon Award integrates perfectly with the theme of WATER that runs throughout this issue of Revolve Magazine. The series of cartoon also coincides well with the UNFCCC negotiations at COP21 in Paris that culminated on December 12, 2015, with an historic and ambitious agreement amongst nearly 200 countries that binds them legally to address climate change with greater urgency. The ambitious and some would say rather unrealistic goal now is to limit global warming to an additional 1.5° Celsius. This would mean that “the fossil fuel era is coming to an end”, according to Samantha Smith, leader of WWF’s global climate and energy initiative. This may take longer than many would like but in the meantime, to accelerate the energy transition we must communicate more about the value of our oceans, and continue to raise awareness about what is at stake in a positive way and in the case of cartoons with a critical eye and a touch of humor.

Writer: Stuart Reigeluth







2.

Images:

1. 3rd prize - Pawel Kuczynski, Poland. Source: Pawel Kuczynski

2. 2nd prize - Bruce Mackinnon, Canada. Source: Bruce Mackinnon

3. Mikhail Zlatkovsky, Russia. Source: Mikhail Zlatkovsky

4. 1st prize - Andrei Popov, Russia. Source: Andrei Popov

5. Jesper Sorensen, Denmark. Source: Jesper Sorensen

6. Bob Eckstein, Usa. Source: Bob Eckstein

7. George Licurici, Romania. Source: George Licurici

8. Marco De Angelis, Italy. Source: Marco De Angelis

About Niels Bugge Cartoon Award

The idea behind "Niels Bugges Cartoon Award" grew from several meetings between hotel-owner in Viborg, Denmark, Poul Nielsen, and the renowned German artist Zoran Petrovic. The vision is to create a Prize for cartoonists which actually honors the art of cartoons and at the same time gathers cartoonists and artists from all over the world, regardless of religion and cultures. The Jury for the Niels Bugge Cartoon Awards consists of members from the board of Federation of Cartoonists Organizations (FECO) as well as cartoonists from around the world. ☺

The 3 winners of the 2014 "Oceans are in our hands" competition were:

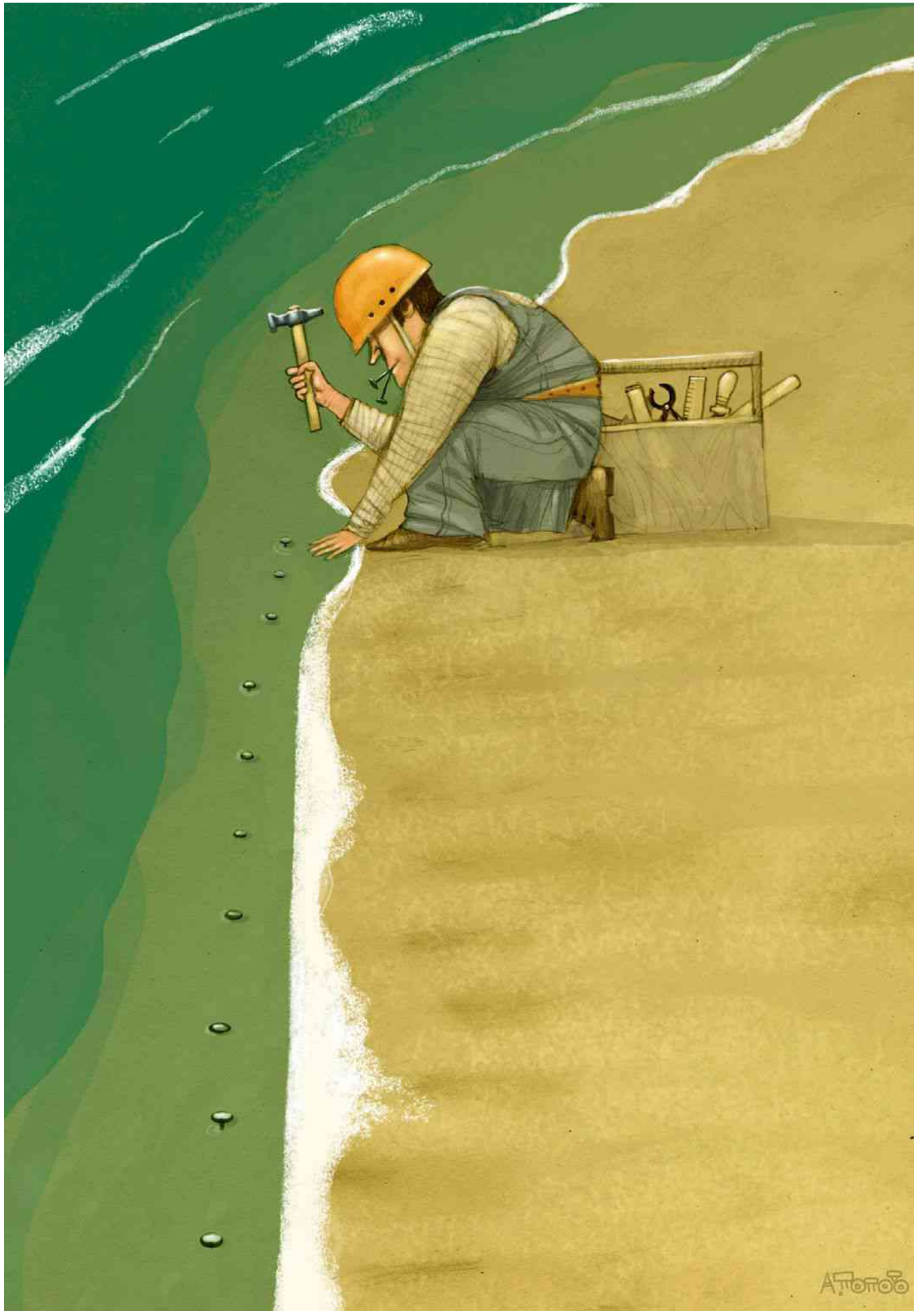
1. From Russia, Andrei Popov (1970) was in the lead from the beginning with the three cartoons he submitted. He won for his "subtle, reflective humor and a sharp style."

2. From Canada, Bruce Mackinnon won the 2014 World Press Freedom Award and won the second prize here as a "brilliant artist with a clear strong line, raw, until it hurts."

3. From Poland, Pawel Kuczynski (1976) is someone who makes us reflect. "Kuczynski's grim and sharply satirical works caricature themes like war, political manipulation, environmental damage, economic disparity and many other of the worst realities of our times."



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