Green Industry Development and Investment Strategy

Lih-Chyi Wen
Research Fellow/Director
August, 2016
1. Background: what
2. Green Industry Development Strategy
3. Green Investment
International policy signal for green growth is very clear

- UNFCCC: COP 21 for Paris agreement and the implementation of INDCs
- WTO: negotiations on EGS
- APEC: Tariffs of 54 green EGS will be cut in 2015
“We want the low-carbon economy that continues to provide good jobs and great opportunities for all Canadians.”

• $75 million to Canadian towns and cities to “respond to pressing climate challenges” and
• 50 million investment in improve climate resilience in design guidelines and infrastructure codes.
Fossil Fuel vs. Renewable Energy

Data source: Bloomberg New Energy Finance(2016)
Global Trend of Renewable Energy

Data source: Bloomberg New Energy Finance (2016)
Global Trend of Energy Storage

Data source: Bloomberg New Energy Finance (2016)
Global Trend of Smart Grid

Data source: Bloomberg New Energy Finance (2016)
1 Methodology
Objective
Market-Driven Economic Development

To develop an efficient means for selecting companies and projects for investment in new green industries that can drive job creation and economic growth...

...at market returns, but with maximum leverage opportunity for public funds.
Roadmap: ‘Smart Industrial Farming’ of the Economy

1. Economic developers optimize economic variables:
   - Macroeconomic trends
   - Core skills and competencies
   - Investment policies (loans, subsidies, trade)
   - Workforce development
   - Attract private and institutional investors (pension funds, investment banks, FDI)

2. Companies respond to & influence industry and market variables:
   - Macroeconomic trends
   - Changing business models
   - Investor requirements
   - Supply chain shifts

KeyStone Compact Group:
Matrix-crunching software platforms for economic investment management
Why Industry Ecosystems?
They are the Basis of Industrial Renewal

Shift from linear, rigid and cost-driven value chain models of economic development, towards adaptive, value capturing, and investable business ecosystem models.

Roadmap to understand and invest in industry change for green growth
Module 2

【範例】
Part I. Mapping Emerging Industry Ecosystems

“Growth demands a temporary surrender of security. It may mean giving up familiar but limiting patterns, safe but unrewarding work, values no longer believed in, and relationships that have lost their meaning.

– John C. Maxwell, Author
Financial Network Mapping: How Does it Work?

1. Mine Bloomberg database to obtain raw supply-chain data
   - Collect company names, industry codes, and corporate financial data
   - Mine supplier, customer, and peer relationships to understand transactions

2. Re-assemble and digest mined data in a relational database
   - Automated script, query-able framework, and statistical analytics
   - Aggregate industry sector relationships using financial metrics of public companies

3. Graphically visualize the new relational database using nodal networks
   - Quantitative analysis of ecosystem using network theory principles
   - Relative positions determined through force-directed mapping algorithm

Financial Network Mapping: Step 1. Bloomberg Supply Chain Data

1. Supply chain data focus on money flows between companies on both a customer (revenue) and supplier (cost) basis. They help to predict changes in a company’s business based on events in its supply chain.

2. Bloomberg employs both human and computerized methods to aggregate publicly disclosed data. Because this data set is incomplete, Bloomberg also provides proprietarily quantified supply-chain data. This proprietary data consists of two types: 1) mathematically derived, and 2) algorithmically derived.

Start with a dozen companies -> uncover 100s of supply chain companies and industry sectors -> 1000’s of financial relationships

1. Aggregate industry sector relationships (based on existing individual corporate relationships): Software companies, telecoms, IT, consumer electronics, car manufacturers

2. Aggregate financial exposure metrics (% COGS; % SG&A; % revenue, % EBITDA) by industry sector
Financial Network Map: Step 3. Visualize Dataset – Example Smart Mobility

Data Set:
129 Industry Sectors
666 Companies
713 Sector Relationships
3140 Total Relationships

Figure courtesy of D. Assanis 2015. Produced under Ford URP awarded to P. Adriaens and S. Zielinski
Financial Network Map:
Step 4. Interpreting Maps Using Network Theory

- **Node**: A single GICS (Global Industry Classification System) industry sector
- **Node Size & Label**: Indicator of the node’s centrality in the network (betweenness centrality metric)
- **Node Color**: Industry sector average EBITDA margin – a measure of core operating profitability
- **Edge**: Directed transactional relationship between two industry sectors
- **Edge Thickness**: Averaged relative magnitude of financial exposure of the companies in these relationships (one company’s revenue is the other’s direct or indirect cost)
- **Distance between the nodes**: Indicates the relative centrality of the industry segment relative to all other segments


Note: Anchor and Catalyst Industries were defined as part of the Tekes FiDiPro project awarded to ETLA, The Research Institute of the Finnish Economy, and Peter Adriaens, Ross School of Business. This was published as an ETLA brief.
Financial Network Map:
Step 5. Smart Mobility Industry Sectors (GICS)

Types of Nodes in the Industry structure (based on network centrality):

- **Anchor industries** Closely integrated supply/value chains
- **Catalyst industries** Cross-industry supply/value chains

Data: Bloomberg
Financial Network Map:
Step 6. Select SMEs (NACE) from Country Databases

Automobile
Valmet
Veho Group Oy Ab
Atoy Oy
BRP Finland Oy
Pegasor Oy
Kabus Oy

Application Software
Bravioz Oy
Ecomond Oy
Space Systems Finland Oy
EC-Tools Oy
Sunit Oy & Mobisoft Oy
PIEneering Oy
Infotripla Oy
E-Bros Oy
Componentality Oy
Western Systems Oy
Ajelo Oy
CGI Suomi Oy
Ixons Oyj
Eficode Oy
Ajeco Oy

IT/Management Consulting & Design
Teconer Oy
Taipale Telematics Oy
Mobinet Oy
ILS Oy
Confidex
Valpastin Oy
EXP Analytics Oy
Sito Oy
Eniram Oy
MediaMobile Nordic Oy
Conexbird Oy
Picodeon Ltd Oy
MovekoTech Oy
Coreorient Oy
Anadium Group Oy
ADA Drive Oy
Cadrin Oy
DA-Design
Ceanex
Certeum Oy

Technology HW & Storage
Teknoware Oy
EKE-Elektroniikka Oy
TechnoSmart Oy
Selmic Oy
Teiskonen Ltd., Oy
Sabik Oy Ab
SATEL Oy
U-Blox Espoo Oy
Oceanvolt Oy
Nokian Renkaat Oyj
Lumikko Oy
Siemens Osakeyhtiö
Murata Electronics Oy
Aplicom Oy
EKE Group

Logistics
Finavia Oyj
Meriaura Oy
SE Mäkinen Logistics Oy
Weegos Oy
HUB Logistics Finland Oy
Ahola Transport AB Oy
Helsingin Taksi-Data Oy
Taksiliton Yrityspalvelu Oy
Transdev Finland Oy
Logistikas Oy
ALD Automotive Oy

Wireless Telco
Helpten Oy
M-Motion Ltd Oy

Data Processing
iQ Payments

Data: Statistics Finland
Financial Network Map:
Step 7. KeyStone Compact® Analytics – Smart Mobility

Data: Bloomberg & Statistics Finland
Financial Network Map:
Similar Analysis for Smart Grid

Data: Bloomberg & Statistics Finland
Financial Network Map: Similar Analysis for Green Chemistry

Data: Bloomberg & Statistics Finland
Take Home Message:
How Strong are Your Economic Assets in Different Industry Sectors?

1. Financial network maps using financial metrics and value chain information allow for understanding of global and regional thematic industry structure.

2. Network theory provides insights in how industry sectors are positioned in emerging industries (anchor vs catalyst).

3. Industry classification codes allow us to test how your companies are positioned in thematic industry structures.

4. Multi-asset renewal funds are focused on investing in industry ecosystems/clusters, instead of individual companies only.

5. The view has to be export-oriented, market driven, and aimed at attracting foreign direct investment (FDI).
Part II. Company Assessment
Value Capture and Investment Grade

“We are in danger of valuing most highly those things we can measure most accurately, which means that we are often precisely wrong rather than approximately right.”

– Sir John Banham,
Director General of the Confederation of British Industry
Business Model Investment Risk:
KeyStone Compact®

**Business Model**

- Debt
  - Risk debt
  - Illiquid credit
  - Supplier/buyer credit

- Equity – traditional
- Equity – cash flows
- Corporate investment
- Project finance

**Return on Investment (ROI) expectations**
Non-Financial Risk: Difficult to Quantify – Important Risk Factor

KeyStone Compact® addresses non-financial risk

The remainder (25%) is financials.
Basic Tenets of Methodology: Empirical Research from 600 Businesses

1. The strength and investment grade of a company in a particular industry value system depends on the type of activity the company is engaged in.

2. The value capture (retention of value) position depends on how the company’s capabilities (IP, team, skills) can be leveraged in the value chain, relative to competition, partners, and buyer/supplier networks.

3. The investment grade of the company depends on the upside potential to the investor, and the speed/capital efficiency at which the company can be scaled.
Stress-Testing the Business Model: KeyStone Compact® Emerging Business®

INDUSTRY VIEW

**COMPLEMENTARY CAPABILITIES**

**SPECIALIZED**
- UNCLEAR VALUE CAPTURE STRUCTURE: Narrow Business or Partner with and/or Licence to C.A holder
- WEAK BUSINESS POTENTIAL
- NICHE BUSINESS POTENTIAL

**GENERIC**
- STRONG HIGH-GROWTH NEW BUSINESS POTENTIAL

**YOUR CURRENT CAPABILITIES**

**SPECIALIZED**
- INCREASINGLY DIFFICULT TO REPLICATE

**GENERIC**
- INCREASINGLY EASY TO APPROPRIATE

IDENTIFY «KNOBS & LEVERS»

TO DRIVE GROWTH

INVESTOR VIEW

**VALUE CAPTURE RATE / CAPITAL INVESTMENT**

**HIGH**
- PATIENT CAPITAL INVESTABLE VENTURE
  - Creative / non-traditional financing.
  - TRADITIONAL EQUITY INVVESTABLE VENTURE

**LOW**
- BOOTSTRAPPING AND NON-DILUTIVE FINANCING
  - NON-EQUITY INVVESTABLE VENTURE
  - Bond-like annuity returns potential

**MAGNITUDE OF CAPTURABLE VALUE**

**HIGH**
- INCREASINGLY RAPIDLY-SCALABLE VENTURE

**LOW**
- INCREASINGLY CAPITAL-EFFICIENT VENTURE
Stress-Testing the Line of Business:
KeyStone Compact® Enterprise®

INDUSTRY VIEW

COMPLEMENTARY CAPABILITIES
INCREASINGLY EASY TO APPROPRIATE

SPECIALIZED
- UNCLEAR VALUE CAPTURE STRUCTURE: Narrow Business or Partner with and / or Licence to C.A holder
- WEAK BUSINESS POTENTIAL: Marginal Market Access

GENERIC
- STRONG HIGH-GROWTH NEW BUSINESS POTENTIAL
- NICHE BUSINESS POTENTIAL

YOUR CURRENT CAPABILITIES
INCREASINGLY DIFFICULT TO REPLICATE

SPECIALIZED
GENERIC

IDENTIFY «KNOBS & LEVERS»
TO DRIVE GROWTH

INVESTOR VIEW

VALUE CAPTURE RATE / CAPITAL INVESTMENT
INCREASINGLY RAPIDLY-SCALABLE VENTURE
INCREASINGLY CAPITAL-EFFICIENT VENTURE

VALUE CAPTURE RATE / CAPITAL INVESTMENT
INCREASINGLY RAPIDLY-SCALABLE VENTURE
INCREASINGLY CAPITAL-EFFICIENT VENTURE

MAGNITUDE OF CAPTUREABLE VALUE
INCREASING UPSIDE POTENTIAL

LOW
HIGH

LOW
HIGH

HIGH
HIGH

STRAIGHT
EXPANSIONAL

COMPETITIVE
OPPORTUNISTIC

Keystone Compact and Keystone Score are trademarks of the Keystone Compact Group, Ltd. All rights reserved ©
Algorithmic Risk Analysis: Data Capture, Curation, Allocation

Data Inputs:
- Assets
- Management
- Partnerships
- Firm Type
- Product
- Funding Sources
- Industry Segment
- Revenue structure

Curate KeyStone Risk Profiles

Allocate Investment Grade

Capture Aggregate Data Sources

Investment
Industry View:
Value Capture Potential

1. **Weak business potential**: The capabilities under control of the firm are far outweighed by what you need from others in the value chain; low differentiation

2. **Niche business potential**: The company can easily acquire what it needs to service market (e.g. licenses, catalog goods, data); poor differentiation

3. **Unclear value capture**: High dependency on others, but the firm has leverage because of high differentiation (‘you need your partner as much as they need you’)

4. **High growth potential**: The capabilities to grow your business depend mainly on generic supply chain needs to service your market; highly differentiated

**Typical High Value Capture**
- 0% Dependency
- 70.6% Leveragability
- 89.5% Replicability
- 88.9% Connectivity

Keystone Compact and Keystone Score are trademarks of the Keystone Compact Group, Ltd. All rights reserved ©
1. **Traditionally equity-investable**: majority ownership by investors; driven by capital efficiency, rapid scalability and significant upside potential.

2. **Creative equity financing** (‘patient capital’): minority ownership by investors; often tied to future cash flows (instead of exits) – driven mainly by value, not speed.

3. **Non-equity financing**: no investor ownership; includes project finance, convertible or structured debt; tied to annual/monthly cash flows; often involves PPP (public-private partnerships).

4. **Bootstrapping/Non-Dilutive Financing**: no external investor; often includes founder’s capital, low cost business loans, government grants, or buyer/supplier financing.

Typical Equity Investment:
- 80.0% Diversification
- 84.6% Profitability
- 80.0% Scalability
- 81.8% Capital Efficiency
KeyStone Compact® Assessment Process

1. Public Data Inputs/Sources:
   ✓ Company websites
   ✓ LinkedIn profiles
   ✓ News releases
   ✓ Crunchbase
   ✓ Financial databases
   ✓ CB Insights

2. KeyStone Compact Assessment

3. Predictive Analytics
   - Investability: DPSC Score
     - Diversification
     - Profitability
     - Scalability
     - Capital Efficiency
   - Value Capture: DLRC Score
     - Dependency
     - Leveragability
     - Replicability
     - Connectivity

Keystone Compact and Keystone Score are trademarks of the Keystone Compact Group, Ltd. All rights reserved ©
### Step 1. Financial Network Company Demographics

1. **Industry Domain** (based on Global Industry Classification Standards, GICS)
   - Telecommunication Services (communications services, fixed line, cellular, wireless, fiber optics)
   - Financials (Banks: Diversified Financials: Insurance: Real Estate)
   - Health Care (Healthcare Equipment & Services: Pharmaceuticals, Biotechnology & Life Sciences)
   - Energy (exploration and production, refining, storage, transportation, of oil, gas, coal and renewables)
   - Materials (chemicals, packaging products, metals, glass, paper, minerals and mining)
   - Consumer Discretionary (Automobiles & Components: Consumer Durables and Apparel: Consumer Services: Media: Retailing)
   - Consumer Staples (Food & Staples Retailing: Food, Beverage & Tobacco: Household & Personal Products)
   - Industrials (Capital Goods, Commercial & Professional Services, Transportation)
   - Information Technology (Software & Services: Technology Hardware & Equipment: Semiconductors & Semiconductor Equipment)
   - Utilities (electric, gas and water, including renewable generation and distribution)
KeyStone Compact® Emerging Business®
Step 2. Position for Value Capture Questions

Assets

1. The Company owns or leases physical/tangible assets.
   Y N

2. The Company's physical/tangible assets are core to business operations.
   Y N

3. The Company's physical/tangible assets are contextual (supportive, not core) to business operations.
   Y N

4. The Company owns intellectual property (IP: trademarks, copyright, patents, industrial design rights, or trade secrets)
   Y N

5. This IP is core to the business activities of the Company.
   Y N

6. The Company's success is specifically dependent on patent protection.
   Y N

7. The Company is the owner of the patent or trademark.
   Y N

8. The Company has the right to practice the invention (patent).
   Y N

9. The physical (tangible) assets are based on the intellectual property of the Company.
   Y N
Step 3. Investment Grade Questions

1. Most of the company's sales occur through on-line platforms or API (Application Programming Interface) models.
   Y ☐ N ☐

2. Most of the Company's sales require face-to-face contact to influence the buyer ("missionary sales", usually one sale at a time, e.g. power purchase agreement).
   Y ☐ N ☐

3. The Company has a recurring sales model (e.g. monthly charges, commissions) to generate revenue (i.e. that require no extra work).
   Y ☐ N ☐

4. The Company has identified multiple/diversified revenue streams (e.g. software and services, hardware and maintenance, service and data, sales and advertising).
   Y ☐ N ☐

5. The Company's sales and marketing channels are very influential in making the sale.
   Y ☐ N ☐

6. The Company's sales and marketing channels are not specific to your product or service (e.g. on-line, web-based, sales booths at meetings, etc.).
   Y ☐ N ☐

7. The sales cycle (conversion from lead to sales) of the Company's product or service is ___ months. (If less than one month, please use decimal).
   ________

8. The Company's offering is "plug-and-play" and can be integrated in your buyer's process or system.
   Y ☐ N ☐

### Value Capture
1. Value chain dependency
2. Leverage in value chain
3. Competitive differentiation
4. Industry connectivity

### Investment Grade
1. Scalability & recurring revenue
2. Upside potential/profitability
3. Market diversification
4. Capital efficiency

### Risk Adjustment

---

Keystone Compact and Keystone Score are trademarks of the Keystone Compact Group, Ltd. All rights reserved ©
KeyStone Compact® Emerging Business® Step 5. Mathematic Risk Mapping Model

Typical High Value Capture
0% Dependency
70.6% Leveragability
89.5% Replicability
88.9% Connectivity

Typical Equity Investment
80.0% Diversification
84.6% Profitability
80.0% Scalability
81.8% Capital Efficiency
GCCA 2015 Companies: Value Capture and Investment Grade

COMPLEMENTARY CAPABILITIES
INCREASINGLY EASY TO APPROPRIATE

SPECIALIZED
- UNCLEAR VALUE CAPTURE STRUCTURE: Narrow Business or Partner with and / or License to C.A holder
- WEAK BUSINESS POTENTIAL: Marginal Market Access

GENERIC
- STRONG HIGH-GROWTH NEW BUSINESS POTENTIAL
- NICHE BUSINESS POTENTIAL

VALUE CAPTURE RATE / CAPITAL INVESTMENT
INCREASINGLY RAPIDLY-SCALABLE VENTURE
INCREASINGLY CAPITAL-EFFICIENT VENTURE

LOW
- PATIENT CAPITAL INVESTABLE VENTURE: Creative / non-traditional financing.

HIGH
- TRADITIONAL EQUITY INVESTABLE VENTURE

MAGNITUDE OF CAPTUREABLE VALUE
INCREASING UPSIDE POTENTIAL

LOW
- BOOTSTRAP INVESTABLE VENTURE: Bond-like annuity returns potential

HIGH

Keystone Compact and Keystone Score are trademarks of the Keystone Compact Group, Ltd. All rights reserved ©.
Venture Grade 2015 GCCA Companies: Traditional Equity

Characteristics

1. Low dependencies
2. High industry leverage
3. Capital efficient
4. Diversified markets
5. Rapidly scalable
6. Experienced management
KeyStone Compact® Validation:
GCCA Top 30 vs TechStars

GCCA Top 30*
Traditional Equity

- Acquired 36%
- Active 46%
- Failed 18%

TechStars 2011**
Graduates (59)

- Acquired 24%
- Active 61%
- Failed 15%

*Top-30 equity investable companies out of an average pool of 150-250 companies; tracked since 2011
**TechStars is a global accelerator program
Part III. Interpreting KeyStone Analytics
Example: Finnish Smart Grid Companies

“However good our futures research may be, we shall never be able to escape from the ultimate dilemma that all our knowledge is about the past, and all our decisions are about the future.”

– Ian Wilson, Scenario planning expert
3

Developing Business Model
Green Solutions
Deployment
Preliminary Results of The Survey
Type of Company

Green energy industry Distribution Pattern

- Hydrogen and Fuel Cell: 56%
- Solar photovoltaic: 11%
- Biofuel: 22%
- Energy Information and Communication: 11%
- Other: 11%

89% small enterprises

- More than 300 employees: 11%
- 49 employees or less: 89%

89% completely domestic Investment

- 100% Domestic Investment: 89%
- Overseas Chinese and foreign joint venture: 11%

67% companies younger than 10 years

- Less than 5 years: 33%
- 5 years to 10 years: 22%
- 10 years (or more): 45%
Financial Security

67% non-public fund-raising

11% sufficient funds

Nearly half of the non-spot transactions

- Public fund-raising
- Non-public fund-raising

- Insufficient funds
- Sufficient funds

- Mostly cash transactions
- Mainly based on the non-spot transactions (check, credit card, etc.)
- No specific pattern
Products Patterns

Mainly Type Company Products (hardware)

- Systems integration facility: 44%
- Components: 22%
- Electricity: 22%
- Machinery equipment: 44%
Most market competition is moving toward relaxation

- There are distinct market competitors
- Market competition is moving toward relaxation

The reasons of market competition is moving toward relaxation:

- High market entry barriers: 67%
- Few market entrants due to emerging markets: 50%
- Companies with segments of products/services: 17%
Sales

56% sale abroad

The self-assessment of marketing results

- Ineffective marketing
- Normal marketing effect
- Marketing effect is significant, but still below expectations
- Marketing effect is significant, even beyond expectations
Business Partnerships

The situation of business partnerships

- No business partnerships: 22%
- Operating business partnerships: 78%
- 11% are cooperation with upstream and downstream third-party (suppliers, service providers, etc.)
- To become collaboration party of large enterprises: 67%

Business impact of the strategic partnerships

- The company's strategic partnerships are very important in technology licensing / R & D: 43%
- The company's strategic partnerships are very important in products / services sales: 57%
Intangible Assets (1)

The importance of intangible assets:
- High important for production: 33%
- High important for sale: 67%

The main types of intangible assets:
- Trademark: 22%
- IP: 56%
- Non-patent technology: 56%
Intangible Assets (2)

Commercial feasibility of Intangible assets for sale or use

A: percentage of R&D expenditure

- A < 5%, 11%
- $A \geq 2/3$, 22%
- $1/2 \leq A < 2/3$, 22%
- $5% \leq A < 1/3$, 33%
- $1/3 \leq A < 1/2$, 11%

- Commercially feasible, but low return: 44%
- Not yet for commercial operation: 56%
Human Resources (1)

A: percentage of full time employment

- A < 1/3: 0%
- 1/3 ≤ A < 1/2: 11%
- 1/2 ≤ A < 2/3: 0%
- A ≥ 2/3: 89%

Y: Staff’s main age

- Y < 30: 11%
- 30 ≤ Y < 40: 89%
- 40 ≤ Y < 50: 0%
- Y ≥ 50: 0%
44% Surveyed enterprises have permanent boards of advisors.

78% Surveyed enterprises’ management include experts in the same industry.

78% Surveyed enterprises’ management include ENTREPRENEURS.
Human Resources (3)

Staff’s Competence

- 22% Most employees can start work without training
- 22% Some employees need pre-employment training
- 56% Most employees need pre-employment training

Staff’s main educational backgrounds

- Mostly Bachelor degree: 56%
- Mostly Master degree: 22%
- Mostly high school graduates: 22%

Staff educational training

- Hold regularly: 22%
- Not hold regularly: 56%
- No training: 22%
Strength And Challenges

The biggest ADVANTAGE

- Company scale is growing 11%
- Company has strong intangible assets. 33%
- Company has high competitive products or service. 56%

The biggest CHALLENGE

- Government policy as impediments 45%
- Lack of industry infrastructure 22%
- Lack of parts supplier 11%
- Lack of talents 11%
- Market has not yet formed 11%
policy advices (1)

All (100%) Surveyed enterprises suggest add or amend policy infrastructure

Policy Supporting

- has incentives or grants 22%
- No legislation or lack of policy instruments 78%

Policy Suggestions

- Legislation or amend laws: 67%
- Grants: 33%
- Tax incentives: 22%
78% Surveyed enterprises hope to increase renewable energy options in the energy market to help their business

- Service-oriented frameworks for intelligent building management: 11%
- Value-added services for energy consumption data: 11%
- Electricity liberalization: 44%
- Holding distribution channel relationships: 11%
- Brand driving: 44%
- Promoting Demand Response: 11%
- Increasing renewable energy options in the energy market: 78%
- Promoting regional energy autonomy: 44%
- Promoting Aggregator system: 22%
Conclusions

1. Most surveyed Taiwan green energy enterprises are young, small and totally domestic capital with delicate financial security.
2. Most surveyed enterprises export their products and gain revenue, but gross margin (毛利率) is generally lower than 20%.
3. Most surveyed enterprises need business partnership, mainly in cooperation with upstream and downstream third parties.
4. Most surveyed enterprises face mild competition in the market because of their relative high competitiveness, but lack of policy legislation, incentives and industry infrastructure are their biggest challenges.
5. Most surveyed enterprises hope to increase renewable energy options in the Taiwan energy market to help their business expansion.