

Annual Power Engineering Exchange (APEX)

Powering a Sustainable Future

A BUSINESS'S STEPS TO CARBON ZERO

GEORGINA PRICE
POWER SYSTEMS ENGINEER



DATE: 23 SEPTEMBER 2020

EEA.CO.NZ



Thank you to our sponsors for their support.

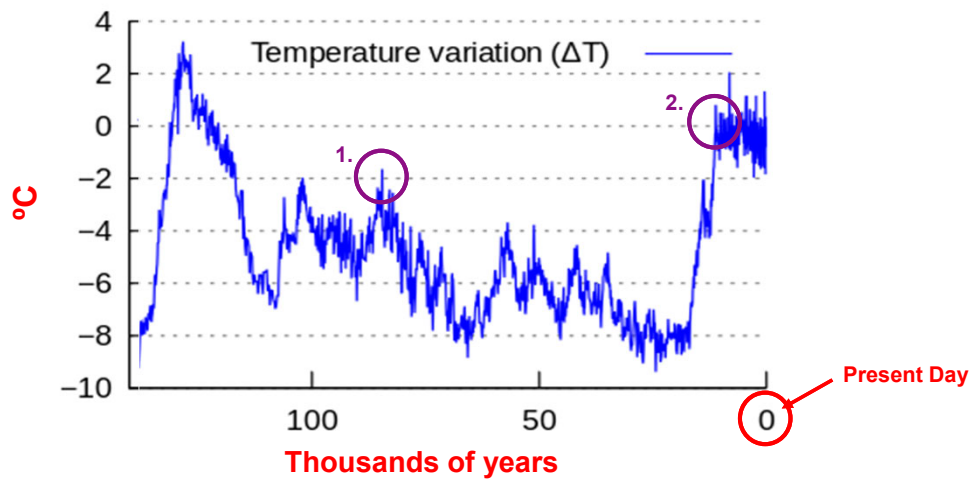


1

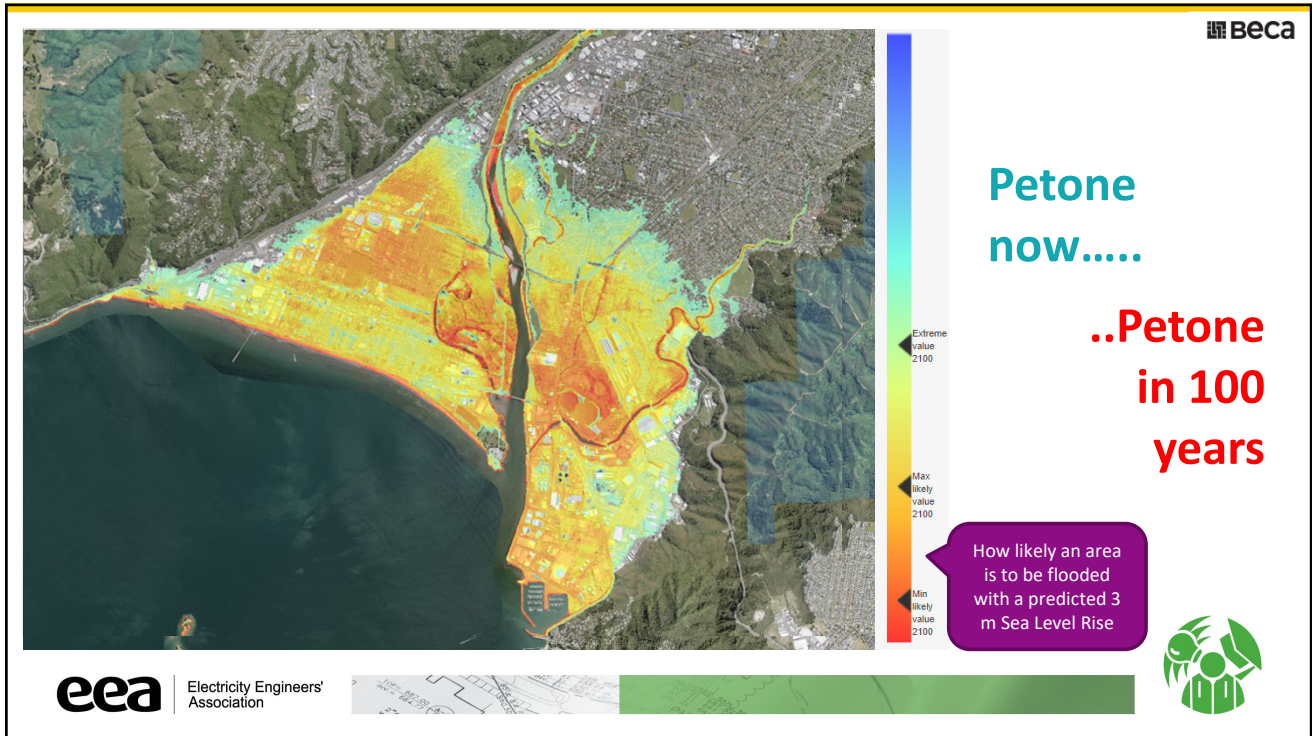
Sustainability at a Glance



It's getting hot in here, but why do we care.



2



3



4

What are the steps New Zealand is taking to Carbon Zero?

eeaa Electricity Engineers' Association

BECA

5

Decarbonising New Zealand

Sector	Percentage
Agriculture	45%
Transport	21%
Industry	15%
Buildings	4%
Waste	5%
Electricity	5%

eeaa Electricity Engineers' Association

BECA

6

What are the steps a business can take to Carbon Zero?

eea | Electricity Engineers' Association

BECA

7

Let's talk about Energy

Key opportunities in our Industry

-
-
-
-
-

eea | Electricity Engineers' Association

BECA

8

BECA

Designing with Sustainability in Mind

Sustainability in Design Initiative

SUBSTATION DESIGN

eea Electricity Engineers' Association

9

BECA

Decarbonising a Project

Design Optimisation Initiative

CONSERVATIVE DESIGN

MULTIPLE VARIANTS

NO INTELLIGENCE

eea Electricity Engineers' Association

10

Parametric Design

A Sustainable Option & Innovation for Engineers

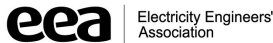
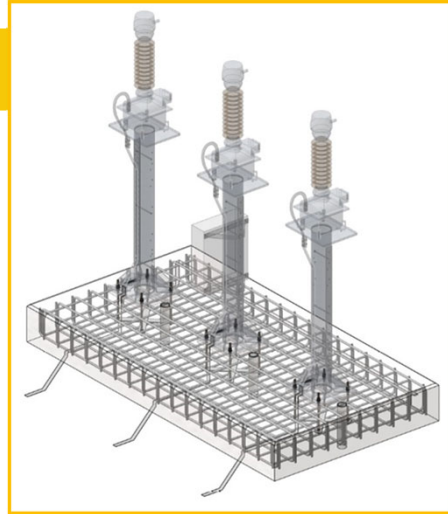


What is Parametric Design?



Process based on algorithmic thinking that enables the expression of parameters and rules that, together, define, encode and clarify the relationship between design intent and design response.

Woodbury, Robert (2010). Elements of Parametric Design.

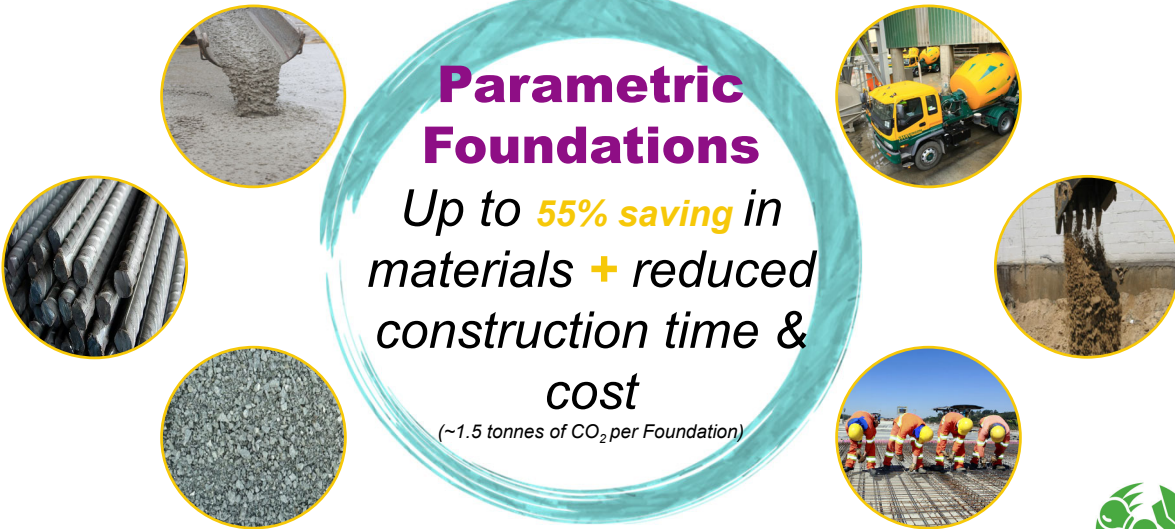


11

The Solution



Parametric Foundations
Up to **55% saving in materials + reduced construction time & cost**
(~1.5 tonnes of CO₂ per Foundation)



12

Powering a Sustainable Future

Decarbonising a Project – In Development



Carbon Calculator

- Carbon emission factors
- Key design materials
- Make decisions based on carbon emissions
- Carbon accounting & accountability



In Summary





 BECA

DISCUSSION & QUESTIONS

