



# YOUR MELBOURNE 2040

TURNING MOTION INTO POWER



# OUR TEAM



**Alisna Yanni**



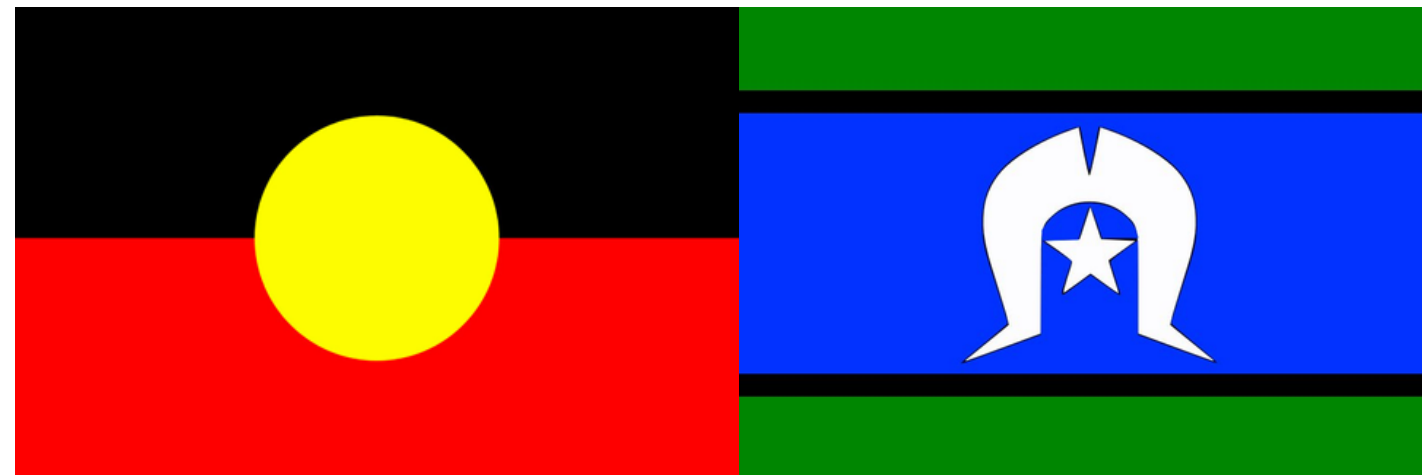
**Bryan Edbert J**



**Iga Bagus Jaya W**

# Acknowledgement of Country

*"We acknowledges the Traditional Owners of this land, the Wurundjeri People of the Kulin Nation. The Wurundjeri People are the people of the wurun, the river white gum, who have been custodians of this land for thousands of years. We pay our respects to all Aboriginal and Torres Strait Islander Elders – past, present, and emerging"*



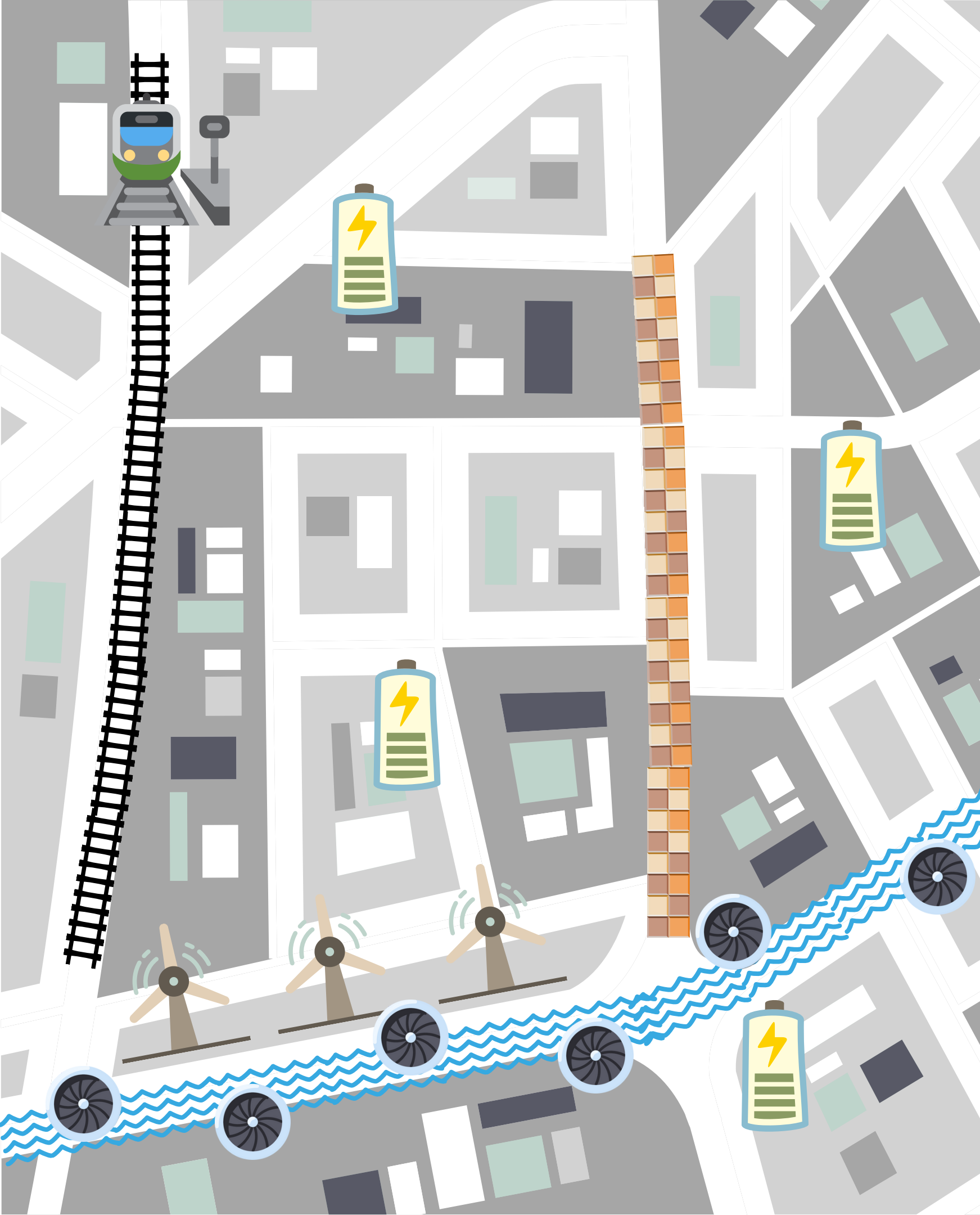
# Melbourne in 2040

The City of Melbourne is expected to have a population of **328,000 people** and **663,000 jobs** by 2040. This represents an increase of **145,000 residents** and **228,000 jobs** from 2020. The municipality is also forecast to have **144,000 households** by 2040, an increase of **60,000** from 2020. The demand for floor space is expected to grow by over **9.7 million square** meters between 2020 and 2040, of which **4.25 million square** meters are residential (Melbourne, 2021). To meet this need, various supporting technological innovations are needed that can answer all future needs.

## Our Main Focus :

"The City of Melbourne will be a city powered by **100 per cent renewable energy** by 2030, and reach **zero net emissions by 2040**" (Melbourne Gov, 2022)

With the integration between technologies from Kindly: Kinetic Energy, we are confident that the integration between technologies can work well. The technologies that we believe can answer these challenges include **kinetic pads, whirlpool energy, wind energy, energy storage banks, and applications** that integrate all these technologies so that the entire planning, implementation and evaluation process of energy distribution can be carried out effectively and efficiently.

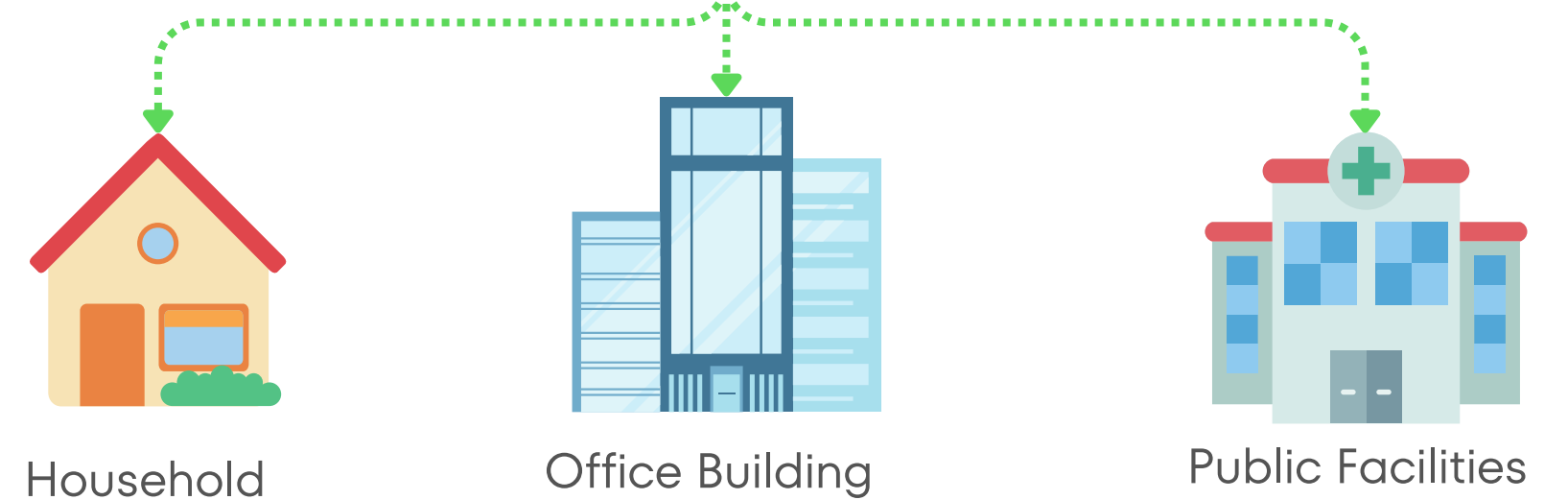
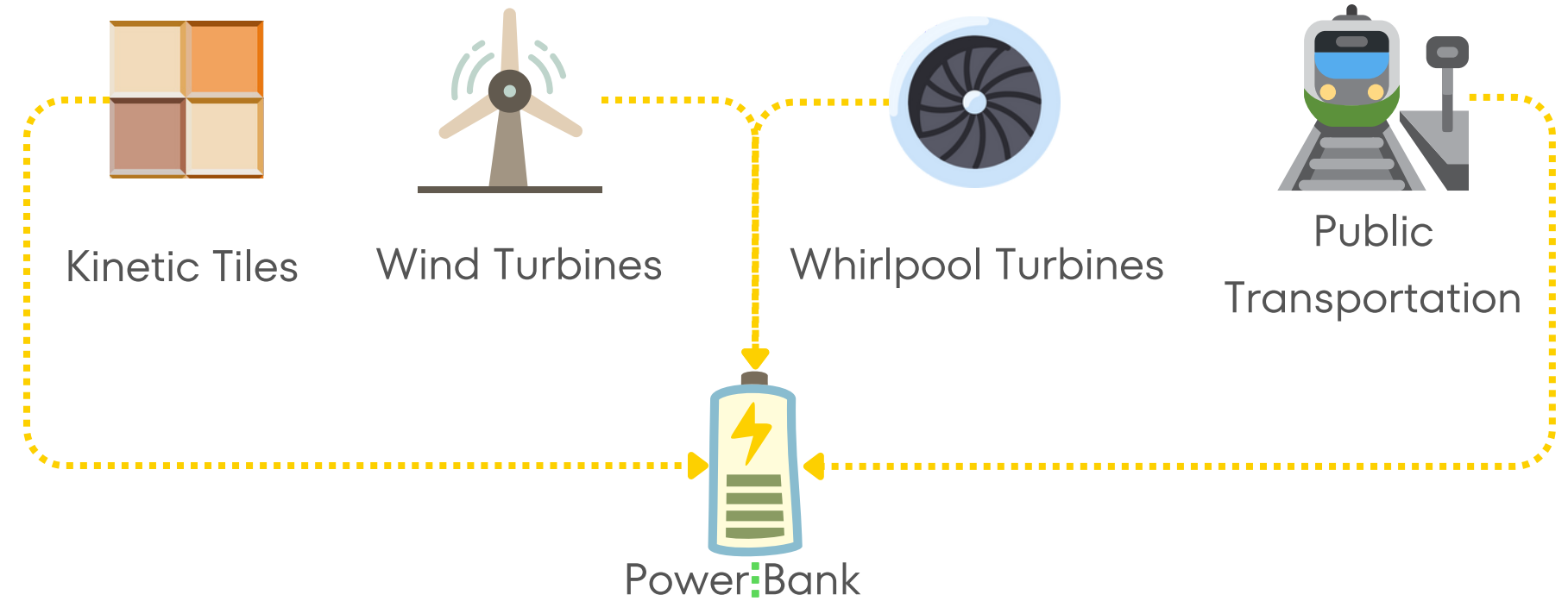


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# Energy Integration.

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## INPUT



## OUTPUT



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# Kinetic Tiles

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A clever kinetic floor system that is designed to capture and harness the kinetic energy generated by pedestrians. This cutting-edge technology has already gained prominence through its utilization in a recent, widely acclaimed Coldplay concert.

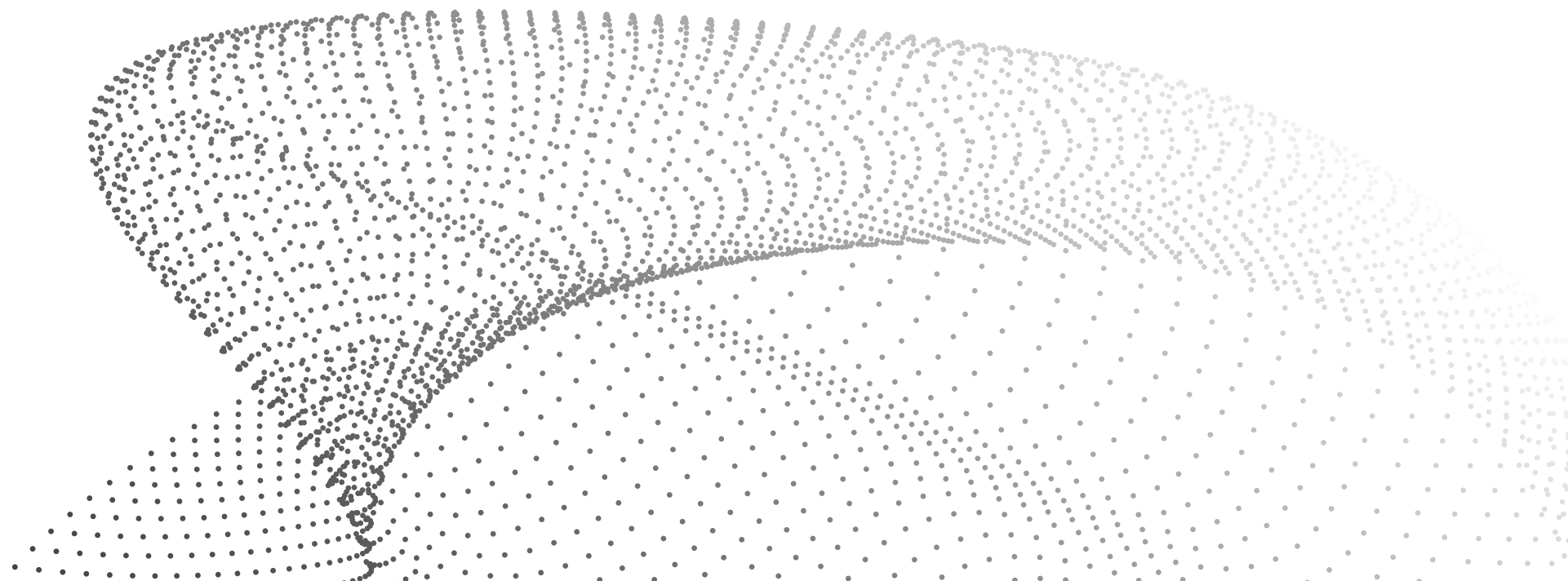
In a groundbreaking collaboration, Coldplay employed these kinetic floors to supply power for their entire concert production, working hand in hand with BMW to engineer a rechargeable battery system crafted from recycled components sourced from the BMW i3 electric vehicle.

**SUPPORT SDGS :**



## THE POTENTIAL OF **Kinetic Tiles**

When a kinetic tile is stepped on and flexed by approximately 10 millimetres, it can generate up to 25 watts of electrical energy with each step. Furthermore, when integrated into a configuration consisting of 40 floor tiles, it can produce a cumulative electricity output of up to 1 kilowatt ([Lombardo, 2013](#)). This innovative technology holds great promise for implementation in the Victoria area.



## DEVELOPMENT PLAN OF **Kinetic Tiles**



**1** The initial deployment of this technology will occur within corporate buildings, serving as a sustainable energy source capable of powering entire structures. To achieve this, we plan to harness the potential of rechargeable batteries derived from recycled components sourced from BMW automobiles.

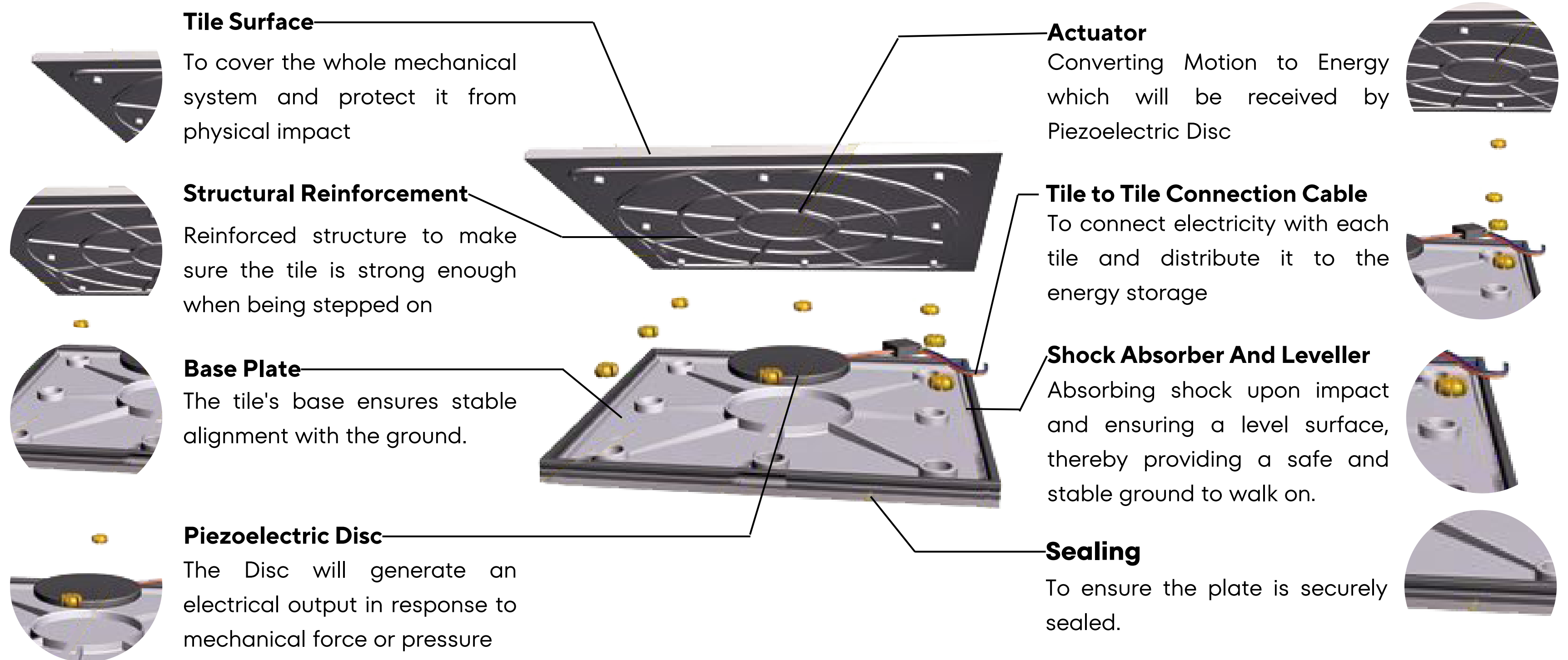
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**2** Subsequently, our second phase of development will extend this energy-generating technology to public spaces such as parks, jogging tracks, mall entrances, public transportation, and various public events. This expansion will not only contribute to sustainability but also enhance the accessibility of green energy sources.

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**3** The culmination of our efforts will involve a comprehensive pilot project encompassing the entire Central Business District (CBD). Here, pedestrian pathways will transform kinetic floors, effectively converting foot traffic into a robust energy source capable of powering the entire city. This initiative represents a significant step towards a cleaner and more sustainable urban environment.

# Kinetic Tiles



# THE IMPLEMENTATION OF Kinetic Tiles

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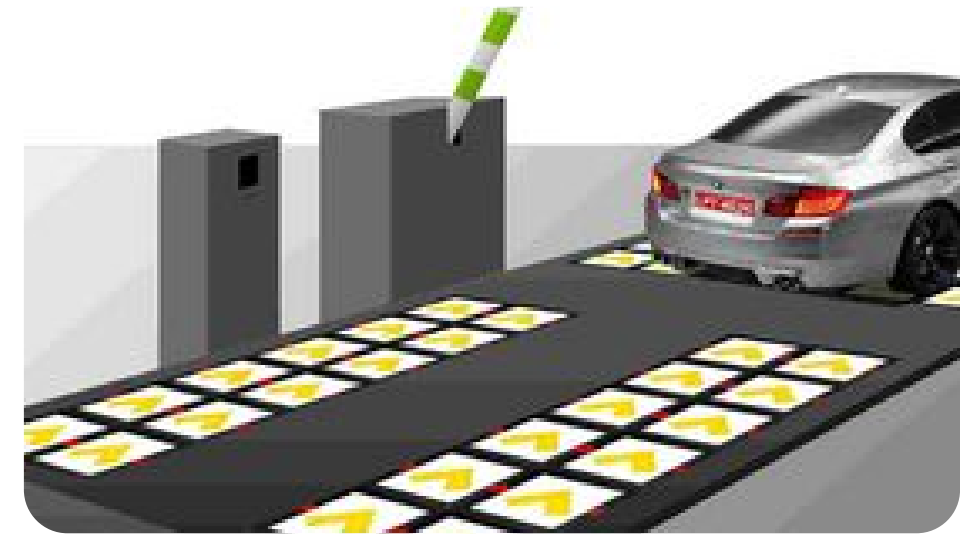
## Kinetic Jogging Path

It generates electricity through the footsteps of pedestrians as they walk along a kinetic jogging path that spans across parks and urban areas.



## Kinetic Dance Tiles

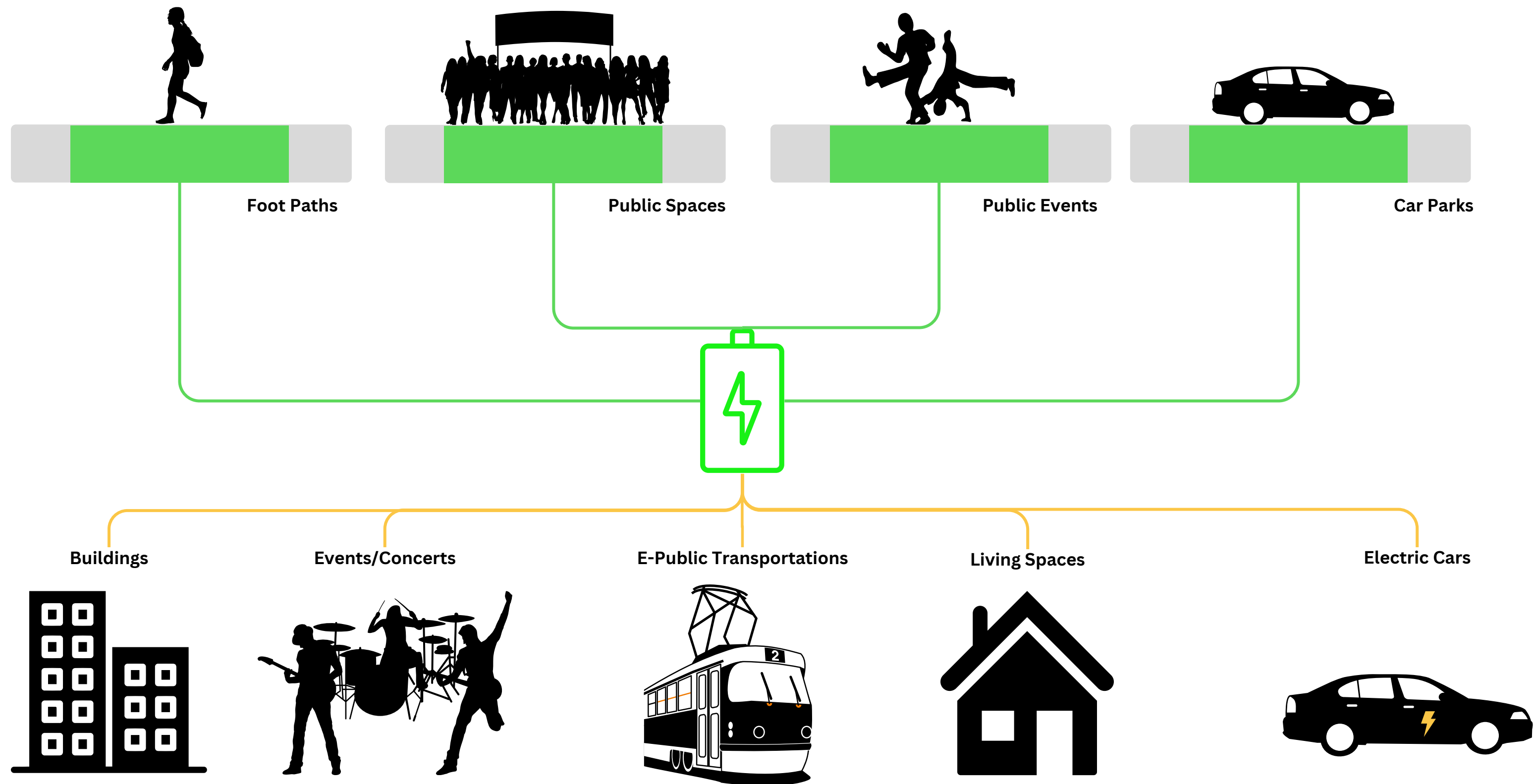
Public events have the capability to produce their own electrical power to energize their entire show through the utilization of kinetic dance tiles.



## Kinetic Tiles Car Park Entrance

Kinetic tiles can also harness energy when they come into contact with vehicles.

# Kinetic Tiles

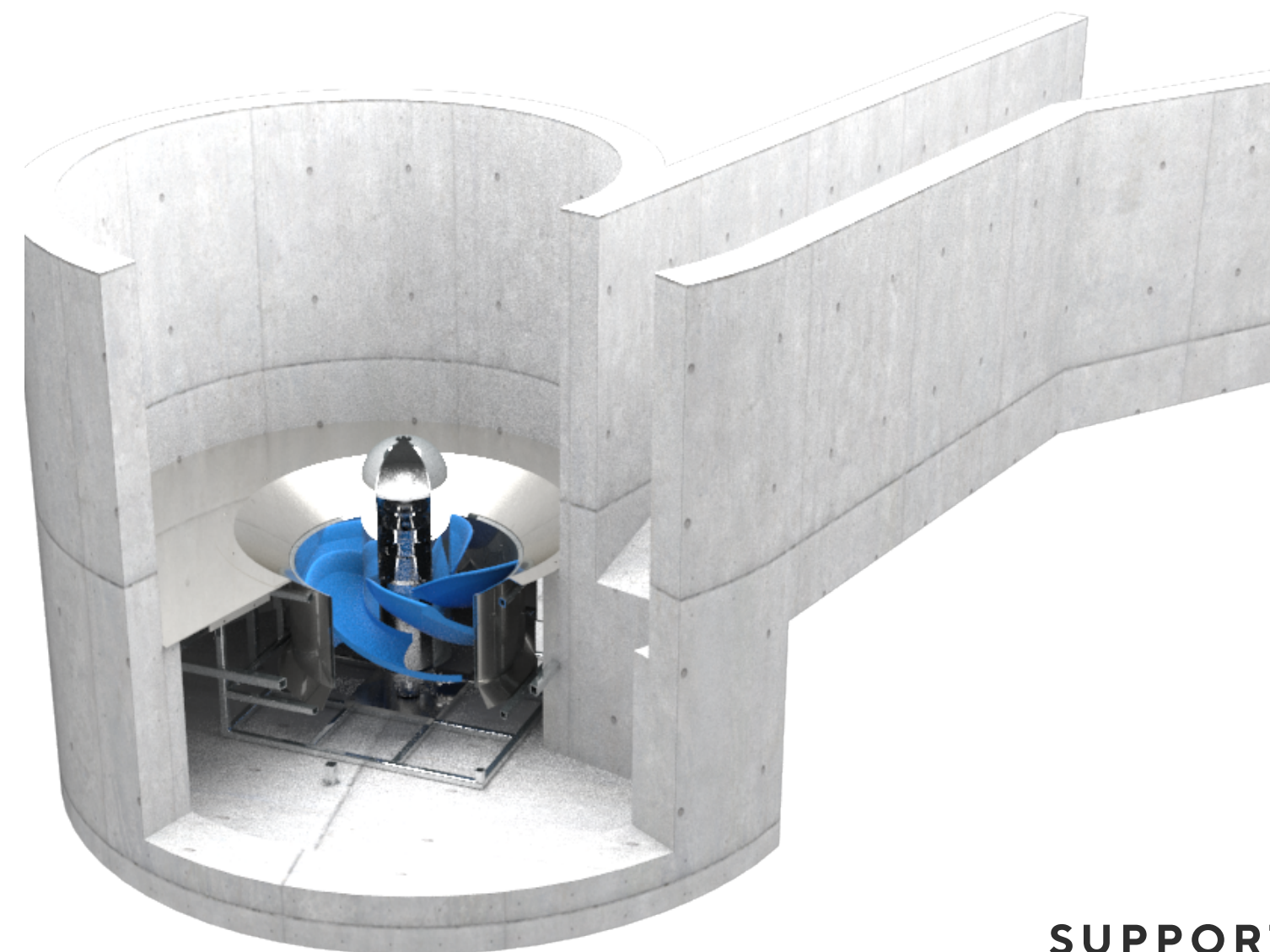


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# Whirlpool Turbine

A whirlpool turbine with a trash filter and friendly with aquatic life is a type of hydropower turbine that has a device to remove debris from the water before it enters the turbine, and is also designed to minimize its impact on fish and other aquatic life. The vortex created by a whirlpool turbine is much slower than the current created by a traditional turbine, so humans and other living animals are less likely to be injured or killed.

The trash filter is typically located upstream of the turbine and is designed to catch large objects, such as logs, branches, and plastic bottles. The filter can be made of a variety of materials, such as metal mesh, plastic netting, or even concrete. The turbine itself is also designed to be gentle on fish, with a slow-moving vortex that does not create a strong current.



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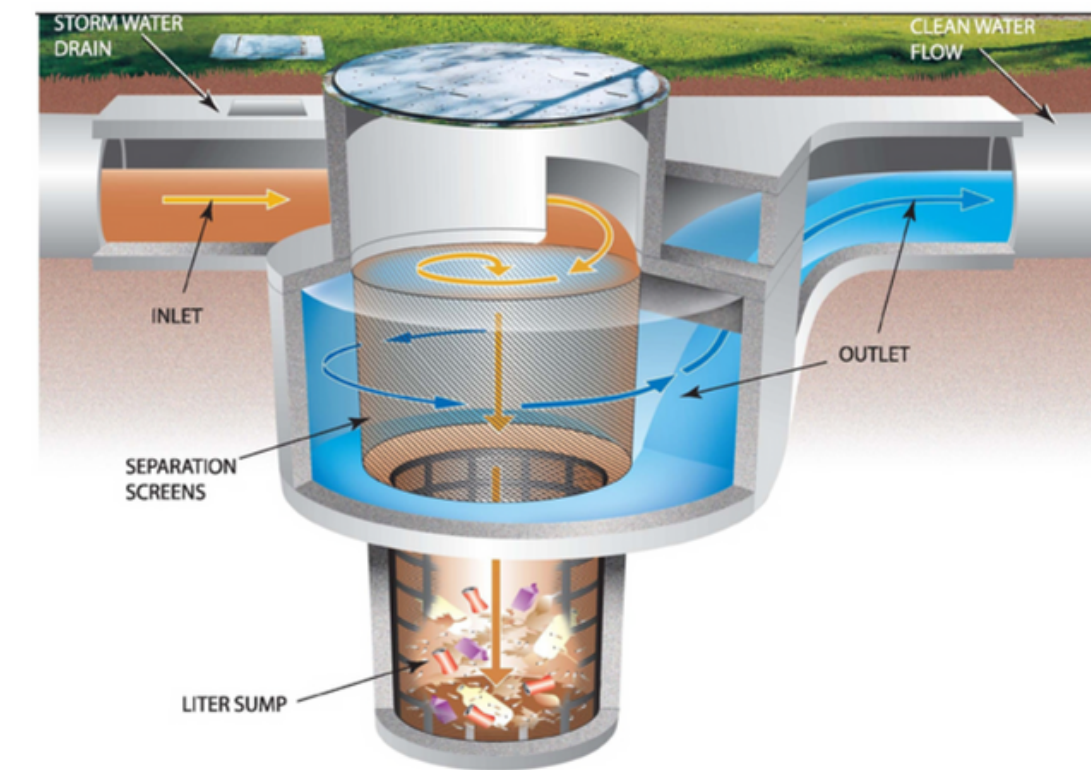
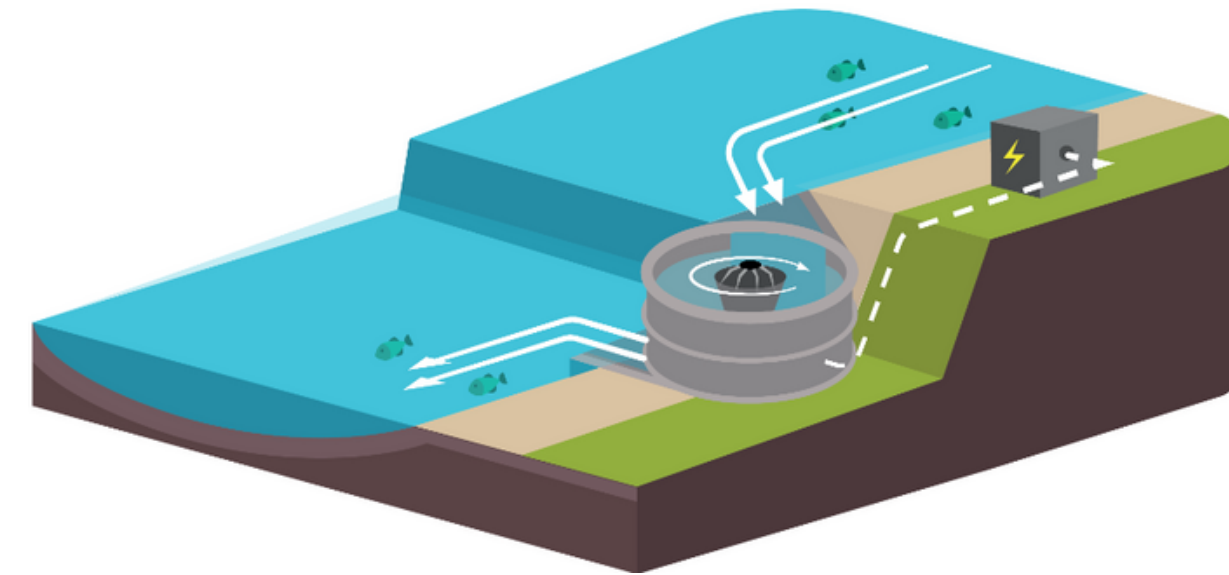


# Whirlpool Turbine

The Yarra River is a 250-kilometer (155-mile) river that flows through the Australian state of Victoria, and a maximum speed of 5 knots is enforced (Victoria, 2021). The power output of a whirlpool turbine typically ranges from 100 to 1,000 watts and can power up to 60 households 24/7 without affecting the environment (Whirlpool Turbine Market Share, Trends | Forecast 2027, n.d.).

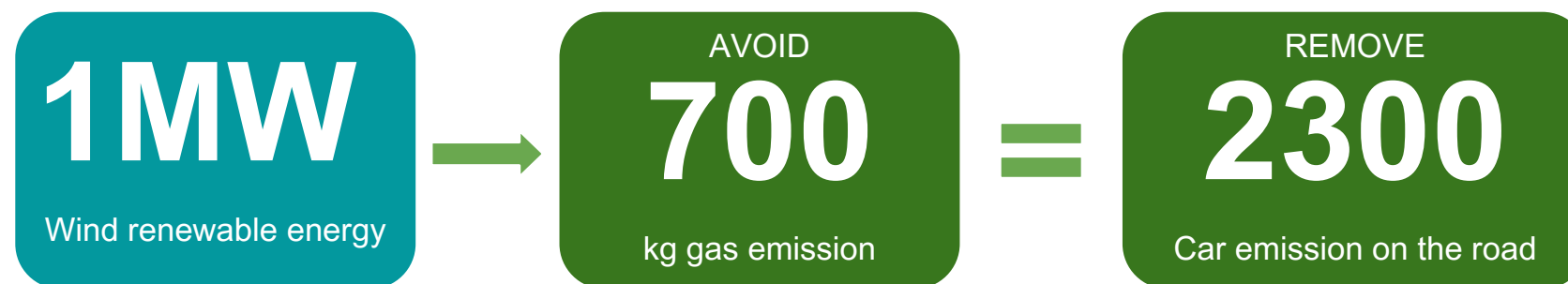
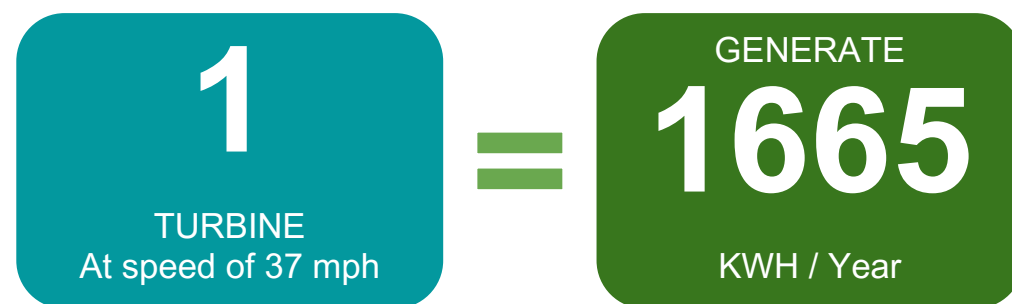
A whirlpool turbine with a trash filter is friendly to aquatic life and works by creating a vortex, or whirlpool, in the water. The vortex spins a rotor connected to a generator that produces electricity. The trash filter is located upstream of the turbine and is designed to catch large objects, such as logs, branches, and plastic bottles. The filter can be made of various materials, such as metal mesh, plastic netting, or concrete. The turbine is designed to be gentle on fish, with a slow-moving vortex that does not create a strong current. The turbine blades are smooth and rounded, and the turbine is located in an area where fish are not likely to be present.

The vortex created by a whirlpool turbine is much slower than the current created by a traditional turbine, so fish are less likely to be injured or killed. The trash filter also helps to prevent debris from entering the turbine, which can harm fish and other aquatic life. Whirlpool turbines with trash filters and friendly with aquatic life are promising options for generating renewable energy in a way that is friendly to aquatic life.



# Air Filter Wind Turbine

Top wind speed in Melbourne reached **88.9 km/hr** (Weatherspark, 2023). Utilizing wind speed in Victoria, sustainable **wind turbine will be placed in Open Public Spaces** (i.e Park, Highway, River banks) to **generate renewable electricity and filtering air from pollution.**

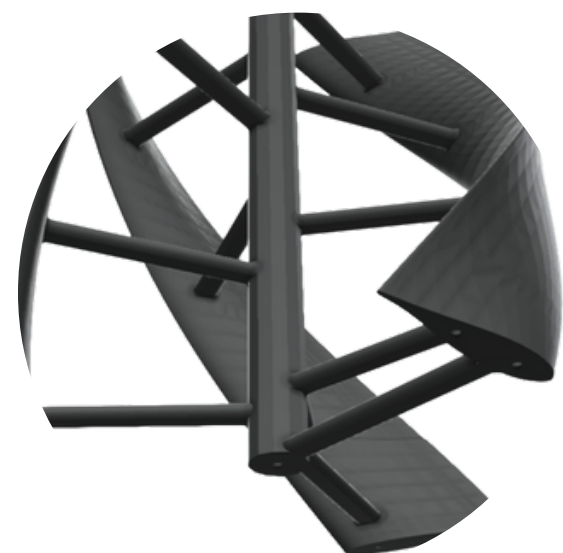


## SUPPORT SDGS :



AIR FILTER WIND TURBINE

# How it works?



## Rainfall Storage

Self cleaning feature in every rain. Rainfall will be distributed using all pipe frames. Residue will fall to the land

## Battery Storage

Energy created will be stored using BMW i3 battery and to be used for powering the cities



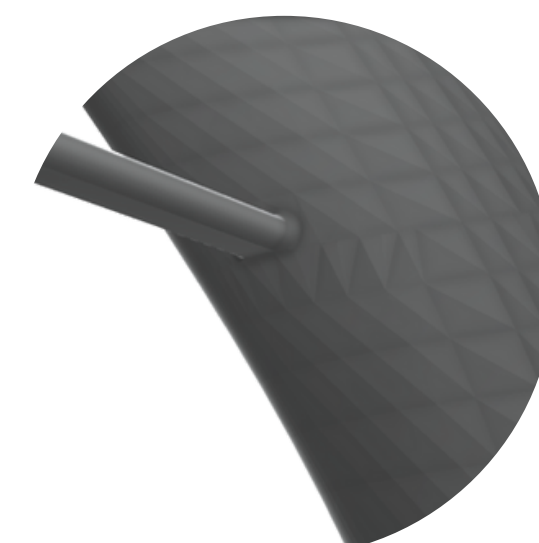
## Top View

The wind is permanently accessed from all directions



## Air Filter

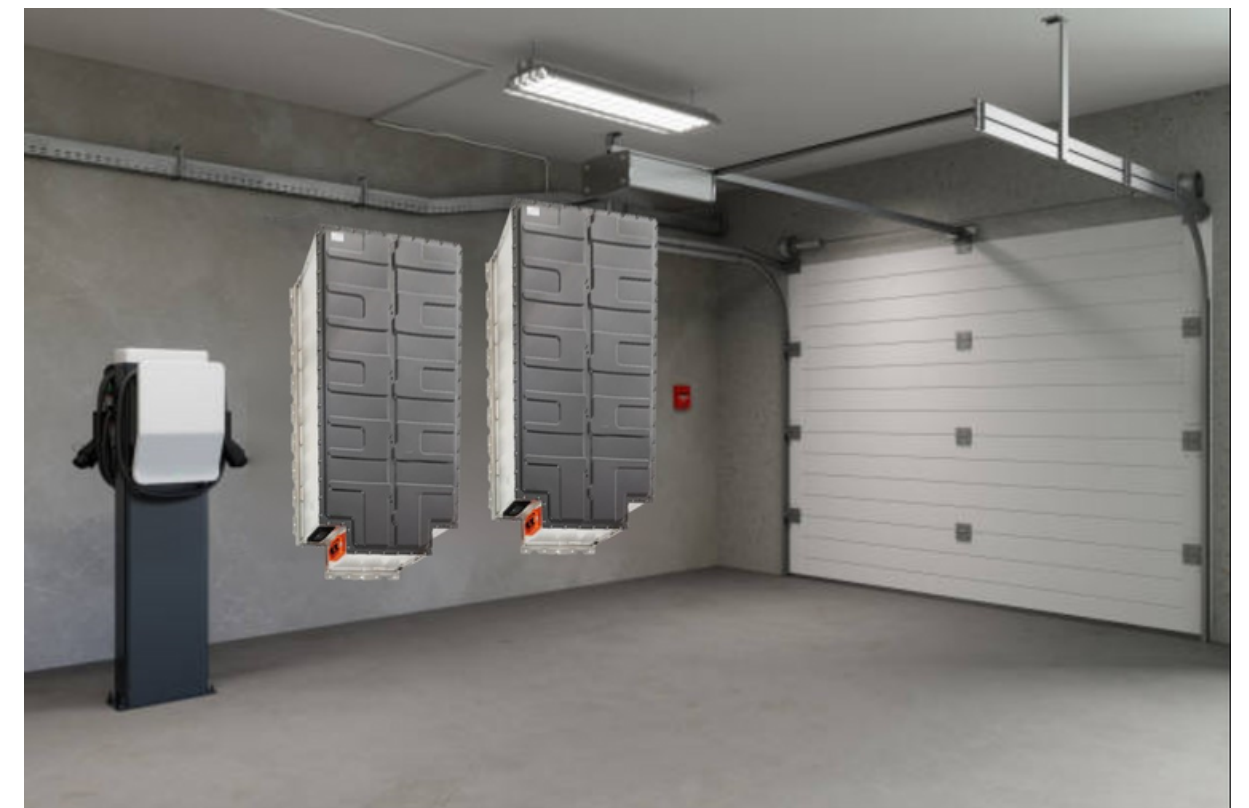
Surface covered with air filtration. Trap in pollution

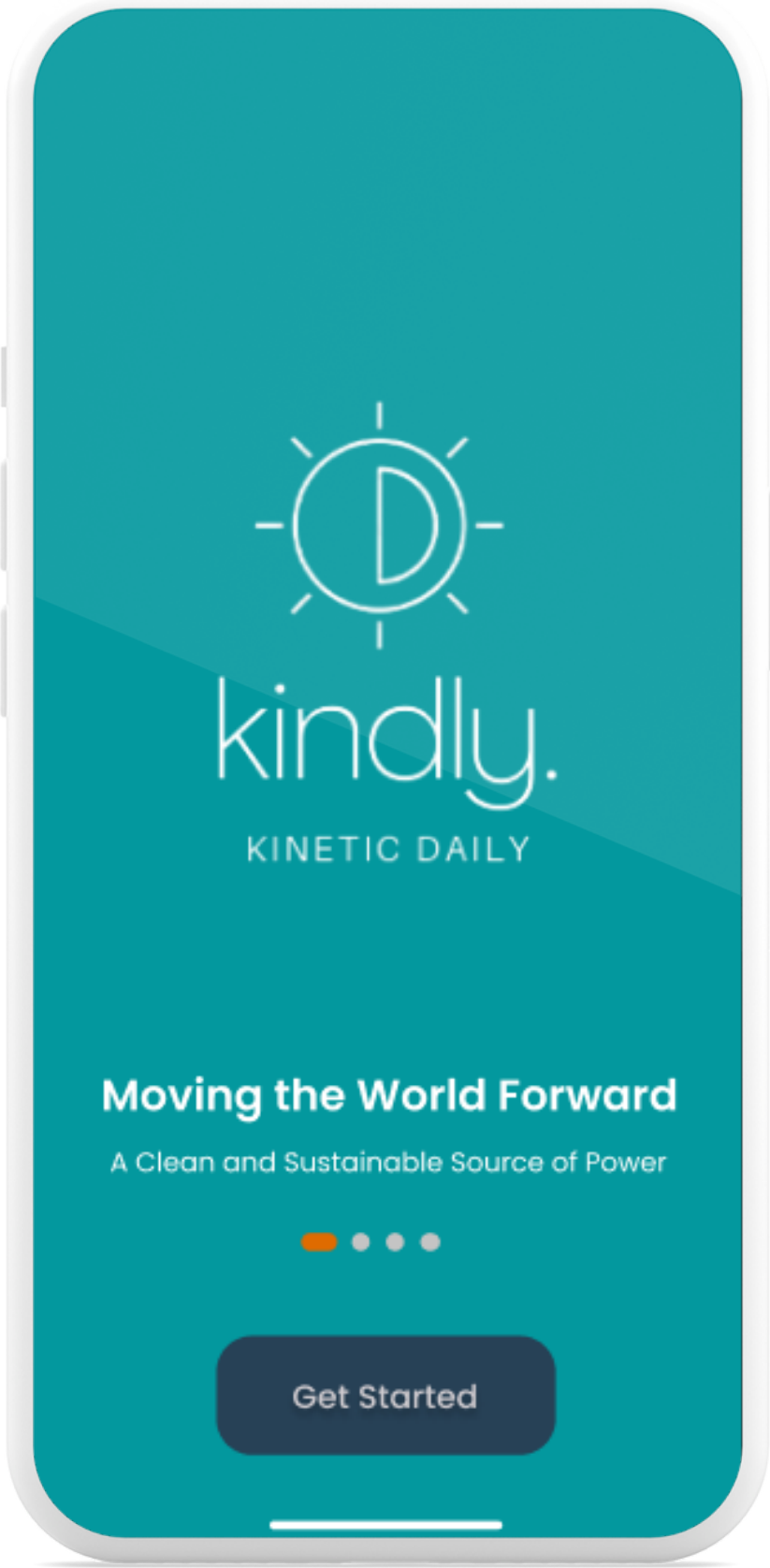


# Energy Storage System

Recycled battery packs, derived from BMW's i3 vehicles, have been verified as suitable for residential applications, as substantiated by a recent study confirming their capacity to store up to 20kWh of electricity (1PS, 2023). This groundbreaking development has opened up new possibilities for reusing batteries from BMW's electric vehicle lineup, repurposing them into energy storage solutions for kinetic tiles, wind turbines, and hydroelectric generators.

With our target date firmly set for 2040, we have a substantial window of opportunity to thoroughly explore and implement these technologies. This approach not only holds the promise of supplying power to individual homes but also carries the potential to expand to support larger structures and, in an exciting prospect, even power entire cities within the Victoria region.





BE RESPONSIBLE  
**be kindly.**

**SUPPORT SDGS :**



KINDLY APP

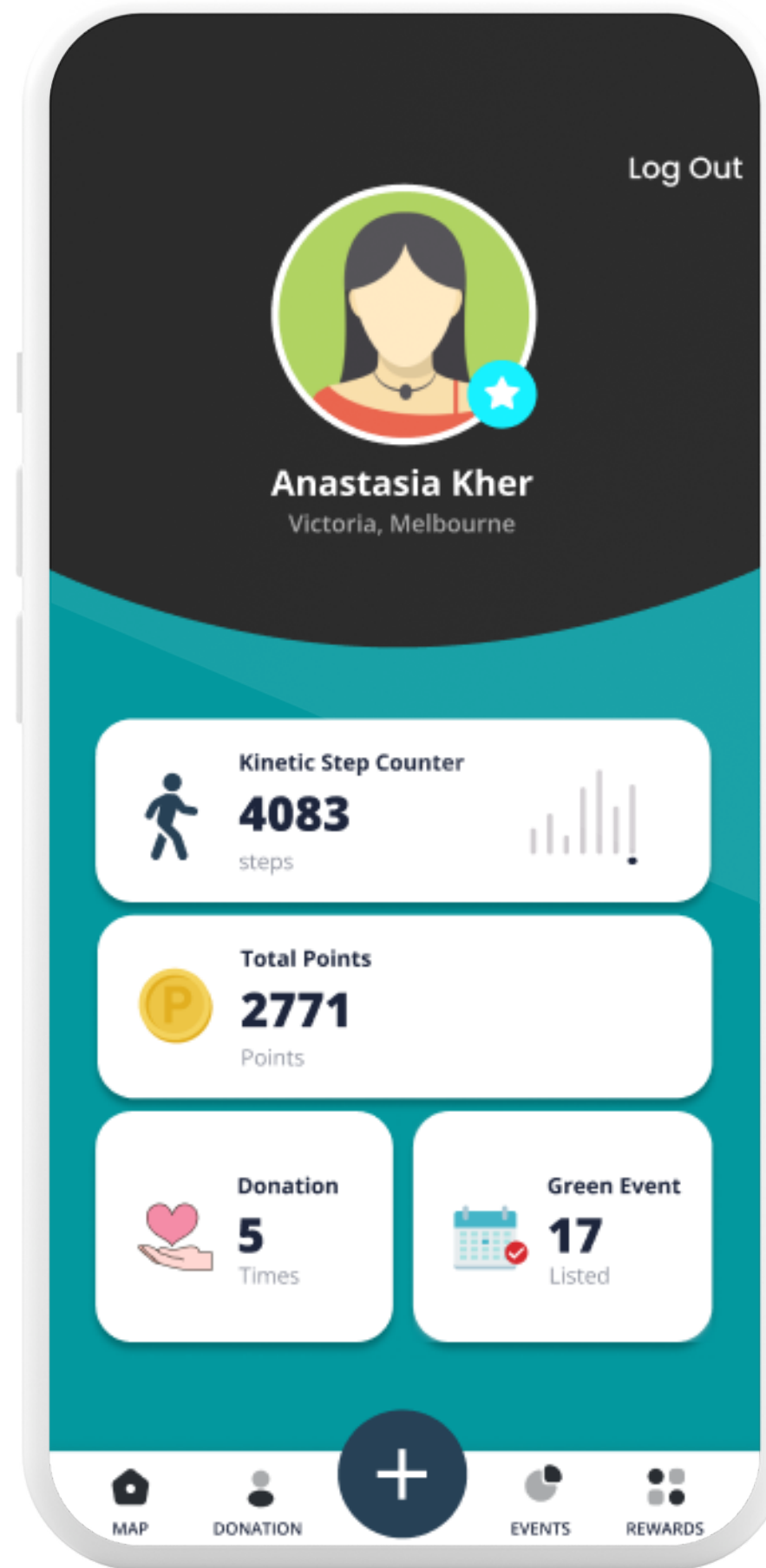
# Home Page.

## Personal Feature Management

- Track Your Step
- Manage Point
- Explore Public Kinetic

## Earn and Use Your Points

- Choose Donation
- Choose Event
- Choose Reward



## ● Map

Map features can be used to engage and retain app

## ● Donation

Showcase recent purchases in the shopping module and the latest comments in social.

## ● Event

Allow users to browse the app and check out our environment-safe event before signing up.

## ● Reward

Buying yourself a benefit, such as a Myki pass, voucher, and many more!

KINDLY APP

# Features.

## Kinetic Map

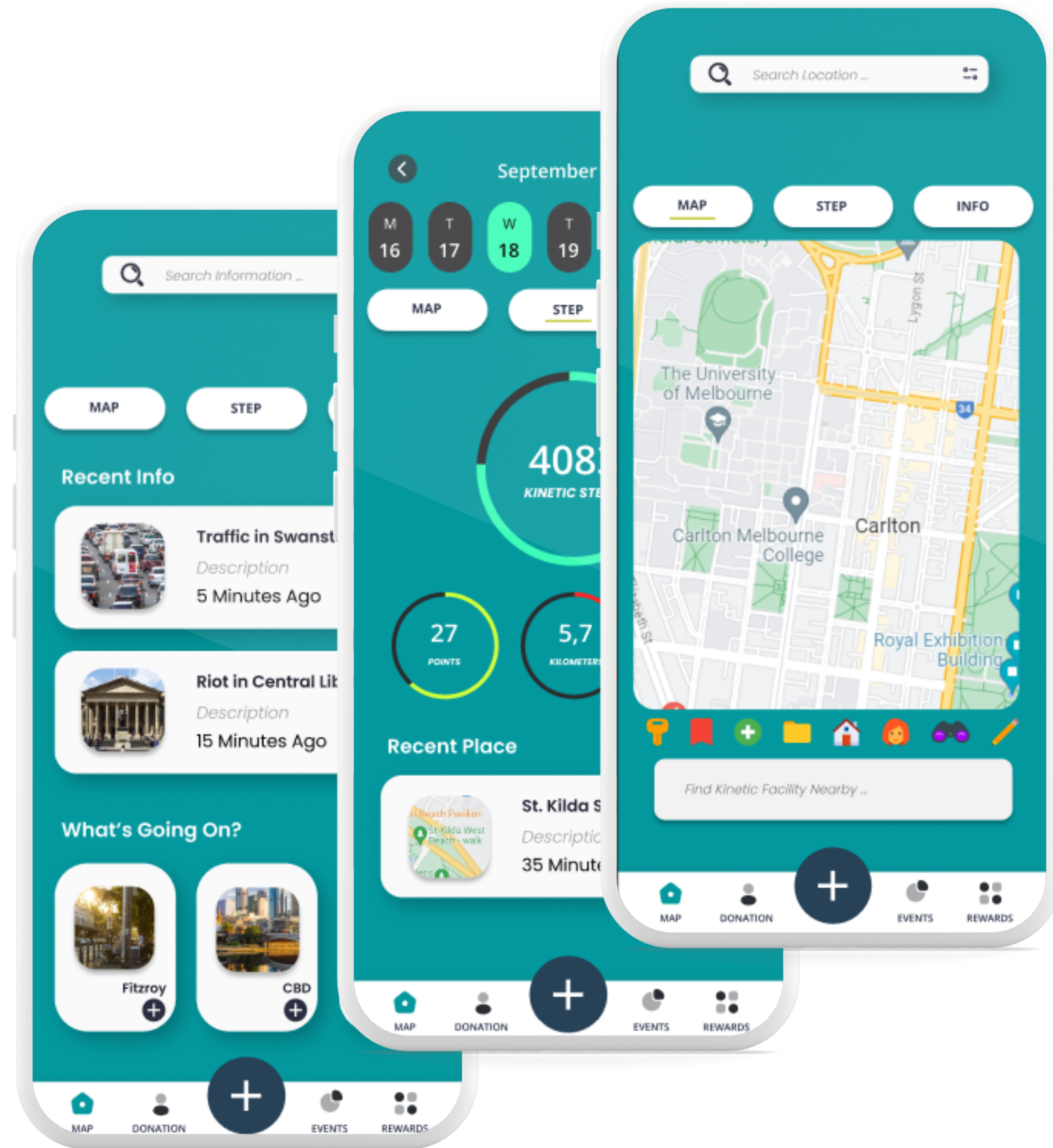
These maps show the kinetic locations, and conditions for a public area.

## Track Your Progress

A dashboard progress tracking is a way of tracking your progress toward your current condition and goal.

## Additional Information

Information menus can be found in a variety of places, such as websites, software applications, and even physical objects.



## KINDLY APP

# Features.

### Donation

A donation menu is a list of items that can be donated to a particular cause. It can be used to provide donors with a quick and easy way to choose the items they want to donate.

### Green Event

A green event menu is a list of event and activity options that are environmentally friendly.

### Reward

Personal rewards are things that you give yourself to celebrate your accomplishments or to motivate yourself to keep generating green and clean energy.



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**Explore More!**

<https://bit.ly/KindlyApps>



# References

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