



ENGie factory
ASIA-PACIFIC

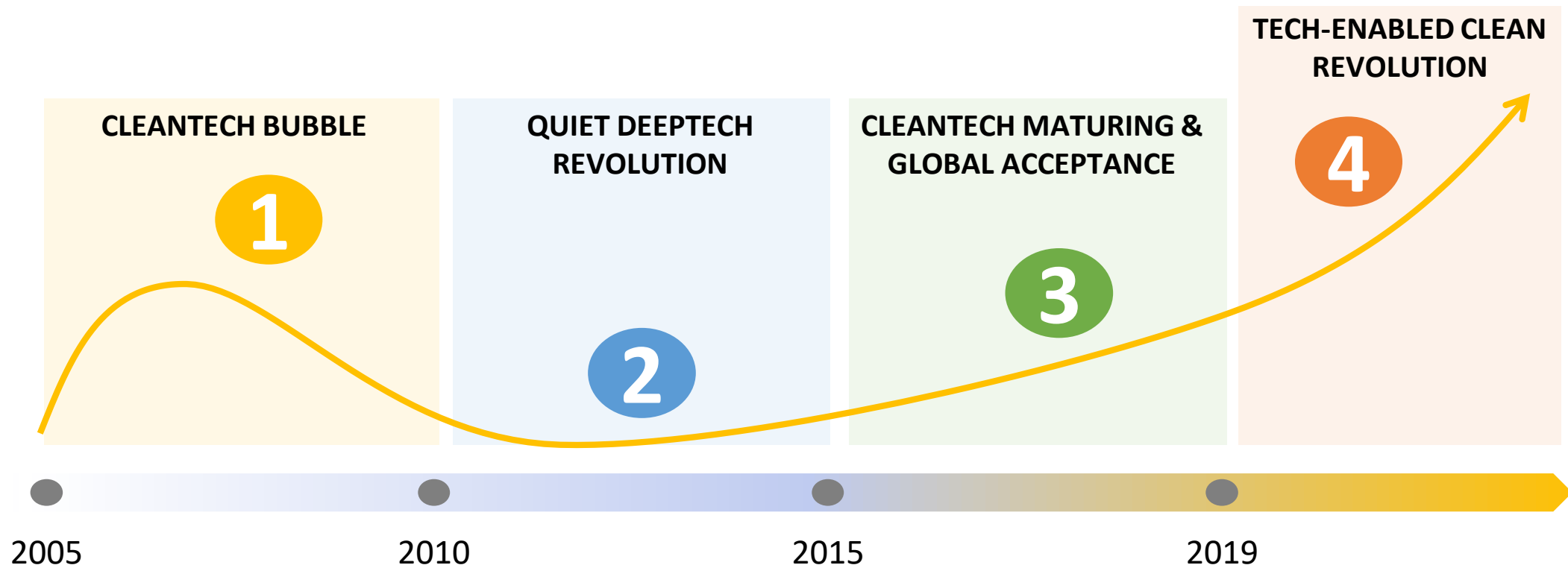
2019

Mid-Year Activities Report

The world is not moving fast enough
In resolving **climate change**

$$\frac{420 \text{ GtCO}_2}{37 \text{ GtCO}_2/\text{y}} = 11 \text{ years}$$

The world is ready for **CLEANTECH 2.0**
and this time, its about **tech-enabled business model innovation**





VENTURE SCALING

Unlocking more value through
corporate-startup partnerships



VENTURE BUILDING

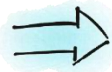
Enabling the best talent to create
impactful companies



VENTURE CAPITAL

Fostering meaningful growth
with strategic capital

① IDEA / PROBLEM STATEMENT



② VALIDATE IMPACT POTENTIAL & INTEREST

ENGINE APAC OPCO = ENGINE FACTORY BOARD
 // REST OF THE WORLD //



③ SETUP VENTURE VALIDATION TEAM

- 2/3 PAX DURING 3 MONTHS
- DESKTOP RESEARCH
- CUSTOMER INTERVIEWS
- PROTOTYPING
- BUSINESS MODEL & PLAN



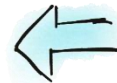
② HOW DO WE CREATE VALUE FOR ENGINE?

- ACQUIRE & INTEGRATE
- MUTUALLY BENEFICIAL PARTNERSHIP
- HOLD JV-LIKE STAKE



⑤ SUCCEED, GROW & RAISE FUNDING

- DELIVER CUSTOMERS
- BUILD TECH & TEAM
- RAISE FROM OTHER VC INVESTORS



④ SEED-STAGE INVESTMENT NOTE



WHAT IS VENTURE SCALING?

① IDEA / PROBLEM STATEMENT



② VALIDATE IMPACT POTENTIAL & INTEREST

ENGIE APAC OPCO = ENGIE FACTORY BOARD
" REST OF THE WORLD "



③ SETUP STARTUP RESEARCH TEAM

- 213 PAX DURING 3 MONTHS
- REVIEW "ALL" STARTUPS RELEVANT
- PERFORM DUE DILIGENCE
- SELECT BEST COMPANY JOINTLY WITH ENGIE OPCO



④ HOW DO WE CREATE VALUE FOR ENGIE?

- ACQUIRE & INTEGRATE
- MUTUALLY BENEFICIAL PARTNERSHIP



⑤ SCALE NEW PARTNERSHIP

NEW REVENUE SOURCES

OPTIMIZING EXISTING ACTIVITIES



④ RUN DESIGN SPRINT & EXECUTE PILOT



€ 10-100k PILOT COST

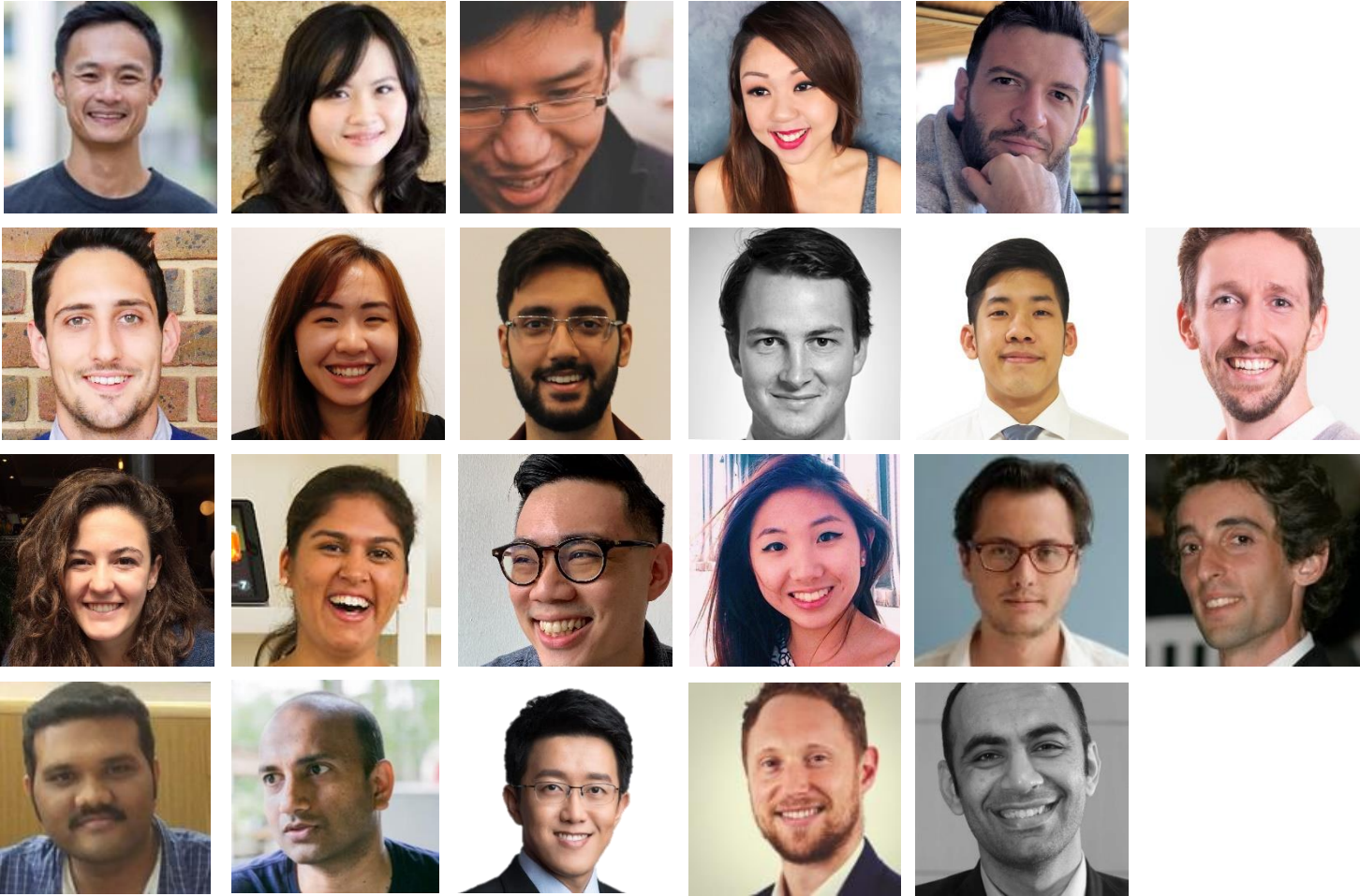
3-6 MONTHS EXECUTION ON-SITE



€ > 1M COI IMPACT IN < 3Y

SCALABLE FOR FUTURE

OUR PEOPLE



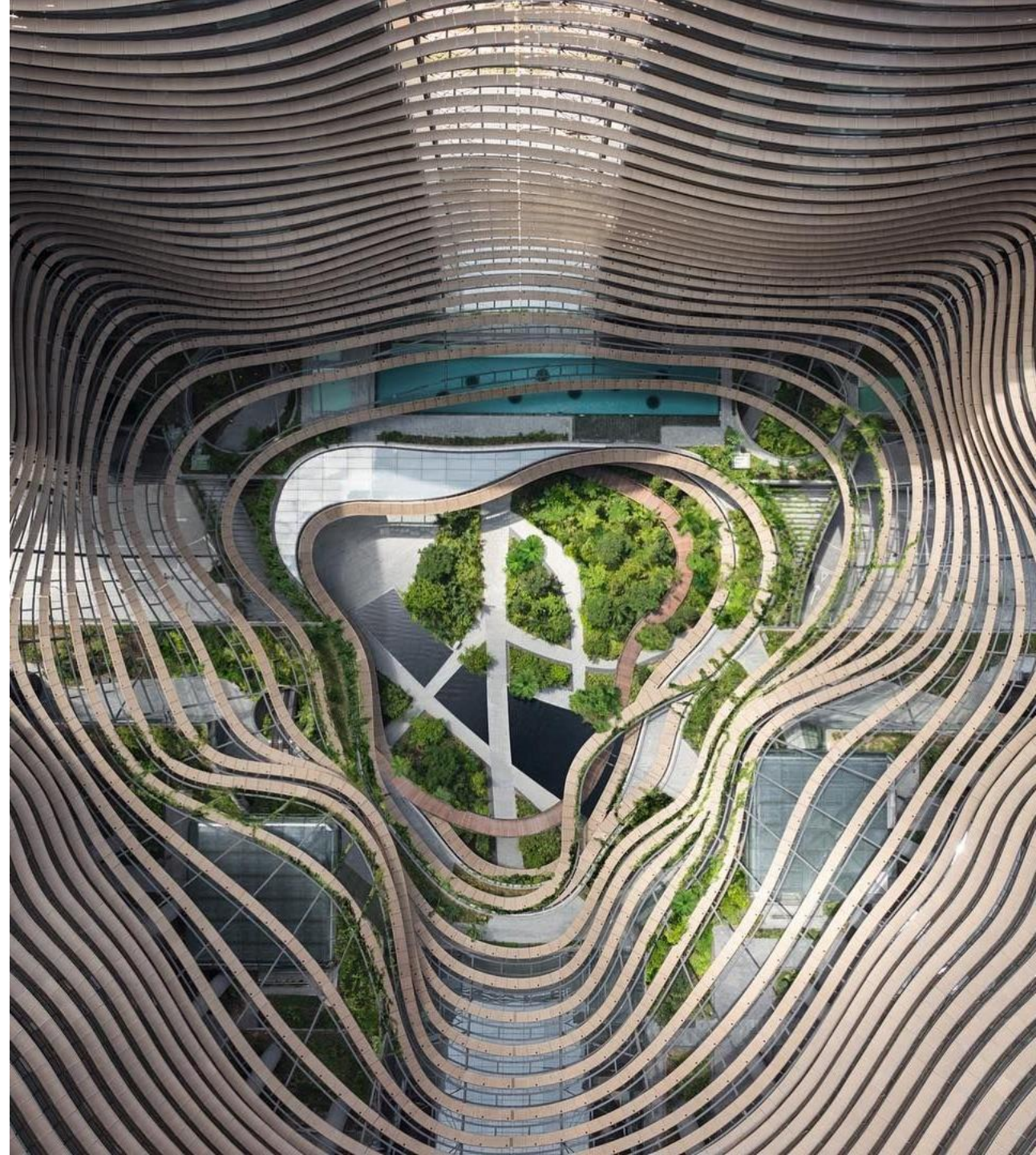
Project	Description	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
EVDots	EV-as-a-Service for B2B	Approved & sales ongoing					Validation	Company setup & grow						
Projoule	Digital energy efficiency for F&B industry	Approved & recruiting CEO					Validation	Company setup & grow						
Agrisolar	Solar irrigation for B2B agriculture sector	Board approval in preparation						Validation			Company setup & grow			
GioSenz	Automated solar B2B sales platform	Venture validation in progress					Validation							
PowerHYDE	Solar-financed prefab community housing	Venture validation in progress					Validation							
Renew.io	PPA advisory & aggregation market place	Venture validation in progress								Validation				
<tbd>	Undefine	Project definition in progress								Validation				
CopperTree	Analytics-based building energy efficiency	Pilot ongoing in Changi Airport												
AVA Asia	Predictive maintenance on large solar	Pilot ongoing in Chile (50MW PV)					Pilot	Partnership & scale-up						
Smart Building	Integration of smart building tech	Pilot ongoing at ENGIE Factory					Pilot	Partnership & scale-up						
Tuten	Smart workforce management platform	Pilot ongoing in Changi Hospital					Pilot			Partnership & scale-up				
[24]7.ai	Churn reduction in retail business	Pilot design ongoing @Simply								Pilot				
Electrify	Digital retail offer in SG with P2P solar	Pilot design ongoing @Senoko							Pilot					
Predictive O&M	Industrial predictive maintenance in FM	Startup search ongoing									Pilot			
Renewable Financing	Financing platform for C&I solar projects	Startup search ongoing									Pilot			
<tbd>	Undefined	Project definition in progress									Pilot			

Today

In **Venture BUILDING**, we search for exceptional individuals who are passionate about solving some of our time's most difficult problems. We pair them as co-founders and hire them for 3 months.

During this time they work rigorously through a process of venture validation which involves countless hours of customer interviews, value proposition design and business model iteration.

This culminates in a detailed business plan and investment pitch and leads to the setup of an entirely new company, empowered to grow independently in synergy with our existing ENGIE businesses.



BERT DEPREST

IDEAS TO ORIGINATE MORE B2B SOLAR

Bert is Business Development Manager for B2B Solar in Southeast Asia. Like his colleagues in Australia, his team is having a hard time to get B2B deals closed. Bert initiated a new way to source for leads and we are worked with him and his team to augment our capabilities through AI BY INDUSTRIALIZING AND AUTOMATING THE ORIGINATION PART so that he and his team can focus on dealing with customers that are likely to go ahead versus those who will not.

“IT IS HARD TO FIND THE RIGHT CUSTOMERS AND EVEN HARDER TO MAKE COMPETITIVE OFFERS”





Industrializing our ability to originate B2B sales for rooftop solar and corporate PPA's through data

GioSenz automates the lead origination process for B2B solar by combining geospatial analysis of satellite imagery for rooftop identification & measurement, address data to nametag each rooftop and web crawling to classify per building type. Offers are made and sent automatically to contacts identified via LinkedIn & other sources

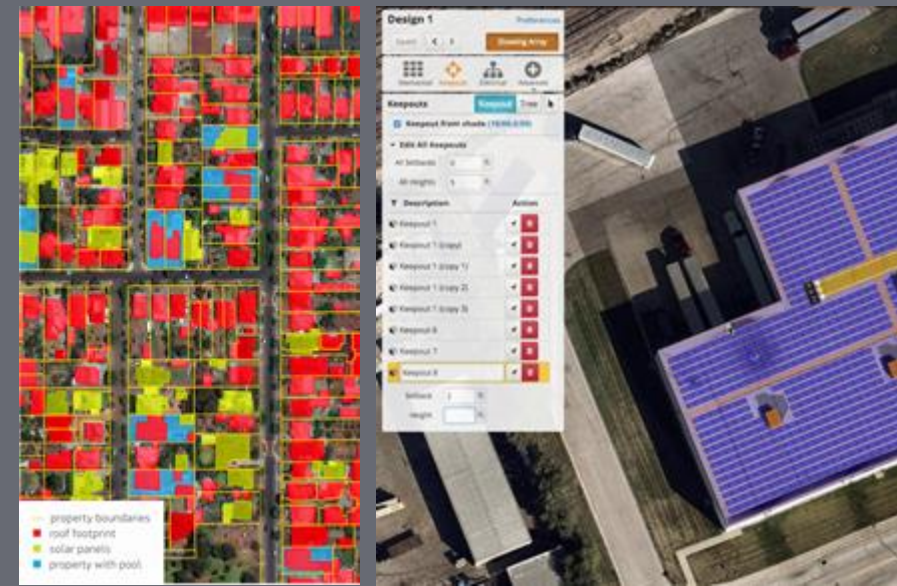
Project type:
New ENGIE venture

ENGIE investment:
No commitment yet, targeted by Oct-19

Starting date:
Mar 2020

Customer segments:
B2B (any with large roof)

Geography:
Start in SG, grow to AUS, PH & later APAC



“GioSenz integrates data from various sources using machine learning in order to provide actionable insights for identifying B2B sales opportunities in the solar, industrial services and other B2B services industry.”

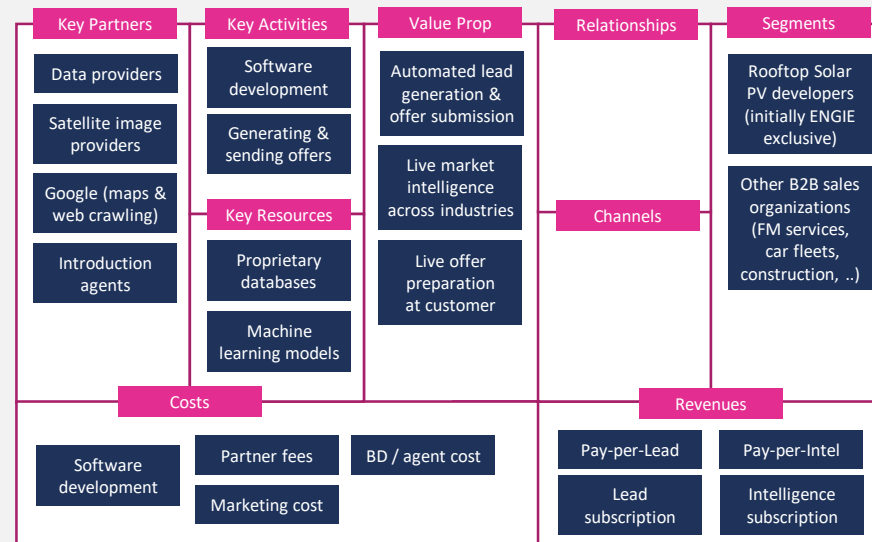
We are preparing +100 offers for Singapore to validate that we can spot the right customers, get in touch with the right person & bring leads to closure.

Sarayu Parimal – CEO GioSenz

Progress targets

- 2019:** Validate the opportunity
Setup the team
Start software development
- 2020:** Finalize initial development
Commercialize product
Close first 20MW of deals
- 2021:** Open second country
Grow team & improve tech
Close another 100MW

Business Model





An online platform for corporate renewable PPA's that advises, aggregates, and originates PPA's for B2B customers

Procurement of renewable energy PPA's is a confusing, opaque and expensive process thereby excluding a large portion of B2B customers. Renew.io solves this problem by providing a platform for understanding their needs, aggregating buying groups and procuring the best deal at a lower cost than traditional methods.

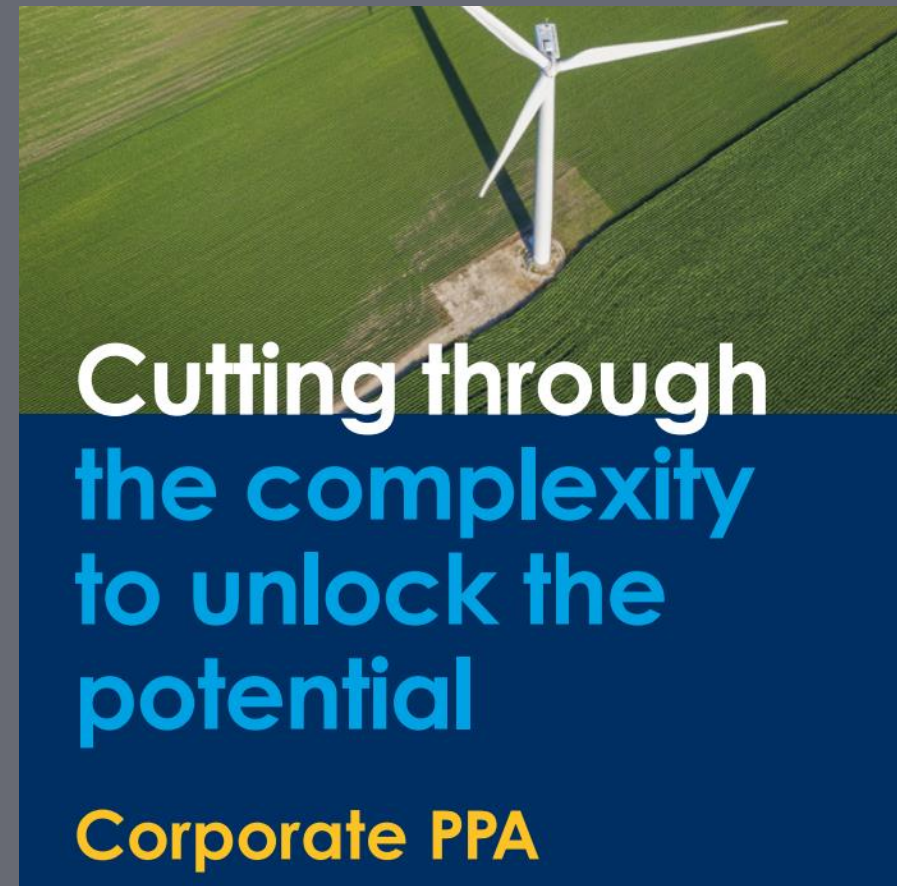
Project type:
New ENGIE venture

ENGIE investment:
No commitment yet, targeted by Oct-19

Starting date:
Mar 2020

Customer segments:
Midsized C&I businesses

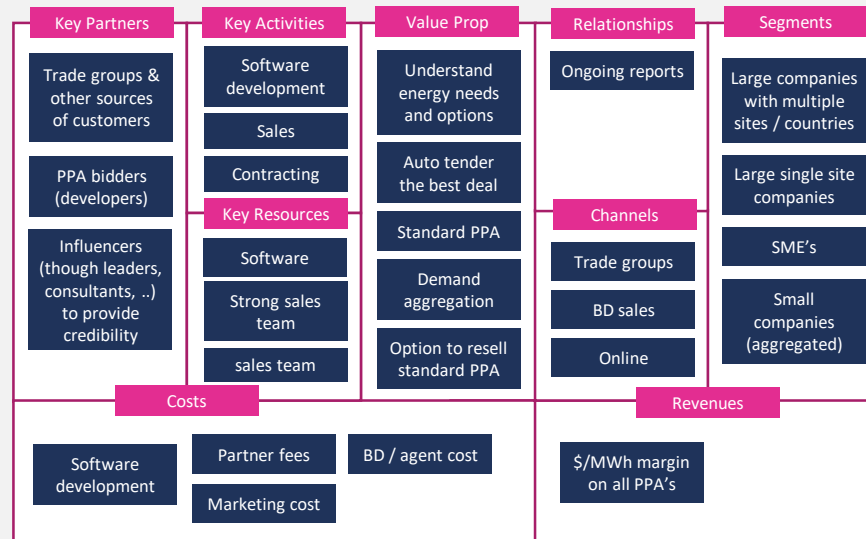
Geography:
Start AUS and SG, later PH and JP



Progress targets

- 2019:** Validate the opportunity
Setup the team
Start software development
- 2020:** Finalize initial development
Commercialize product
Close first 50MW of deals
- 2021:** Open second country
Grow team & improve tech
Close another 200MW

Business Model



"Procuring renewable energy shouldn't be so difficult. There is an entire market to be unlocked by making this process simple and accessible to every business owner."

We have gathered information from over 20 global PPA buying group members and small C&I clients to confirm desirability & the benefits of demand aggregation.

Colin Allison – Rainmaking Director



Unlocking energy efficiency & data driven maintenance in multi-unit F&B customers

Projoule addresses energy efficiency in the food & beverage sector by optimizing refrigerators, decentralized HVAC and kitchen equipment in a highly automated and CAPEX-light approach. Its AIoT (artificial intelligence of things) platform with a subscription-economy pricing model allow it to scale rapidly across outlets and geographies.

Project type:
New ENGIE venture

ENGIE investment:
Seed round invested

Starting date:
May 2019

Customer segments:
B2B (food & beverage chains with outlets: restaurants & stores)

Geography:
Start in SG, grow to AU, TH & later APAC



“Projoule provides a simple customer solution for better energy usage & maintenance of decentralized assets. With zero upfront cost and a pay-from-performance scheme, our customers love the predictable & risk-free savings.”

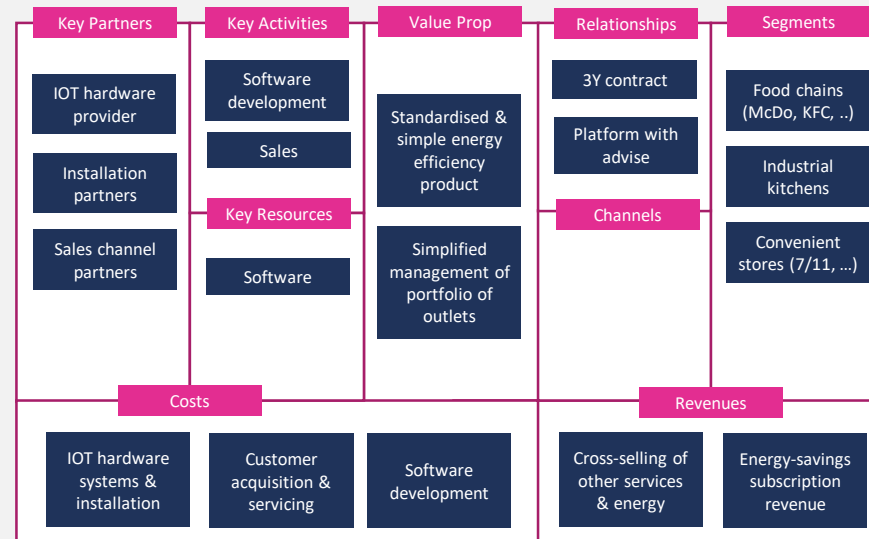
We have pilots with Harry’s & GyG and contract talks for up to 30 outlets. Also in discussion for over 150 outlets with BreadTalk, Toast Box & Din Tai Fung.

Suan Suk Lee – VP ENGIE Factory

Progress targets

- 2019:** Convert pilots to contracts
Hire team
Start AIoT development
- 2020:** Grow to 450 outlets
Enter second market (AU)
Grow team
- 2021:** Grow to 1,000 outlets
Start cross-selling services
Add 2 new markets

Business Model





Accelerating electric mobility by offering EV-as-a-Service for B2B fleet customers

EVDOTS seeks to facilitate the transition of traditional vehicle fleets to 100% electric by offering an integrated service with vehicle leasing, fleet insurance & maintenance, on-site charging and off-site roaming charging within one subscription fee. EVDOTS provides intelligence on fleet usage for operators to help achieving OPEX reductions

Project type:
New ENGIE venture

ENGIE investment:
Seed round invested

Starting date:
September 2019

Customer segments:
B2B (fleet & logistics)

Geography:
Start in SG, grow to AUS, & later rest of APAC



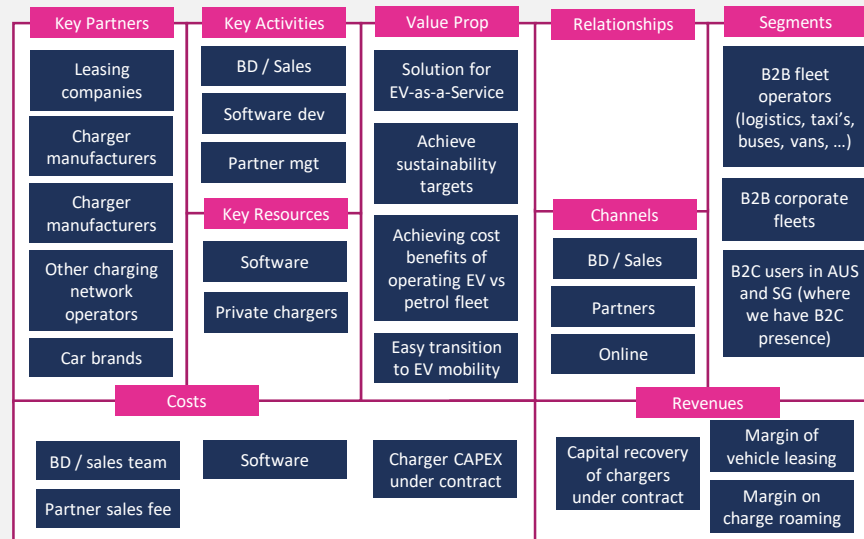
Progress targets

2019: Setup the team
Develop partnerships
Find first customer

2020: Close deal with 20 vehicles
Develop software platform
Enter new country

2021: Close deal with 500 vehicles
Provide intelligence services
Enter new country

Business Model



“The EV transition in APAC is imminent and we see demand from large B2B operators left unmet because of the lack of a comprehensive & integrated offer. At EVDots we aim to resolve this.”

We have strong interest from key logistics players in Singapore (DHL, Kohne & Nagel & others) as well as SG government (EDB) and leasing partners (Comfort Delgro and Goldbell)

Paul Welsford – Director EVDots



Providing solar irrigation as a service to over 500 million farmers as a customer solution for the micro-B2B sector in rural areas

An integrated solar pump and irrigation kit for smallholder farmers in South-East Asia who want to increase their income, lower their fuel dependency and increase their crop yields. Pay-as-you-Go and rental business model allows to match affordability for customers with value creation for the business.

Project type:
New ENGIE venture

ENGIE investment:
No commitment yet, targeted by Sep-19

Starting date:
Q4 2019

Customer segments:
B2B (agriculture), either in rural areas as access-to-energy or non-rural for commercial agriculture

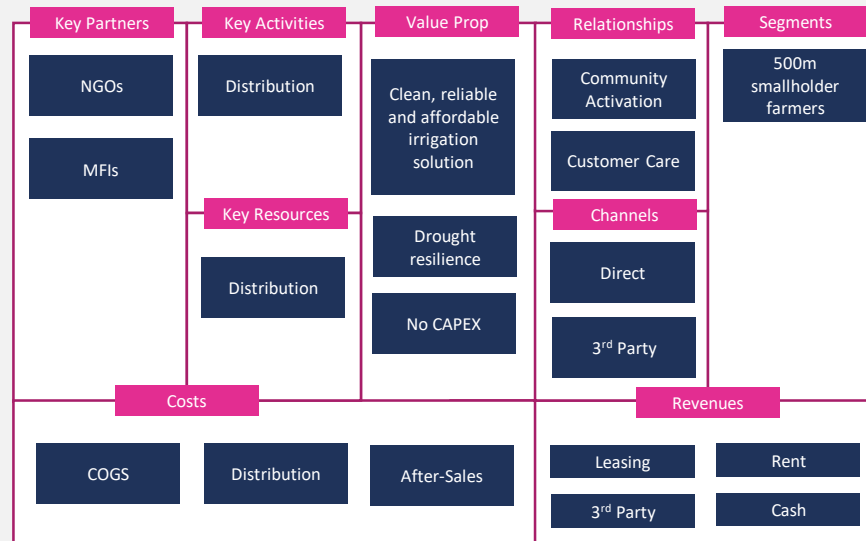
Geography:
Rural: MY, ID, PH
Non-rural: AUS, JP



Progress targets

- 2019:** Venture validation
Setup the Team
Pilot implementation
- 2020:** Launch first country
Signing 1000 customers
Enter second market
- 2021:** Grow team & improve tech
Enter new country
Signing 10,000 customers

Business Model



“There are more than 500m farmers producing 80% of our food. All of these need affordable irrigation. Solar-driven pumps can help achieving that in an environmental & economical sustainable way.”

During two weeks in Myanmar, we have spoken to over 150 farmers and have received orders for over 45 pumps on the spot.

Marc Maleika – Rainmaking Manager

powerHYDE

A new solar PPA offer that provides corporate off-takers with renewable credentials (REC or over-the-grid) with added CSR impact by solving a global social housing problem

powerHYDE builds solar towns in units of 75 prefab houses with solar roof (totalling 2MW solar PV per unit) in rural areas with grid connectivity. Corporate off-takers get renewable energy with extra CSR impact and investors make +10% project IRR returns.

Project type:
New ENGIE venture

ENGIE investment:
No commitment yet, targeted by Sep-19

Starting date:
Dec 2019

Customer segments:
B2B (MNC's, RE100 and other similar companies with sustainability & CSR targets)

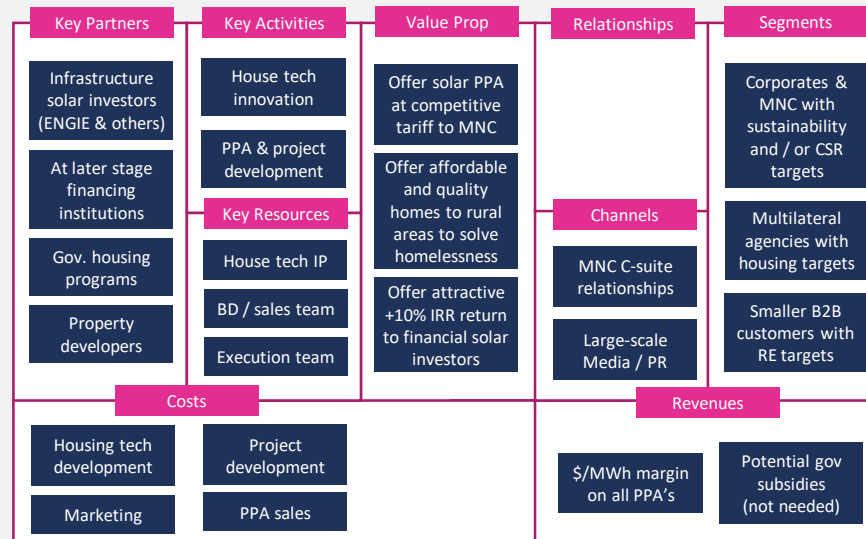
Geography:
Start in PH, later IN & other countries



Progress targets

- 2019:** Finalize costing validation
Complete five houses pilots
Close first 2MW PPA project
- 2020:** Deliver first 2MW project
Build-up team
Close second 10MW project
- 2021:** Deliver the 10MW project
Enter new country
Close 50MW in projects

Business Model



“powerHYDE’s vision is to build self-financing homes that produce renewable energy while solving the homelessness crisis”

First PowerHYDE prototypes are funded by Shell, Schneider Electric and Omidyar Network. We are in active conversations with 6 RE100 MNCs in 4 countries with energy needs of over 200MW.

Praseon Kumar – CEO powerHYDE

In **Venture SCALING**, we search for best-in-class startups that solve specific problems that we have identified in our ENGIE businesses.

We design and execute a pilot project aimed at testing the startup's solution within our operating business during a well-define period of 3-6 months with limited cost.

Objective of the pilot is to validate the solution, measure the financial impact and if successful, define the plan to scale. That can be as an improvement of operations, the setup of a new service or the build of an entirely new company.





Validating the value of building analytics to set the foundation for a strategic technology partnership enabling a new ENGIE service

CopperTree Analytics provides a powerful building analytics platform that works with the Building Automation System and continuously monitors building performance and energy consumption to identify hidden issues, energy losses & optimization / cost-saving opportunities

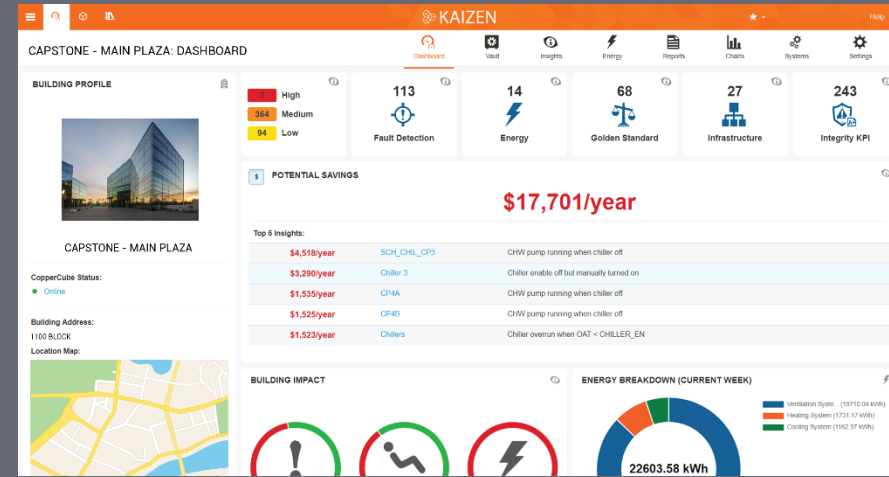
Project type:
Collaboration with startup

ENGIE investment:
Pilot investment committed

Starting date:
Mar 2019

Customer segments:
B2B (building operators)

Geography:
Start in SG, then rest APAC



"ENGIE should be the Energy Management partner for our key clients, combining data driven decision making with our deep FM capabilities"

Changi Airport have requested a proposal to implement pilot recommendations and an Energy Management partnership approach. Keppel Land have provided an in-principal approval for an energy efficiency project leveraging CopperTree's solution.

Pilot targets / results

Targets: Validate analytics to identify low-CAPEX energy savings

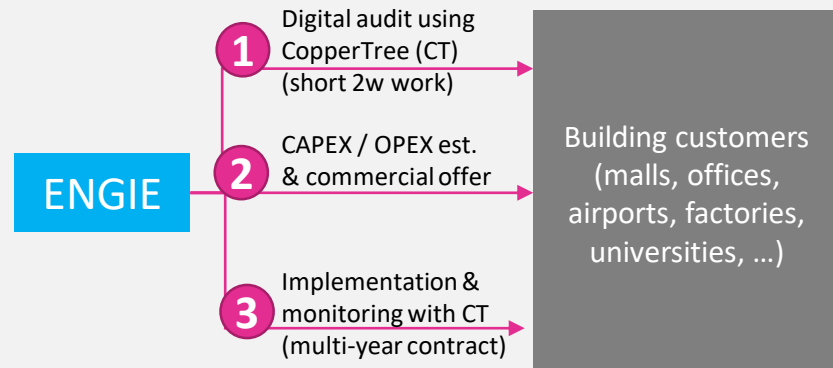
Results: Pilot finished in July-19 and found >1mSGD/y of energy savings at the chillers of T3.

We are working with Services team to make a new contract with CAG

Expect 5-10mSGD/y savings across all airport

Collaboration Model

CopperTree (CT) becomes a technology partner to ENGIE for making fast & cost-effective digital energy audits, allowing ENGIE to make energy performance contacts with new building customers



TUTEN

ENGIE Factory
Chile Startup

Streamline management, scheduling and allocation of our workers to reduce overtime and integrate with our customers CMMS

TUTEN is a technology company, leader in digital transformation of workforce management in the services industry. It offers integral management of services for homes and companies, such as cleaning, electricians, plumbing, mechanics and others. ENGIE Factory Chile owns 40% in Tuten.

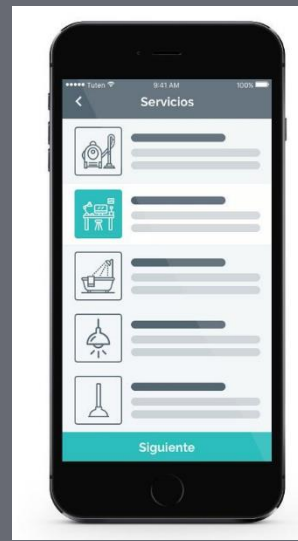
Project type:
Collaboration with startup

ENGIE investment:
Pilot investment committed

Starting date:
Sept 2019

Customer segments:
Internal optimizations of workforce management in FM and services activity

Geography:
Start in SG, maybe AUS



Pilot targets / results

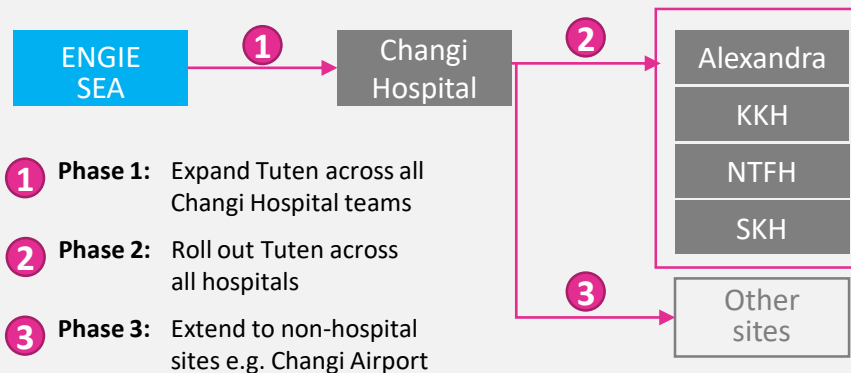
Targets: Validate saving potential in overtime and staff reduction in one team

Results: Once validated in Q1 of 2020, the system can be further fine-tuned easily scaled across the entire Changi Hospital activity and across all hospitals in Singapore

We expect savings of 0.7 – 1.5m SGD/y across all five hospitals

Collaboration Model

Tuten would become the workforce management solution for ENGIE, beginning with expansion across Changi Hospital followed by the remaining four hospitals, and other sites. Tuten could support ENGIE Australia's field service management model



- 1 Phase 1:** Expand Tuten across all Changi Hospital teams
- 2 Phase 2:** Roll out Tuten across all hospitals
- 3 Phase 3:** Extend to non-hospital sites e.g. Changi Airport



“Tuten will support dynamic workforce allocation, improving efficiency, reducing costs and provide data for future contracts”

The onsite team believe Tuten could be extended to manage assets at the hospital, generating a new revenue stream. ENGIE Australia are in early discussions with Tuten for Field Service Management and Asset Capture opportunities.



Deploying a digital P2P solar offer in Singapore together with Senoko creates a unique platform for ENGIE to develop distributed solar

Electrify's P2P contract platform leverages smart contracts to enable instant trading between producers and consumers. This collaboration will provide Senoko with a compelling renewable energy retail offer and enable ENGIE to develop new solar assets with sleeved retail.

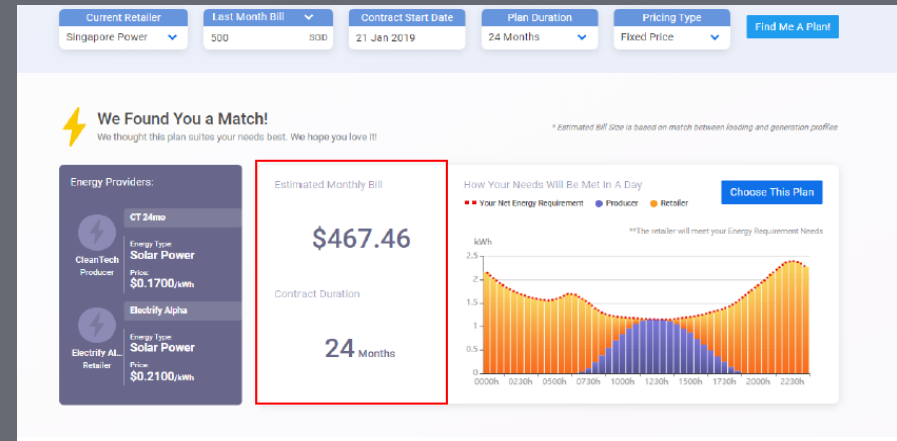
Project type:
Collaboration with startup

ENGIE investment:
Pilot investment committed

Starting date:
Sept 2019

Customer segments:
B2B and B2C (consumers, solar generators and prosumers who do both)

Geography:
Start in SG, later in AUS



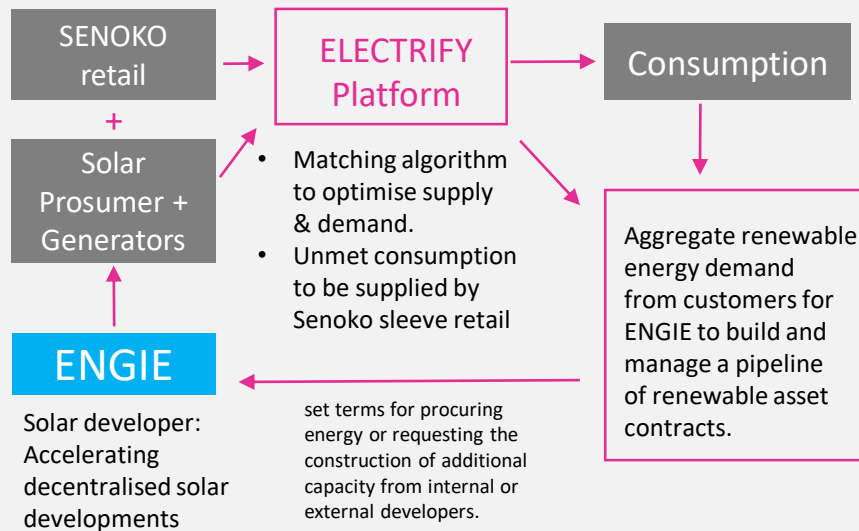
Pilot targets / results

Targets: Validate platform & integration with retailer

Results: Expected results by Mar-19 on 50 B2C and 10 B2B customers

Commercial target to increase Senoko retail GM by SGD 10M and for ENGIE to develop over 200MW of new solar projects in Singapore

Collaboration Model



Electrify's energy platform enables peer-to-peer (P2P) trades across a main grid allowing distributed solar assets to be transacted in a sleeved retail offer."

Combining ENGIE's solar development capabilities, Senoko's generation & retail and Electrify's digital platform creates a unique platform for distributed solar development in Singapore to respond to the increasing demand from B2B.

Martin Lim – CEO Electrify

[24]7.ai

Reduce cost-to-serve in Simply Energy with [24]7.ai by blending AI with human intelligence to improve customer experience

[24]7.ai will map the customer journey, and using big data analytics to prioritise customer segments, automate standard actions and help manage customer complains better. Intended outcome is to reduce customer service cost-to-serve and increase profitability

Pilot targets / results

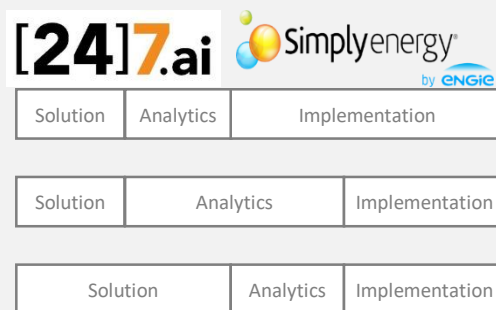
Targets: Reduce cost to serve for specific customer segment

Results: Recommendations expected by Dec 19
Impact assessment expected by Mar 20

Collaboration Model

[24]7.ai would provide a SAAS solution to Simply Energy with managed services which would be gradually phased out as Simply develops their own in-house capabilities.

- Phase 1:** Full service provided by [24]7.ai
- Phase 2:** Joint analytics team to build capability
- Phase 3:** Simply Energy in-house analytics capability



Project type:
Collaboration with startup

ENGIE investment:
Pilot investment committed

Starting date:
Sept 2019

Customer segments:
Customer journey mapping

Geography:
AUS, potential for European retail business



“Understanding the full customer journey and specific pain points will allow Simply Energy to better focus its limited resources increasing profitability”

We believe that we can help Simply Energy reduce their cost to serve as we have done with other companies before. ENGIE’s European retail entities face similar challenges and have indicated interest in the solution.

PV Kannan – CEO [24]7.ai

RENEWABLE ENERGY FINANCING PLATFORM

Testing an alternative financing model to fund small to mid-scale C&I solar projects and enable ENGIE to gain wider access to this segment

Engie has difficulties to competitively serve smaller-scale C&I customer segments in Australia due to return requirements for these risk profiles and high costs to serve. Aggregating lower-cost financing from retail and/or accredited investors by partnering with a platform could enable ENGIE to find a financially viable model to serve this segment

Project type:
Collaboration with startup

ENGIE investment:
No commitment yet

Starting date:
January 2020

Customer segments:
Small to mid-scale C&I
(100 kW – 4.5 MW)

Geography:
Start in ANZ, later in other countries



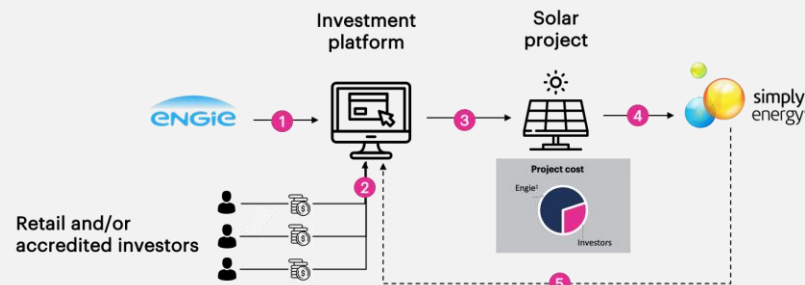
Pilot targets / results

Targets: Select the right partner in Sept. 2019, define and test optimal financial model

Results: Pilot to be completed in December 2019

If successful, scale to more projects within Australia and in other countries

Collaboration Model (illustrative)



*Level of co-investment Engie is willing to finance will have to be determined during the pilot

- 1 Engie identifies a small to mid-scale C&I project and finances part of it or none
- 2 The project is advertised on a investment platform for investors with lower hurdle rates than Engie
- 3 The platform pools investments into a financial product. Customer finds this offer more attractive than Engie's current propositions as financing cost is lower (lower return on investment expected from other investors decreasing overall hurdle rate)
- 4 Upon completion of the development, Simply Energy collects repayments from customer
- 5 Returns are distributed back to Engie and investors through the platform



"We believe ENGIE could serve to small to mid-size C&I market better by leveraging competitive retail financing through an investment platform."

In collaboration with ENGIE Services (SEA and ANZ), Simply Energy, B2B solar teams and AI&FA we are exploring the possibility to leverage existing funding platforms for solar projects.

Virginie Hello – Rainmaking Manager



Validating the ability that utility-scale solar plant degradation can be reversed and offered as a profit-sharing service to plant owners

AVA Asia uses proprietary machine learning algorithms on optical and thermal imaging generated by drone to identify defects such as bypass diode failure, hotspots, string failures and more. These are recurring issues that lead to degradation which are difficult to detect through conventional O&M processes.

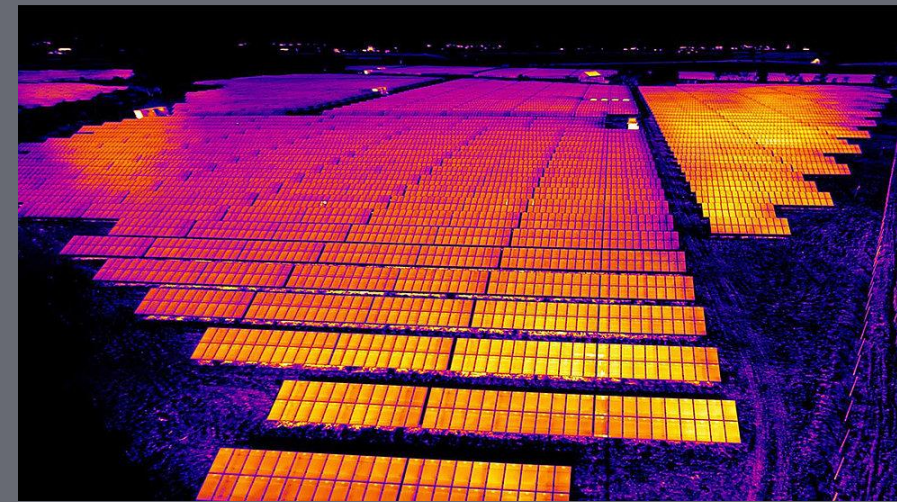
Project type:
Collaboration with startup

ENGIE investment:
Pilot investment committed

Starting date:
June 2019

Customer segments:
B2B (solar plant owners and O&M operators)

Geography:
Start AUS, later rest of APAC



Pilot targets / results

Targets: Validate AI solar O&M
Develop economics

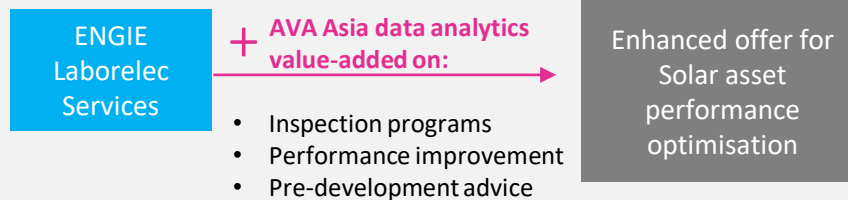
Results: Initial results available (final by Sep-19)

Initial results identify 0.2% yield increase on 50MW solar plant (~0.5GWh/y)

This equals €10k /y extra revenue which is too small for new contracts

Collaboration Model

The purpose was to validate AVA Asia's solution as a profit-sharing service offering to plant owners. However given the initial lower than expected financial impact, we see more potential as an internal optimisation tool (through an entity like Laborelec for example).



"AVA Asia is revolutionizing solar PV farms through 360 data analytics.

By using drone and plant data to identify inefficiencies, we have analysed over 400MW in 2019 alone and our corrective recommendations have helped operators and owners identify potential savings in excess of \$1.2 million. This year we have also expanded our solution across to Thailand, Vietnam, Malaysia and Chile.

Wei Yik Lee – CEO AVA Asia

SMART COMMERCIAL BUILDING INTEGRATION

Integrating some of the best local IOT startups around intelligent building to provide ready-to-go solutions for our ENGIE Services business

Autonomous and data-driven HVAC and lighting control, activity measurement, CCTV image recognition analysis, air quality measurement, all integrated via one API manager into our ENGIE IOT platform to provide a streamlined and simple solution for customers.

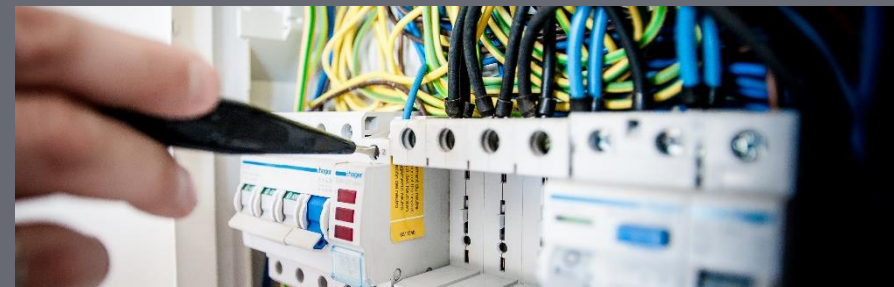
Project type:
Collaboration with startup

ENGIE investment:
Pilot investment committed

Starting date:
June 2019

Customer segments:
Commercial buildings

Geography:
Start SG, integrate global



Pilot targets / results

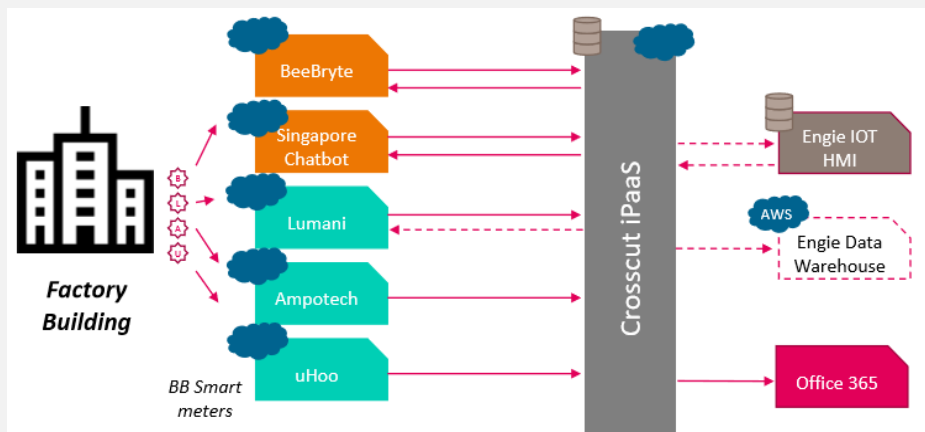
Targets: Integrate 7 IOT solutions and validate energy savings potential

Results: Installations in progress (final by Sep-19)

Once solutions are integrated, a localised dashboard is created for monitoring & control.

Next validation is to integrate to ENGIE's global digital system.

Collaboration Model



“Bringing together all these different technologies allow us to validate their individual benefits but more importantly allows us to take care of all the integration issues for our customers.”

In 2019 we are integrating 7 startup solutions in our Factory space together with Unabiz and our digital team in ENGIE SEA. This will be our showcase.

Michelle Woo – VP ENGIE Factory



Our
ENGIE
Factory
Community

SINGAPORE, FEB 2019

ENGIE FACTORY COMMUNITY LAUNCH

Building bridges between entrepreneurs,
our B2B partners, our Government partners
and our ENGIE colleagues





SINGAPORE, JUNE 2019

ZERO-CARBON SG COMMUNITY

Fastrack was our first open community event in the Singaporean entrepreneurial space around zero carbon in the tech community





ENGIE FACTORY

2019 mid-year activities report