

# **APEC PPFS**

## **Policy Partner on Food Security**

### **WG1 Sustainable Development in Agriculture & Fishery Sectors**

**Presented By**

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## **About APEC PPFS**

APEC Policy Partnership on Food Security (PPFS) was established in 2011 for strengthening public-private cooperation to address food security issues in the region



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## **About APEC PPFS**

- PPFS is established to develop policies and solutions for food security in the Asia Pacific region
- APEC economies have given high priority to the issue of food security and has built a solid foundation for agriculture, aquaculture, fishery, food exchange and cooperation under various multilateral and bilateral frameworks
- PPFS to achieve these food security goals in the region

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## **About APEC - Facts**

- Asia-Pacific accounts for half of the world's cereal production and over 40% of its trade volume, production growth depends on expanding cultivable areas and continue enjoying favourable weather conditions.
- APEC members account for over 80 percent of global aquaculture production and more than 65 percent of the world's capture fisheries

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## **About APEC - Facts**

- APEC comprises 9 of the 10 top fish producers in the world.
- Aquaculture is now one of the fastest growing food-producing sector which now accounts for almost 50% of global food fish
- PPFS Working Group One (WG1) – Sustainable Development in Agriculture & Fishery Sectors

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## **Mission of PPFS Working Group One**

- Commitment to pursue sustainable development by promoting R&D and technology dissemination
- Protecting our farmers from current and future negative impacts of climate change
- Providing training on sustainable management in the use of natural resources and promoting consumption of sustainably produced food.

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## **Mission of PPFS Working Group One**

- Integration and Sharing of Agriculture & Aquaculture technologies, resources and expertise within the APEC Ecosystem
- NTU APEC Centre for Sustainable Development in Agriculture and Fishery Sectors was setup in Singapore to support the initiative of PPFS WG1

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## Identified Areas of Resources

- Infrastructure and Manpower
- Technology and Training
  - Use of Clean and Renewal Energy
- Processing and Trading
- Funding



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- **Desired Outcome**

- Transfer of Technologies for Sustainable Farming amongst APEC economies
- Creation of jobs
- Contract farming within APEC Ecosystem
- Enhanced Food Security

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## Current Collaborations in Progress

- Currently, we have a total 9 ongoing projects and 2 projects in discussion
- Projects are mostly between private sectors involving 5 countries
  - Singapore, Malaysia, Indonesia, China and Philippines
  - All projects are technology related and 4 are clean & renewable energy related

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## About the Centre

- APEC Centre for Sustainable Development in Agriculture and Fishery sectors was setup in August 2016
- Joint effort with Nanyang Technological University
- Clean Energy Partner- Energy Research Institute @ NTU - ERI@N

# Structure

**ERI@N**

Energy Smart, Research Innovation.

Flagships: EcoCampus & REIDS

**Industry  
Partnerships  
& Spin-off**  
*TRL 4-7*

**Technology Groups  
Translational RD&D**  
*TRL 3-6*  
*211 Researchers*

**Basic Research  
Technology  
Pipeline**  
*130 PhD/MS Students*



**Sustainable  
Building  
Technologies**

**Energy  
Storage & Fuel  
Cells**



**Renewables –  
components, grid  
integration**

**Multi-Energy  
Systems & Smart  
Grids**



**Autonomous  
Vehicles &  
Electromobility**

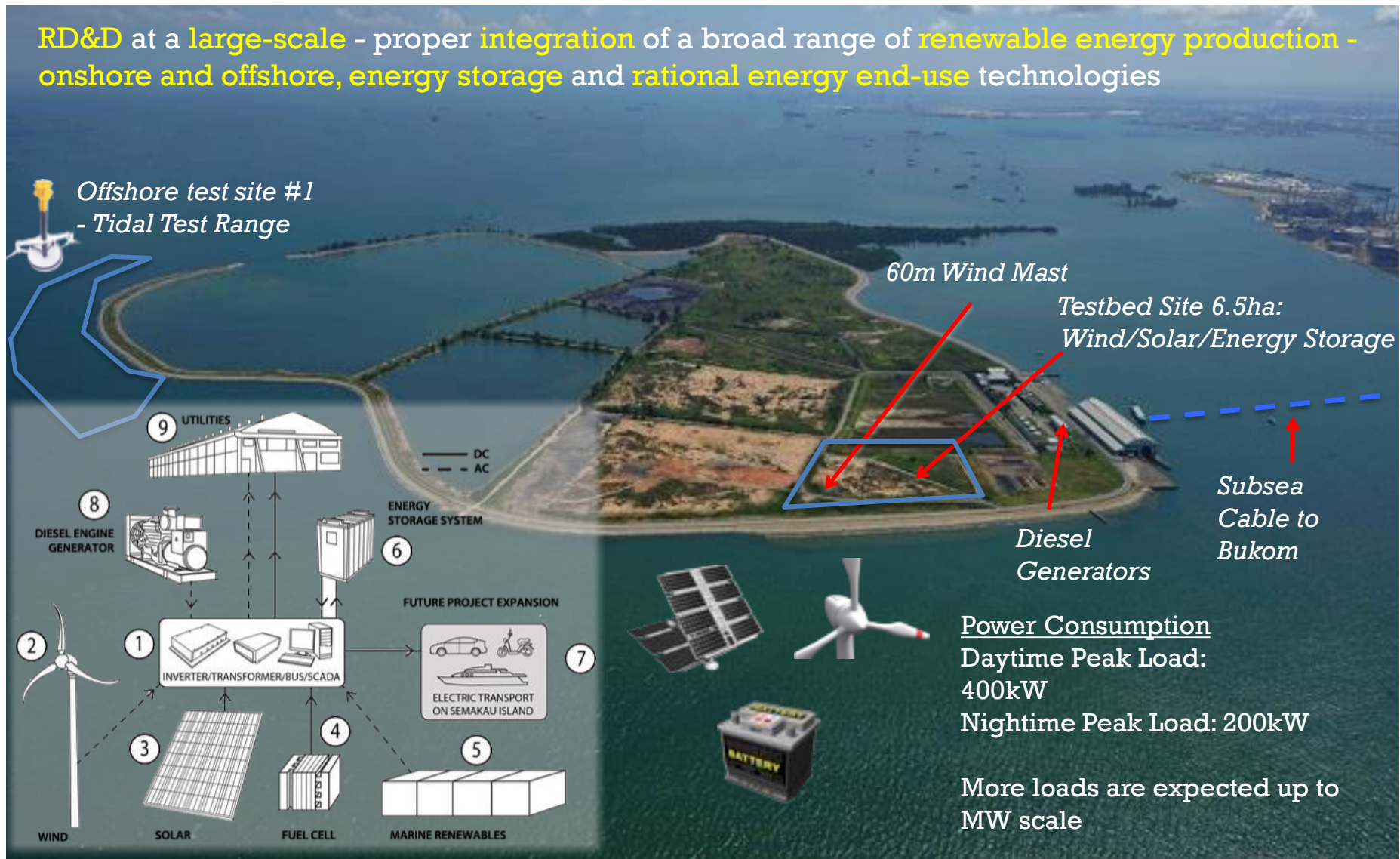
**Maritime Clean  
Energy**

Materials, Sim. & Modeling, Electrical Power / Control, Reliability

Colleges of Sciences, Engineering, Humanities, Arts, & Business

# Renewable Energy Integration Demonstrator – Singapore (REIDS)

RD&D at a large-scale - proper integration of a broad range of renewable energy production - onshore and offshore, energy storage and rational energy end-use technologies



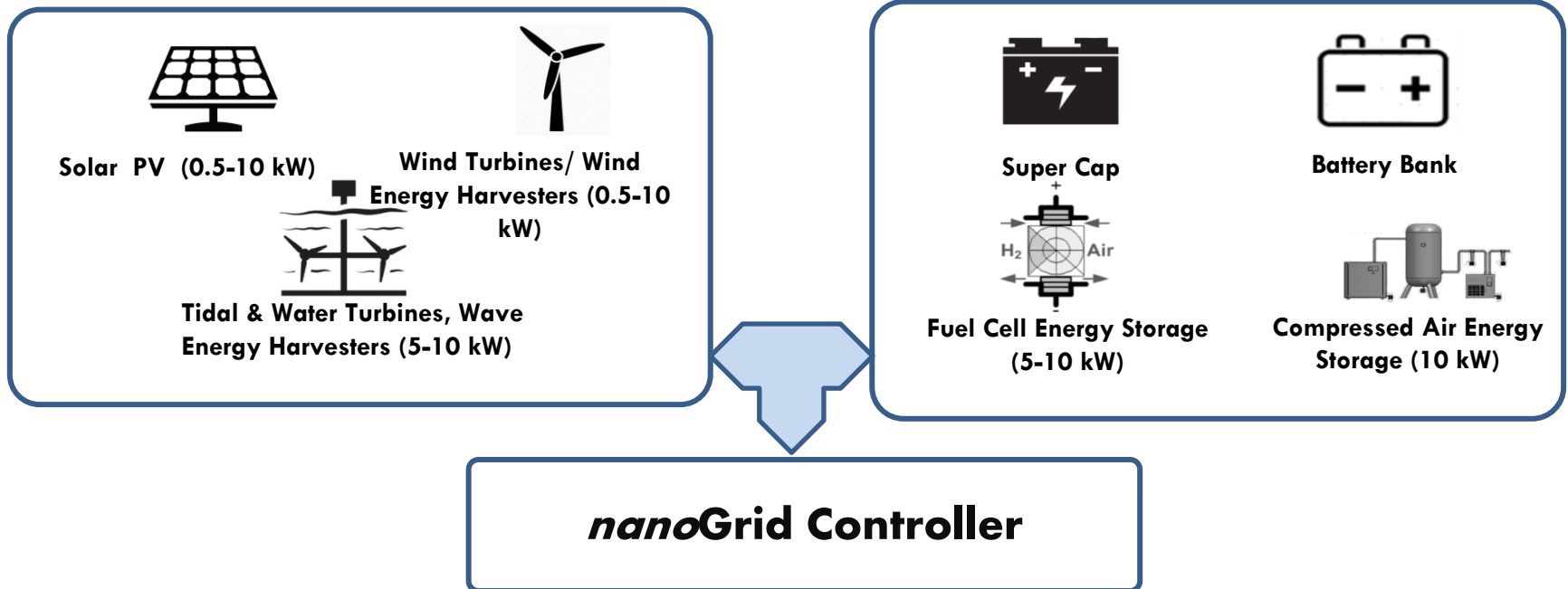
# NanoGrid & Energy Storage

## Renewable Generation

- Selection and sizing of technologies based on insitu resource assessment and assurance of generation adequacy
- Combination of technologies for improved capacity factor and availability factor

## Energy Storage Technologies

- Selection and sizing of technologies based on capacity factor, generation profile, load profile and load requirements
- Combination of technologies for system optimization, improved power quality, reliability / security



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## Role of the Centre

- Provide a Model for member countries to setup **Technology Resource Centre** (TRC) in their country to facilitate transfer of technologies, incubation of technologies etc

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- **Role of the Centre**

- Platform for R&D and technology Dissemination in APEC PPFS for both small stake holders, SME and big companies
- Facilitation platform for *Public Private sector* collaboration
- Traction point for identifications of sustainable technologies from various APEC economies



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- **Role of the Centre**

- Incubation and rollout of promising technologies
- Develop and support the WG1 initiative and long term plan for Sustainable Food Production

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- **Work programme for 2016 - 2017**

- Connect WG1 to global aquaculture & agriculture institutions/ bodies for exchange of ideas, best practises, and technologies exchange
  - Global Aquaculture Alliance – GAA
  - World Aquaculture Society – WAS
  - MSC – Marine Stewardship Council
  - Japan Plant Factory Association
  - Others



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## **Work programme for 2016 - 2017**

- Round Table Engagement with Major feed producers and Feed additive producers in Singapore & Europe
- Climate Smart Agriculture Initiative
  - Inland Vegetable Farming
  - CSA Green house – Use of Anti Thermal Coating
  - CSA Soil moisture Management



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- **Work programme for 2016 - 2017**

- Agriculture & Aquaculture farm that is powered entirely by renewal energy
  - In current discussion with Solar Development & Leasing companies in the region
  - Farmers pay zero dollar for Solar energy infrastructure setup
  - Farmer only pays for usage of energy (Kilowatt)

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## Use of Renewal Energy for Climate Smart Farming





# The Future

**Land Based Agriculture and Aquaculture Farm  
Powered entirely by Renewal Energy**



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Thank You



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