IBM

Empowering the renewable energy movement

Raise Green and IBM Garage launch solar-projects platform on IBM Cloud

by Allison Leking

5-minute read

Standing on a Siberian tundra studying the effects of thawing permafrost, I was thinking about how climate change is accelerating far faster than the models are predicting," says Matthew Moroney. To be an active part of the solution, Moroney left scientific research to work in environmental engineering and clean energy project development.

Meanwhile, Franz Hochstrasser joined Barack Obama's presidential campaign in 2008 and fought to address climate change during his time in the US government and at the White House. He helped implement the largest clean energy investment in US history, launched the President's climate action plan, and helped negotiate the Paris Agreement at the United Nations Climate Change Conference, COP-21. Now, they're headed to Glasgow for COP-26 with a new way to accelerate the deployment of clean energy and get more people involved in financing climate solutions.

Moroney and Hochstrasser met at Yale University while studying for their graduate degrees in environmental management. To help green solutions scale hundreds of times faster and give individuals—not just governments and nonprofits—better ways to get involved with sustainability, the pair co-founded

Slashes the average time needed to launch a solar energy project by

75%

from 10 months to 10 weeks

Raise Green and IBM co-created the Originator Engine POC in only

8

weeks

Raise Green (external link), an inclusive impact investment marketplace for climate solutions. The company empowers communities and individuals to create, fund, build and run their own clean energy projects. Raise Green has combined equity crowdfunding with community solar to make impact investing accessible to everyone. Lower socioeconomic status communities can directly profit from a clean energy project, and investors can buy in for as little as USD 100 to get started.

As a startup in a regulated industry, Raise Green couldn't afford to make mistakes. To take its concept to the next level, the company chose to work with IBM because of its reputation as an established and trusted technology and solutions partner with experience in sustainability projects, climate data and the energy sector.
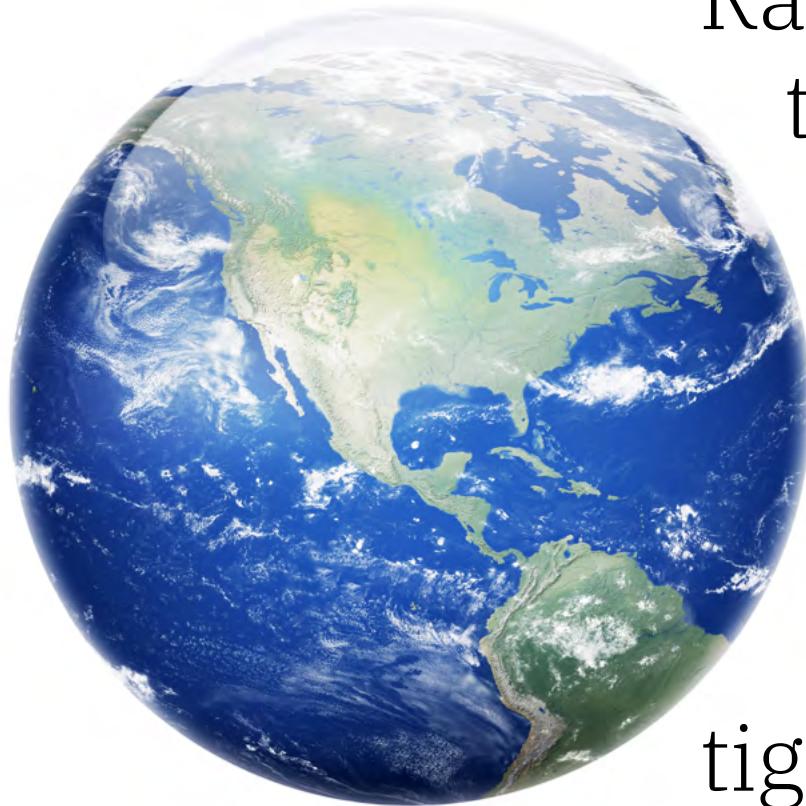
"Raise Green is built to give everyone a way to take direct climate action. The IBM Garage crew ran a great process, a really tight ship, and moved us through the ideation phases.

Franz Hochstrasser,
Co-founder and Chief Executive Officer, Raise Green

Climate solution complexities

According to data from the US Energy Information Administration, renewable energy accounted for approximately 20% of the domestically produced electricity in the US in 2020. Renewables must make up 70% – 85% of electricity by 2050 to mitigate the dire effects of the climate crisis.

With these statistics in mind, Hochstrasser, Raise Green Chief Executive Officer, and Moroney, Raise Green Chief Operating Officer, spent a week in London co-creating solutions with teams from IBM iX®—experts in user design and experience—and

IBM Garage™—a framework for digital transformation. Raise Green and IBM merged into a single, dedicated team that worked hard and played hard. In addition to sharing meals, talking football at South Bank pubs and introducing Moroney to his first English breakfast, the team spent late nights discussing the roadblocks to launching climate solutions.

"Developing clean energy projects is much harder than it needs to be," explains Hochstrasser. "Working in the Obama administration, I saw first-hand how solar and other climate projects at the local and community level are difficult to finance because getting them designed, permitted, contracted and interconnected requires specialized knowledge." On average, project managers must create and submit 10-15 expensive, complicated legal documents that require hours of time negotiating with lawyers and navigating the maze of local nuances. They must secure financing, figure out how to create a company, pull permits, complete project models, research regulatory compliance and line up construction bids. On the low end, a community-scale solar project costs USD 100,000.

Even with the co-founders' knowledge and experience, Raise Green's first pilot project, prior to engaging IBM, took 10 months to develop. New Haven Community Solar (external link) is a community-scale solar project that sells electricity at a 25% discount to a nonprofit. The project was the first of its kind and a huge success, but Raise Green wanted to find a way for regular people—with zero business or climate-change background— to launch a similar project much more quickly. The solution was the Originator Engine—a digital platform that allows anyone, regardless of experience or income, to navigate the complexities of solar project development.

Agile, user-centered transformation

"The Originator Engine streamlines and simplifies the whole process of creating, funding and building a clean energy project," explains Hochstrasser. "Every utility, county and community has its own set of laws and approaches. The Originator Engine takes all of this information and regional data into account so the solution can scale to work anywhere in the US."

To refine the vision for the Originator Engine, the team followed the agile, user-centered IBM Garage Methodology and jumped right into an IBM Garage Enterprise Design Thinking® Workshop.

"Everyone, whether a corporation or startup, should take a few days and do design thinking because you can transform far faster," says Moroney. "I have a good friend who says, 'You can't read the label when you're in the bottle.' Design thinking gave us the opportunity to get out of the bottle and look at it from all different sides."

Keeping the user at the center of design decisions helped define the trajectory of the platform. To capture user insights, pain points and opportunities, Raise Green and IBM team members conducted in-depth interviews with five users and talked to hundreds of project creators of all different skills, abilities, geographies, passions and motivations. The joint team built customer journeys and designed a user persona for a

"project originator"—a dedicated climate activist who wants to create and finance a solar project. Because the user doesn't necessarily have business acumen or solar development knowledge, the team included stronger educational components to build knowledge and understanding.

As the end user requires education and guidance, IBM Garage and Raise Green work in collaboration to streamline the tool and simplify the user experience. In the second round of development on the Originator Engine, the teams have a renewed focuse on the user journey and how to unlock financing for solar developers and solar Engineering, Procurement and Contracting (EPC) companies. To best serve this purpose, new developments include the ability to rapidly upload new legal templates

to expand the capabilities of the software tool, providing both materials for experienced solar developers and education. In turn, this enables more expansive forms of solar development and climate ventures, allowing a greater number of users to engage with the Originator Engine to create their own projects and get them funded through inclusive financing.

"Raise Green is built to give everyone a way to take direct climate action. The IBM Garage crew ran a great process, a really tight ship, and moved us through the ideation phases," says Hochstrasser. "They really tested some of our assumptions and pushed us. We were able to map out an incredible breadth of a backlog of work that we want done."

A solution 4x faster

The Originator Engine runs on the Red Hat® OpenShift® container platform on IBM Cloud®. Raise Green chose Red Hat OpenShift because of the open-source technology's flexibility, which will allow the startup to extend its platform into other areas of sustainability, provide customizations and offer access to third parties. Raise Green especially liked the Kubernetes cluster architecture's ability to scale rapidly and deploy microservices.

"A really powerful thing about IBM Garage is it has a deep bench and can scale as needed," says Moroney. "There were certain sprints where we needed three or four different people from Red Hat. They would appear onsite, and they already knew all about the project.

They would come in for a week and then disappear."

The team developed a solution four times faster using IBM iX Experience Orchestrator—software components that help regulated industries create, manage, publish and update secure and complex personalized digital forms—and the IBM® Carbon Design System—a complete set of visual, user experience and code guidelines and standards for the IBM Cloud platform. As a result, in only a week, designers created 72 screens for the Originator Engine. By producing templates and aggregating thousands of pages of documents into standardized yet customizable master forms, a user never has to enter the same information twice. And, the forms can integrate easily into back-end systems, business rules and data.

Clean energy for all

Raise Green and IBM delivered a proof of concept (POC) for the Originator Engine in only eight weeks. The ability to demonstrate the POC for investors helped raise funds to develop the minimal viable product (MVP), which Raise Green launched four months later. The tool has been so well received that it has already won an award. In July 2021, the Raise Green Originator Engine was selected as the winner of the International Data Corporation (IDC) Future of Digital Innovation Awards (external link) in the Insurance and Financial Services category, beating out Goldman Sachs and Bank of America, among others.

The Originator Engine empowers users to navigate the complex process of

clean energy project development, so anyone, regardless of experience or income, can create and crowd-fund a new solar business. The aim of the Originator Engine is to enable users to launch a solar energy project approximately 75% faster. This process used to average 10 months and now can average 10 weeks with the Originator Engine. Raise Green has more than 100 new business projects in its pipeline since the startup launched in 2020, and the Originator Engine currently receives three to five projects a week.

Raise Green expects to see a significant increase in project submissions as the team continues to iterate the existing

MVP. The next phases of development will focus on building and running solar projects. These will include new templatized and customized documents for project finance, expanded user journeys and capabilities, and more. In order to create a product that provides anyone the tools to build and run a solar project, Raise Green has relied on IBM Garage and its user-centric design methodology. In time, the company plans to build operating systems for other geographies and climate assets such as electric vehicle charging stations, wind energy and urban farms.

With passionate co-founders, flexible technology and support from IBM, Raise

Green is well-positioned for future growth—both in its business and its equitable impact. "The equality piece of what we're doing is really ingrained in this product idea and delivery. We can't transition to a clean energy economy if we're leaving people behind," concludes Hochstrasser. "What motivates us is not just tackling climate change but doing it in a way where everyone is able to play a role."

Want your business to transform its approach to environmental sustainability? **Talk to an IBM Garage expert.**

Raise Green

About Raise Green

Raise Green (external link) is a financial technology company for community-driven project finance. The startup empowers all individuals with the tools they need to create and invest directly into climate solution projects, like community solar. Headquartered in Somerville, Massachusetts, Raise Green has approximately 10 employees and was founded in 2018.

Solution components

- IBM® Carbon Design Systems
- IBM Cloud®
- IBM Garage™
- IBM iX®
- Red Hat® OpenShift®