Smart Cornwall

Stuart Farmer MBA
Smart Cornwall Business Development Manager
The Smart Grid

SMART GRID
A vision for the future — a network of integrated microgrids that can monitor and heal itself.

Smart appliances
Can shut off in response to frequency fluctuations.

Demand management
Use can be shifted to off-peak times to save money.

Solar panels

Houses

Processors
Execute special protection schemes in microseconds.

Sensors
Detect fluctuations and disturbances, and can signal for areas to be isolated.

Storage
Energy generated at off-peak times could be stored in batteries for later use.

Generators
Energy from small generators and solar panels can reduce overall demand on the grid.

Wind farm

Disturbance in the grid

Central power plant

Isolated microgrid

CONVERGENCE
for economic transformation

European Regional Development Fund
Investing in your Future
GPS

Massive Internal Data

Sensor Data

Executive team

… Business decisions based on accurate data across all time horizons: past, present and future

Network Asset Planning

… Optimised CAPEX programmes based on performance, risk and criticality

Customer Service

… Know exactly which customers are connected to what assets, providing proactive service and response to outages

Network Management

… Optimisation of asset maintenance programmes based on condition & performance; dynamically schedule and dispatch maintenance and repair crews

Network Operations

… Predict or remotely sense network outages and track demand patterns based on past history of weather, loads and environmental factors

Demand Management

… Ability to control all embedded generation and micro-grids; real-time transactive control through negotiations based on network condition and financial incentives

External Data
More than just energy
So What Is Smart Cornwall?
“To develop the U.K’s first fully integrated smart energy network, providing new high value jobs, creating wealth and opportunities for future generations and leading the way into a prosperous, resource efficient future.”
Smart Cornwall

Delivering a world class energy ecosystem

As a pdf this video can be accessed here
No better place to lead the way

1. Engaged Communities
2. Unrivalled mix of renewable energy resources
3. Good place to do business
4. We can cut through the red tape
Smart Cornwall:
Steering Group
Smart Cornwall Programme: Informing Delivery

Aligned Outcomes
- Public
- Private
- HE / FE
- Community

Informed Delivery

Smart Cornwall Vision
- 2015 – 2050 Route Map
- Smart Cornwall Programme

2015 -2020 Delivery Plan

Technical Design Authority

Smart Cornwall Steering Group

Strategic Alignment
- Green Cornwall Programme
- Cornwall & IOS LEP
- European & National Policy / Legislation

Smart Cornwall Evidence Base

Cornwall & IOS LEP

European Development Fund

Convergence for Economic Transformation

European Regional Development Fund

Investing in your Future

CORNWALL Development Company
Smart Cornwall: Technical Design Authority

Technical Design Authority
HITACHI
+ 20 More
British Gas

Local Partners

National Partners

2015 – 2020 SMART CORNWALL DELIVERY PLAN
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Build Momentum
- Evidence Base
- 2015 – 2020 Strategy
- Funding Framework

- Deliver 2020 Vision

- Smart Cornwall & Isles of Scilly
Smart Cornwall: Near Term Goals 2013 - 2014

- Recruit Local & National Partners
- Agree Approach To Delivery
- Finalise Evidence Base
- Establish TDA
- Workshop

Initial Working Groups
Report Findings
Draft Delivery Plan
Approve Final Plan
Launch Smart Cornwall
Smart Cornwall: Facilitating Delivery

**Demonstration Projects**
- Clean Energy Balance
- Marine Energy Park
- ETI

**Local Energy Markets**
- Working Group
- DNV Kema Study

**Smart Cornwall**

**Research & Development**
- Smart Campus
- UK / Korea Industry Exchange

**Business Support**
- Smart Business Development Team
- Inward Investment
- Bespoke Workspace
So What Are The Opportunities
The Big Picture

- The World Energy Council predict the global smart market to have:
  - Cumulative revenues of $400 – 494 billion up to 2020
  - Annual growth rate estimates range from 8 – 30%

- The House of Lords has proposed investment exceeding £800Bn (€1 Trillion) maybe necessary in the EU’s wider energy network

- At the National level an incremental £23 billion (NPV) must be invested between now and 2050 to upgrade the UK’s existing electricity distribution network alone (Smart Grid GB)

- Ernst & Young have calculated investment in the UK’s energy distribution network will facilitate significant secondary growth, giving rise to a further investment potential of £50bn by 2030
Smart Cornwall Evidence Base

- **2,000 jobs** and **£110 million** of GVA by **2020**
- **7,000 jobs** and **£370 million** of GVA by **2030**
- **59%** created in **knowledge-based sectors** compared to Cornwall’s current average of just **11%**
- **10% of** people in Cornwall engaged in **local energy markets by 2020**
- **£96M** retained energy receipts by **2030**
- **40% Increase** in the adoption of Smart Technologies
- **CO2e savings** of around **70 k tonnes by 2020** and **680 k tonnes by 2030**
Cornwall's Local Energy Economy

- Local Energy Market’s have the potential to retain circa £250m (or 70%) of Cornwall’s annual electricity spend
Smart Cornwall business development project
Supporting Business (2013 & 2014)
Smart Cornwall Business Development Team

- The Smart Cornwall BDT is an ERDF funded project which expected to;
- Pave the way for a future Smart energy and services market within Cornwall
- Raise the profile of this emerging market with Cornwall's businesses
- Support Cornish SMEs to engage and capitalise on these new opportunities
Key Marketing Objectives

• Support the Smart Cornwall Steering Group
  – Ensure timely delivery of Smart Road Map
  – Support ongoing programme design
  – Support future investment planning
  – Maximise local business opportunities
  – Monitor economic benefit of Smart Cornwall Programme

• Ensure international partnership development & corporate engagement

• Secure Cornwall as policy & strategy test bed
Business Engagement

Cornwall’s Business Community

Market Engagement
- Direct Marketing
  - News Letters
  - Press Articles
- Smart Cornwall Website
- Event Management
  - 1:Many Events
  - Master Classes
- Business Support Referral Networks
- Business Word Of Mouth

Smart Cornwall Business Group

Business Engagement
- Co-Creation Workshops
- 1:1 Support

HE Collaboration

[Logos: Convergence for economic transformation, European Regional Development Fund, Investing in your future, CORNWALL Development Company]
Smart Goods & Services: Support key sectors understand niche markets

Engage Key Cornish Sectors

- Sustainable Energy
- Advanced Engineering
- Marine Industry
- ICT & Creative
Business Sustainability: Integrating ‘Smart demand response’

Key Cornish Industry Verticals | Market Divers
--- | ---
Food Processors | Electricity Market Reform
Quarrying | Revenue Generation (Capacity Markets)
Beverage Production | Dynamic Control
Building / Facilities Management | Security of supply against future intermittency
Supply Chains…. in the stuff we are good at

- IT
- Telecoms
- Renewable energy
- Media
- Design
- Engineering
- Consultancy
The Challenge
As a pdf this video can accessed here
Thank You