

# NSG

GROUP



# **NSG Group Long-term Strategic Vision and Medium-term Plan**

**15 May 2014  
Nippon Sheet Glass Co., Ltd.**

## Introduction



- **Long-term Strategic Vision**
  - Our strategic vision is to transform the NSG Group into a **VA Glass Company**
  - This is the core concept of our strategy and the basis for our longer-term growth plans
- **Medium-term Plan (MTP)**
  - Sets the course of the NSG Group for the next four years

The top level objectives of our new MTP are to:

1. Achieve financial sustainability
2. Further develop the NSG Group's position as a VA glass company immediately from today

Strategic vision set on course with start of new MTP

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We are launching our Medium-term Plan, covering FY2015 to FY2018; that is the period from April 2014 to March 2018.

The MTP is intended to carry forward the Long-term Strategic Vision of the company, which is to transform the NSG Group into a VA Glass Company. This is the core concept of our strategy and the basis for our longer-term growth plans.

The top level objectives of our new MTP are: first and foremost, to achieve financial sustainability. Second, we intend to further develop the NSG Group's position as a VA glass company.

We will build on the progress of the past few years to make our company more agile, responsive, pro-active and creative.

Our strategic vision addresses the global trends in our industry and the wider economy. In most segments related to our business there is over-capacity in commodity products globally. New competitors, particularly those based in emerging economies, are keen to find opportunities for their own global expansion.

Therefore, staying with a conventional business model and products no longer assures profit. Market demands are moving more quickly than ever toward more quality-driven and sophisticated requirements. This means an increasing demand for advanced offerings in various sectors, including glass.

### VA Glass Company

Our aim is to:

- Consolidate our trusted reputation as a glass specialist
- Work closely with our customers in a range of global industries to deliver unique value through our products and services
- Transform our flat glass business, moving from traditional business model towards one increasingly focused on VA

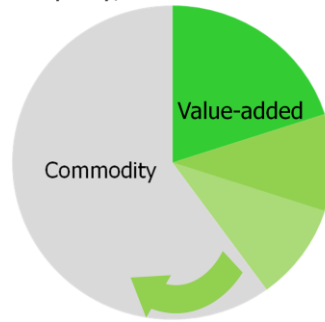
Aim is to pursue business with focus on value-added

We intend to remain a glass specialist, but our core strategic direction will shift increasingly from commodity products to Value-Added products. We will consolidate our trusted reputation as a glass specialist. We will be working closely with our customers in a range of global industries to deliver unique value through our products and services.

### Aim to be a VA Glass Company

To transform ourselves into a VA Glass Company, we will become:

- Less asset-intensive;
- Less cyclical, with greater agility; and
- A more profitable glass business



Accelerating shift to a Value-added (VA) product portfolio

Accelerating our shift to a value-added (VA) portfolio, we will become less asset-intensive, less cyclical, with greater agility, and a more profitable glass business. The ratio of value-added products in our sales mix will increase.

**MTP Evolution**

- Successful restructuring has restored profitability, helping create a leaner, lower cost organization to implement the MTP
- NSG well-positioned to capitalize on improvements in the global economy, with a balanced global footprint and business mix
- MTP focused on achieving financial sustainability, transitioning to strategic growth in longer term, based on value-added products and services
- Experienced management team, with strong leadership, aiming to create shareholder value, through ambitious but attainable financial targets

NSG well-positioned to move to next stage of development

**Rightsizing complete, establish financial stability and then growth**

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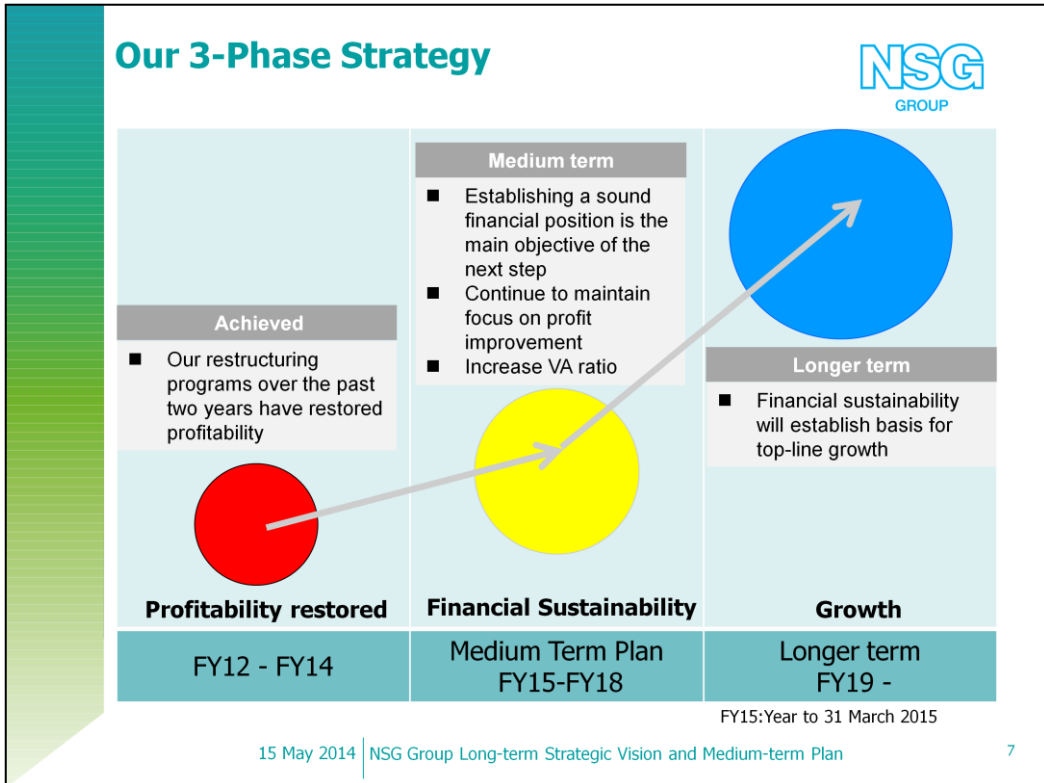
Our successful restructuring has restored profitability, helping to create a leaner, lower cost organization that will implement the MTP.

With our rightsizing completed, we aim to establish financial stability as a foundation for future growth.

The NSG Group is well-positioned to capitalize on improvements in the global economy, with a balanced global footprint and business mix.

The Medium-term Plan will carry forward our long term vision and represents the next stage of our development. It is focused on achieving financial sustainability, transitioning the Company to strategic growth in the longer term, based on value-added products and services.

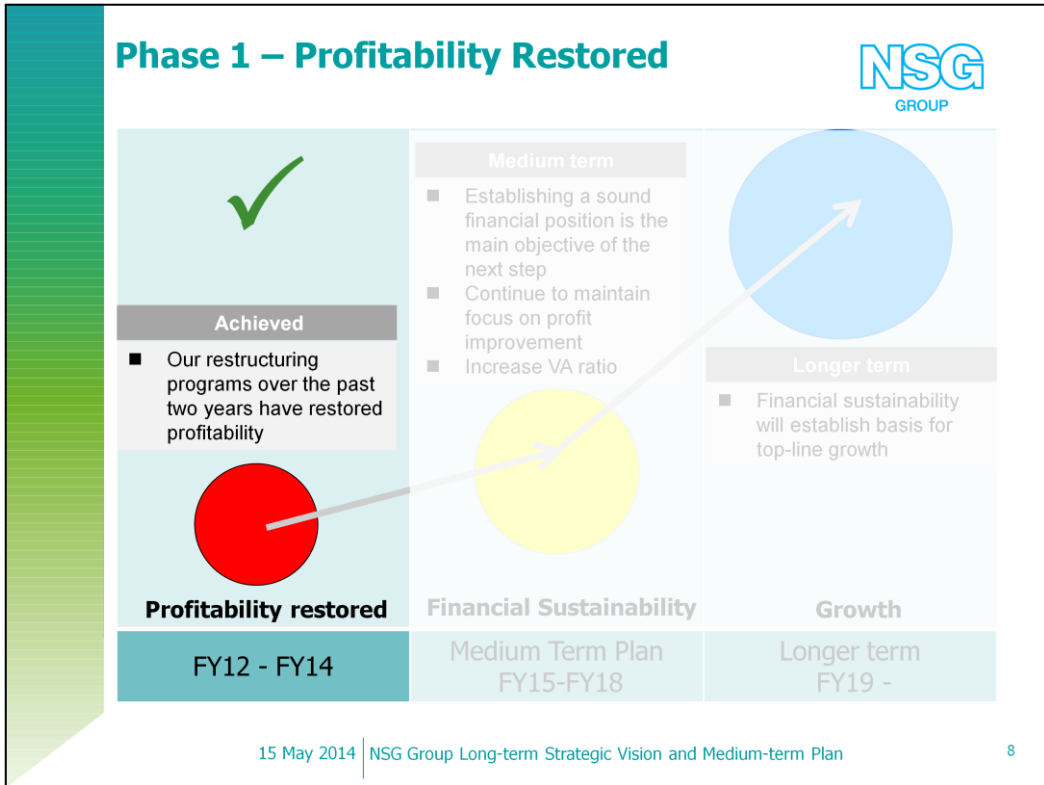
We have an experienced management team, with strong leadership, aiming to create shareholder value, through ambitious but attainable financial targets.



The MTP represents the second phase of the three-phase overall strategy of the Group.

These are our time horizons, starting from the short term in Phase 1, the current financial year to the start of FY15, in which our focus has been on restoring profitability.

The main emphasis is on Phase 2 - the medium term from FY15 to FY18, the period covered by the MTP. We of course have ideas for top-line growth in the period beyond this, Phase 3.



We are at the end of Phase 1, in which the restoration of profitability was successfully achieved. Our aim will be to ensure that the positive actions on profit improvement extend into our future activities.

We continue to review actions to manage our capacity and improve profitability, examining all aspects of our current asset base.



## Phase 1 – Restructuring Outcome



### Capacity rationalization and plant closures

→ removed under-utilised assets

### Overhead cost reduction

→ reduced break-even point

- 5 Float lines closed (or mothballed)
- Automotive Glass plants in Sweden and Finland closed
- Architectural Glass downstream – 8 sites closed
- Significant reduction in overhead costs
- Headcount reduction of around 6,000 people

### Strong cash focus

- Significant improvement in working capital
- Capital expenditure maintained below the level of depreciation
- Selective disposals of non-core assets and financial investments

### Organizational change, Cost reduction

- Enhanced regional ownership to execute and implement strategy
  - Implemented operational cost savings
  - Continued manufacturing excellence initiatives

**Leaner, lower-cost company to implement MTP**

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Our successful restructuring has restored profitability, helping to create a leaner, lower cost and more focused organization to implement our MTP.

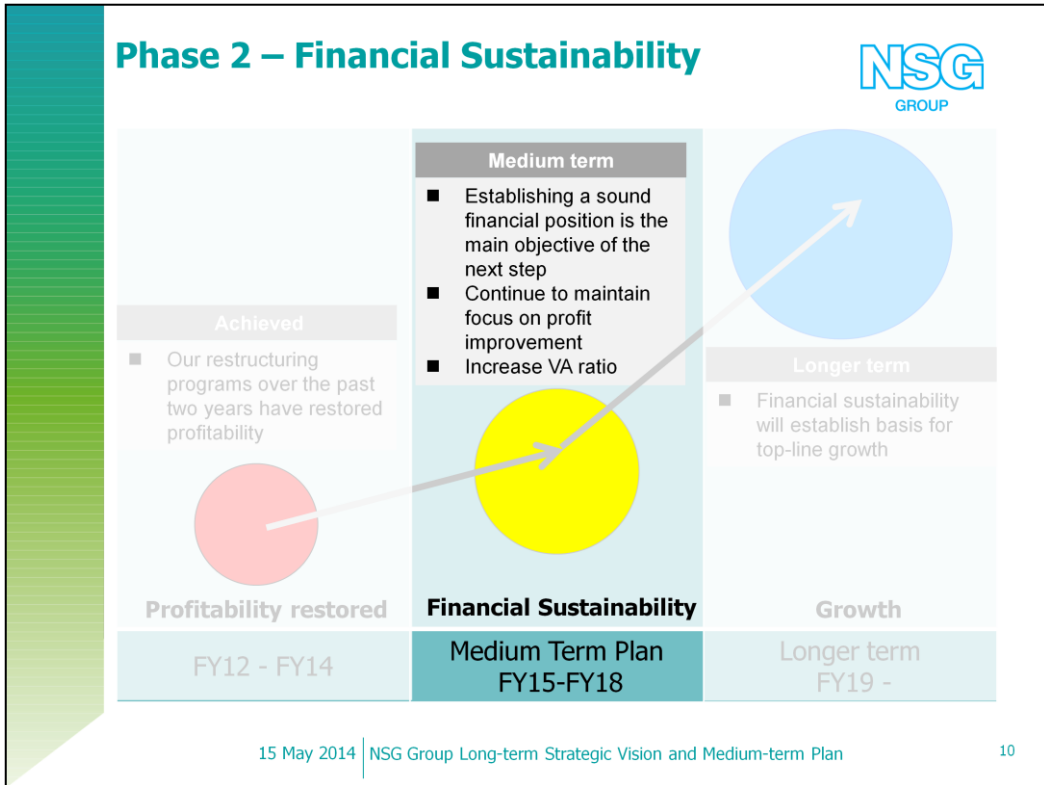
Our restructuring programs over the past few years have improved profitability and enhanced operational efficiencies. The measures included capacity rationalization, plant and site closures and the removal of under-utilized assets. We reduced headcount by around 6,000 people and cut overhead costs.

The strong cash focus of these programs has produced a significant improvement in working capital. Capex has been maintained to around the level of depreciation. We have selectively disposed of some non-core assets.

Organizationally, we have moved to regional ownership and a market-facing approach. This model has proved successful in promoting agility and flexibility and enhancing market awareness and development.

The definition of “value-added” may differ region by region, business by business. Each SBU and region must find value-added products or services suitable to the unique demands of the market they serve. The key requirement is that they must enhance profitability.

From a mid-point of Phase-1, we have been globally implementing thousands of themes of actions with various sizes, from small to large, so as to achieve operational cost savings. Those efforts were successfully done and targeted outcome was realized. They include some important themes which will be linked to the major action items planned in Phase-2. Those themes are the basics for manufacturers, which should be strengthened to achieve manufacturing excellence. Later in this presentation, I will supplement this point some more.



So, let us look now at Phase 2, the period covered by the MTP for FY15 through FY18.

Over the course of the MTP, our main objective is to establish financial sustainability. We will continue to maintain the focus on profitability, building on the progress we made in Phase 2. And we will also increase the ratio of value-added products in our sales mix.

## MTP (FY15-18) : Target and Action Plan



- Target
  - Achieve financial sustainability
  - Start transformation into a VA Glass Company
- Financial Target
  - Net debt / EBITDA : 3x
  - ROS: 8%\*
- Action Plan to achieve target
  - Increase in value-added product share
  - Maximize utilization of existing assets
- Approach
  - Architectural + Automotive : improve profitability
  - Technical Glass: grow with existing businesses and new products, focus on R&D

\*Operating Profit before amortization and exceptionals

Establish financial sustainability and start transformation into VA Glass Company

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The establishment of a sound financial position is the main objective of the next step, recognising that our options are limited by our financial constraints.

How are we defining financial sustainability? We need to produce a net debt to EBITDA ratio of 3 times and an overall return on sales of 8 percent.

We will increase the value-added product share and maximize the utilization of our existing assets.

In Architectural and Automotive, the main focus will be on profitability improvement. In Technical Glass the aim is to grow with the existing businesses and new products, with a focus on R&D.

## FY2018 Expectations

### FY2018 Main Financial Targets

- Net Debt/EBITDA : 3x
- Return on Sales : 8%\*

\*Operating Profit before amortization and exceptionals

### Glass growth assumptions

- Developed economies: slow recovery
- Emerging markets: moderate growth

### FY2018 projected outcomes (JPY bn)

	FY2014 ↓
• Revenues: >=670	( 606)
• Operating Profit: 60*	( 22)
• EBITDA: 100	( 54)
• Net Debt: 300	( 379)
• ROE : >=10%	

Anticipate significant profit and financial position improvement by FY18

This slide summarises our expectations for FY2018. We anticipate significant improvements in our profit and financial position by the end of the MTP.

Our main financial targets are confirmed. The projected outcomes for the MTP period are to achieve the following - revenue of 6,700 oku; operating profit of 600 oku; EBITDA of 1,000 oku and net debt of 3,000 oku.

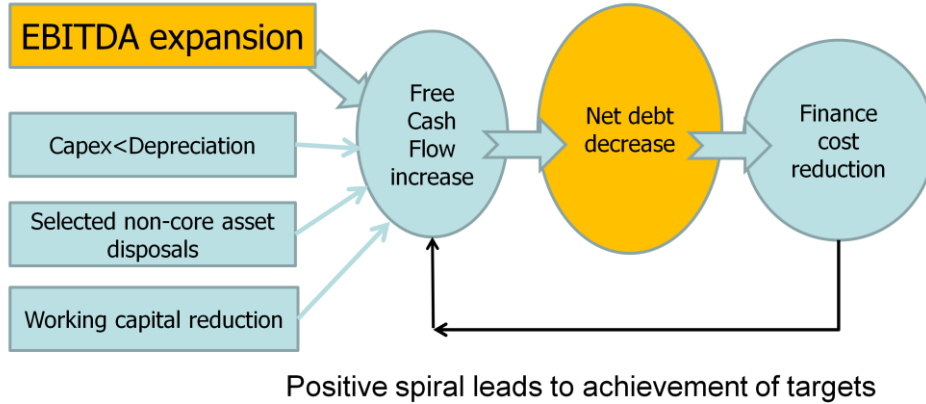
We plan to achieve a return on equity in excess of 10 percent by FY2018.

On the macroeconomic level, we are assuming continuing slow recovery in developed economies and moderate growth in emerging markets.

Efficiency and cost improvement will continue, as our sales mix shifts increasingly from commodity to value-added.

## Strategies to achieve targets - Finance Strategy

Target Net Debt/EBITDA : 3x



Improve financial position

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These are the elements of our financial strategy to achieve the target of a net debt to EBITDA ratio of 3 times. The objective is an expansion of EBITDA and a net decrease in our overall debt levels.

The actions we have taken and will take on Capex, disposals and working capital reduction will provide an increase in cash flow.

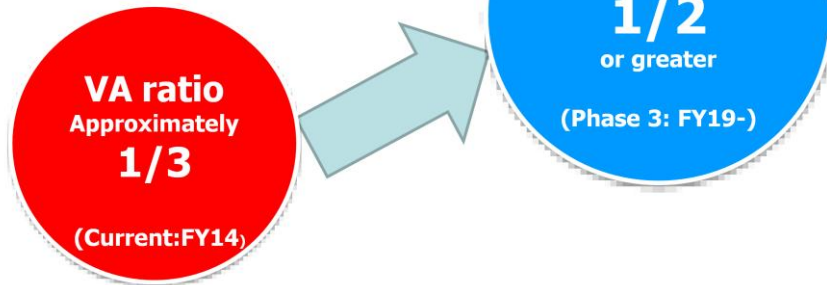
Improved profits will enable us to pay down debt with those profits and in four years, the debt level will become healthier.

## Strategies to meet targets - Business Strategy

### Accelerating shift to VA products

Proportion of VA products in total sales

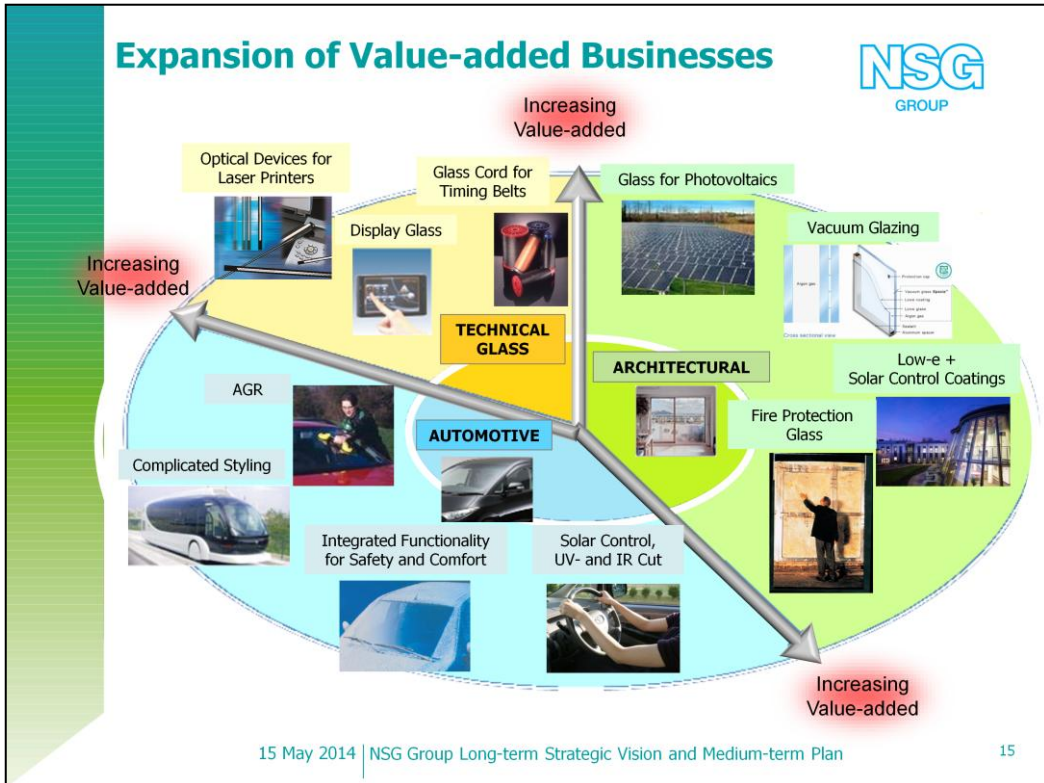
Architectural Glass + Automotive Glass(OE) + Technical Glass



Steady increase in VA ratio

Our aim is to accelerate the shift to VA products, increasing the ratio of VA products in our total sales from around a third now to half in Phase 3, from FY19.

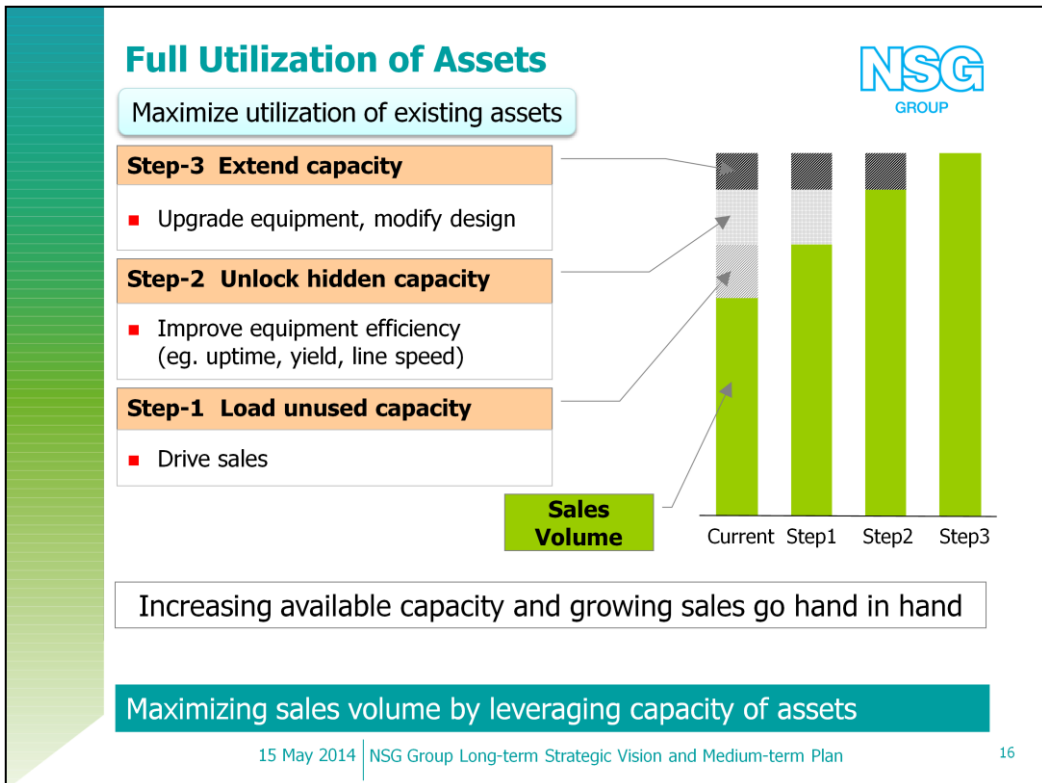
Commodity products are still important. The process of increasing our VA sales mix will take many years. This means we will continue to utilize commodity market volume to fill our capacity. What matters is that we choose the right options to maximize the sales income achievable from our current asset base.



The growth sector within the glass and glazing markets is for more value-added products containing greater complexity and functionality.

NSG already has a wide range of value-added products, not only in our Technical Glass business unit but also in our Architectural and Automotive units.

Our plan is to continue to move each of the businesses from their current core activities out towards the edge of this diagram, with increasing value-added. We will hear more of these plans by strategic business unit later in this presentation.



Capacity utilization is a key focus area. Increasing available capacity and sales volume go hand in hand.

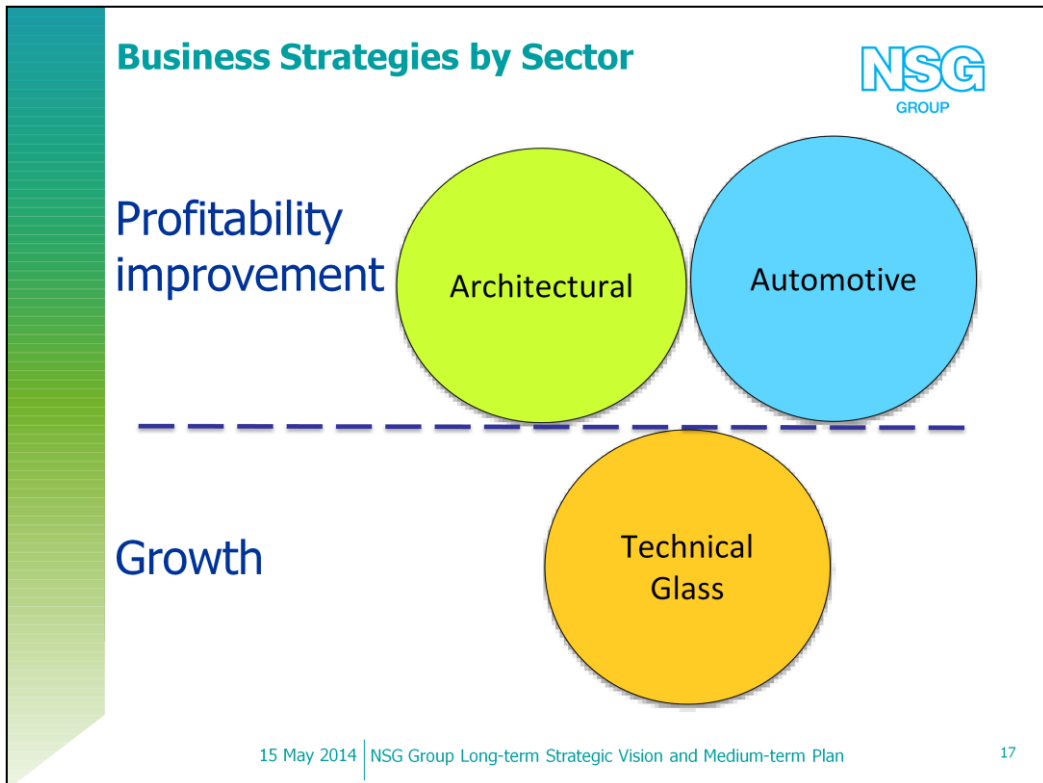
In those of our lines where capacity is not currently full, we look for every opportunity to fill them and to drive sales.

In addition, we are always seeking opportunities to find and use any hidden capacity; even on lines currently filled with business volume.

Every improvement, in downtime, flow rate or yields, enables us to increase maximum capacity for our lines and to absorb more business volume.

Where necessary, we will upgrade and modify equipment to increase our capability to deliver VA products.





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We will continue to execute our strategy through a market-facing regionally organized business based on our Architectural, Automotive and Technical Glass Strategic Business Units.

Architectural and Automotive are focusing primarily on profitability improvement.

Technical Glass aims to grow with both its existing businesses and new products.

## Focus on Architectural



- Market Expectation
  - slow recovery in EU, good demand in North America, legislation- driven value growth in Japan, with good growth, but volatility in emerging markets
- Business Strategy
  - maximum utilization of existing assets
  - capability upgrades to handle increase of VA products
- VA Approach
  - exploitation of leading technologies (online/offline coating, fire protection, vacuum glazing) for energy saving and conversion
  - increased share of industrial applications (solar, lighting)

Sales recovery, full utilization and mix improvement

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In Architectural markets, we expect slow recovery in the EU, good demand in North America, legislation-driven value growth in Japan, We expect good growth, but with volatility, in emerging markets.

Our business strategy is to maximize the utilization of our existing assets, with capability upgrades to handle the increase of VA products.

We will be exploiting our leading technologies (online and offline coating, fire protection and vacuum glazing) for energy-saving and energy conversion products. We intend to increase our share of industrial applications such a solar energy and new lighting technologies.

## Architectural by Region



- Europe:
  - meet advanced functionality needs
    - Super thermal insulation, fire protection, aesthetics and design
- North America:
  - exploit online coating technology, expand into non-architectural markets
    - Glass for photovoltaics and large displays, aesthetics and design
- Japan:
  - meet demand for eco-glass from energy efficiency building regulations
    - Vacuum glazing, low-e, glass for photovoltaics, aesthetics
- Rest of World:
  - respond to regional requirements
    - Mirror, tinted glass, laminates, double-glazing

Higher performance requirements everywhere – but different

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Regionally, in Europe, our emphasis is on meeting advanced functionality demands, including super thermal insulation and fire protection, as well as products promoting aesthetics and design.

In North America, we intend to exploit our online coating technology, expanding into non-architectural sectors. In this market, glass for photovoltaics and large displays will feature, as well as those for aesthetics and design. In Japan, our challenge is to meet demand for eco-glass from energy efficiency building regulations. Vacuum glazing and low-e glass will play an important role.

In the rest of the world, we will respond to regional demands for mirror, tinted glass, laminates and double-glazing products.

## Focus on Automotive



- Market Expectation
  - OE: slow market recovery in EU, steady growth in North America, stability in Japan, good growth in Emerging Markets
  - AGR: moderate, but steady growth
- Business Strategy
  - maximize utilization of existing assets
  - capability upgrades to handle increase of VA products
  - operational flexibility to cope with variability of demand
  - continuous cost down to compensate inflation
- VA Approach
  - focus on additional functionality (Solar control, UV-IR Cut, light weight, integrated electronic features)
  - enhanced service offering in AGR

Sales recovery and mix improvement

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In Automotive OE, we expect to see slow market recovery in the EU area, steady growth in North America, stability in Japan and good growth in emerging markets. In AGR, we anticipate moderate, steady growth.

Our business strategy is to maximize utilization of our existing assets, with capability upgrades as required to handle the increase in VA products.

We will require operational flexibility to cope with variability of demand and continuous cost-down actions to compensate for inflation.

In Automotive, our VA approach is to focus on additional functionality (Solar control, UV and IR cut products, lightweight glazing and the incorporation of integrated electronic features). We will aim to enhance our service offering in AGR across all our markets.

## Automotive by Region



- Europe:
  - load remaining facilities with recovering demand
  - benefit from advanced, integrated facility in Poland
- North America:
  - improve operational performance to improve returns from ongoing high demand
- Japan:
  - promote UV cut and IR cut products
  - cooperate with leading OEMs in developing advanced glazings
- South America:
  - market growth will be absorbed, capacity utilization will grow

Improved operation and growing VA share to drive regional profits

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Looking at Automotive by region. In Europe, the priority will be to load our remaining facilities to meet recovering demand. We will benefit from our new advanced, integrated facility in Poland.

In North America, our focus is on improving operational performance to maximize returns from the ongoing high demand.

In Japan, UV and IR cut solar control products will form an increasingly important part of our sales mix, as we cooperate with leading OEMs in developing advanced glazings.

In South America, market growth will be absorbed and capacity utilization will grow.

## Focus on Technical Glass



- Market Expectations
  - strong technology-driven growth in electronic and optical glass applications
  - steadily growing demand for more sophisticated car engine parts (timing belts, battery components)
- Business Strategy
  - work in close co-operation with technology partners and customers
  - develop existing product range in line with technology development
  - launch new innovative products in core and adjacent sectors
  - exploit own technologies for new applications
- VA Approach
  - increase investment in R&D
  - focus on thin glass, advanced compositions, optical and opto-electrical technology and special glass fibers

Technology-driven growth with enhanced and new products

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In Technical Glass, our market expectations are for strong technology-driven growth in electronic and optical glass applications. This will be accompanied by steadily growing demand for more sophisticated car engine parts (such as timing belts and battery components).

Strategically, we will continue to work in close co-operation with our technology partners and customers to develop our existing product range in line with technology development. We will also launch new innovative products in core and adjacent sectors and exploit our own technologies for new applications.

Meeting our VA targets will require an increase investment in R&D. Our focus is on thin glass, advanced compositions, optical and opto-electrical technology and special glass fibers.

## Technical Glass by Division



- **Display:**  
thin glass market continues to grow because of expansion of touch panel applications
  - Vietnam Ultra Fine Flat float line in full scale production from October 2014
  - new composition for competitive solutions in advanced cover glass segment
- **Information Device:**  
Office-use printer market continues to grow
  - increasing demand for LED type printers with Selfoc Lens Array®
  - new optoelectronic products in development
- **Functional Products:**
  - glass cord: growing share of rubber belts in car engines
  - higher performance batteries require enhanced separators

Revenue and profit growth in all divisions

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Looking at Technical Glass by division. In Display, the thin glass market continues to grow because of the expansion of touch panel applications. Our new Ultra Fine Float line in Vietnam is due to start full-scale production from October 2014.

We are working on new compositions to produce competitive solutions in the advanced cover glass segment.

In Information Device, the office-use printer market continues to grow. There is increasing demand for LED-type printers with our proprietary Selfoc Lens Array, and we have new optoelectronic products in development.

In Functional Products, use of our glass cord is growing in rubber timing belts in car engines. Stop/Start engine management systems require higher performance batteries with our enhanced separators.

## MTP Resource Allocation



- The Group expects Capital Expenditure in the period covered by the MTP to be below depreciation
- New developments in R&D productivity will support delivery of the MTP, with the Group's R&D effort increasingly focused on the next generation of VA products and services

The Group expects to invest around 350 oku in R&D during the course of the MTP

Capex below depreciation. R&D investment to support MTP delivery

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We expect Capital Expenditure in the period covered by the MTP to be below depreciation.

New developments in R&D productivity will support delivery of the Plan, with our R&D effort increasingly focused on the next generation of VA products and services. The Group expects to invest around 350 oku in R&D during the course of the MTP.



## MTP Summary

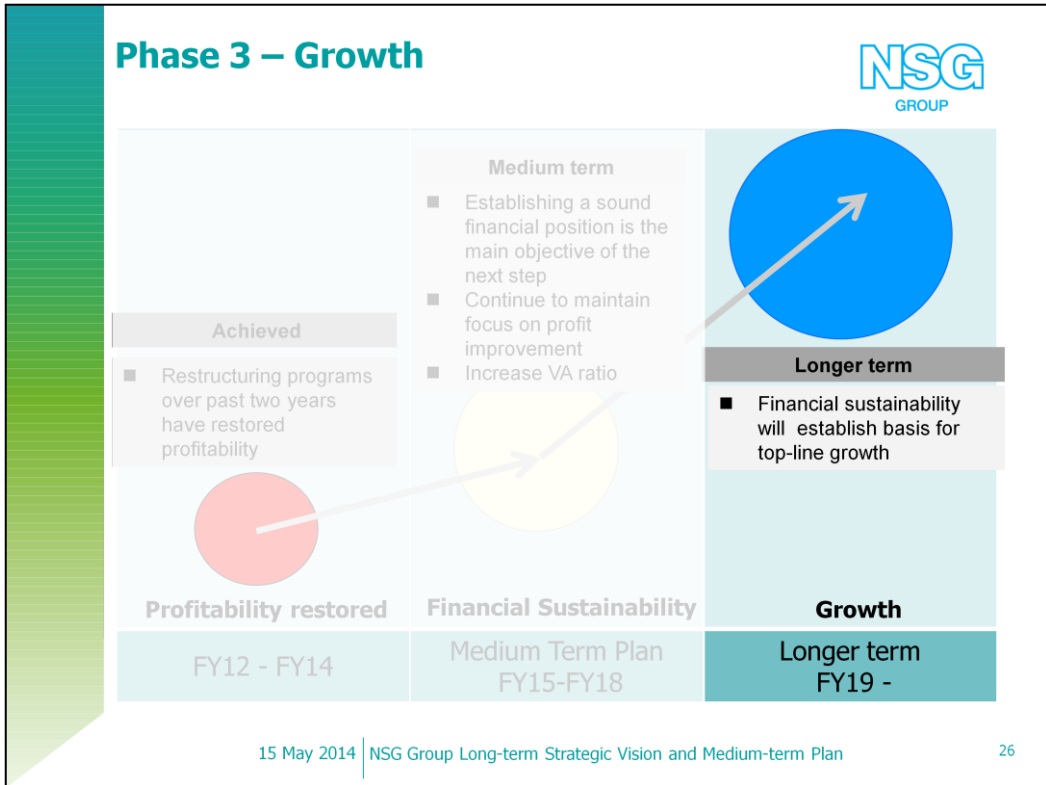


1. Strategic Vision      Grow profitably as a VA Glass Company
2. MTP Framework      (From April 2014 to March 2018)
  - Objectives      • First priority is to achieve financial sustainability
  - Direction      • Transition from a restructuring to growth phase
  - Focused on enhancing operational performance, increasing profitability and creating a more financially stable Group
  - Financial Target      • Net Debt/EBITDA : 3x (FY2014:7x)
  - Return on Sales : 8%\*
  - Strategy      • Increasing shift to value-added products
  - Full utilization of existing capacity
  - Consolidating our reputation for manufacturing excellence (cost, quality)
  - Selective Capex (less than depreciation)
  - Macroeconomic background      • Developed countries: slow and steady recovery,
  - Emerging countries: moderate growth but at a subdued pace

\*Operating Profit before amortization and exceptionals

Enhancement of profitability and operational performance

This slide summarizes the MTP framework, designed to carry forward the Group's long-term strategic vision through to March 2018, achieving financial sustainability and enhancing profitability and operational performance.

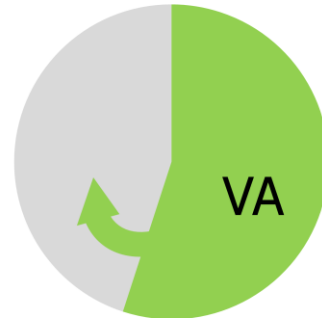


Financial stability will provide the foundation for top-line growth in Phase 3, after FY 18.

## Phase 3 - Growth



- Further strengthen financial foundations
- Capability to proactively invest in growth opportunities and R&D
- Create highly value-added products in architectural, automotive, technical glass and new business creation
- Products with leading positions in semi-niche segments, that provide unique functionality and technical properties
- VA ratio of sales to be more than 50%
- Less cyclical as an entire business model
- A group structured with a lighter asset base and higher profitability



Growth will follow margin improvement, built on solid foundations

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Our intention is that in Phase 3, after FY2019, growth will follow margin improvement, built on further strengthened financial foundations. By FY19, we will have enhanced our capability to proactively invest in growth opportunities and R&D.

We will create highly value-added products in Architectural, Automotive and Technical Glass, with new business creation. We have, and will develop further, products with leading positions in semi-niche segments, that provide unique functionality and technical properties.

We aim for our VA ratio of sales to be more than 50 percent by FY19, with a less cyclical business model. As a VA Glass Company, the NSG Group will have a lighter asset base and higher profitability.

## Key Points



- MTP focused on achieving financial sustainability, transitioning to strategic growth in longer term, based on value-added products and services
- Successful restructuring has restored profitability and helped create a leaner, lower cost organization to implement the MTP
- NSG well-positioned to capitalize on improvements in the global economy with a balanced global footprint and business mix
- An experienced management team, with strong leadership, committed to creating shareholder value, with ambitious but attainable financial targets
- Overall aim is enhancement of profitability and operational performance

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In conclusion, our MTP is focused on achieving financial sustainability, transitioning to strategic growth in the longer term. We intend to increase the proportion of value-added products in our total sales.

We are building on solid progress made during the restructuring of the past few years, which enabled us to restore profitability and has produced a leaner and lower cost organization.

We believe we are well positioned to capitalize on improvements in the global economy, with our balanced global footprint and business mix.

We have identified ambitious, but attainable, financial targets and our overall aim is the enhancement of profitability and operational performance.

The management of NSG is fully committed to the success of the Medium-term Plan.

## Notice

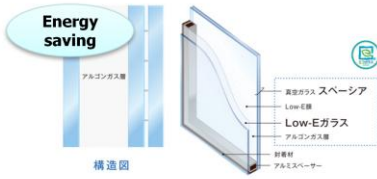


The projections contained in this document are based on information currently available to us and certain assumptions that we consider to be reasonable. Hence the actual results may differ. The major factors that may affect the results are the economic environment in major markets (such as Europe, Japan, the U.S. and Asia), product supply/demand shifts, and currency exchange fluctuations.

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# Appendices

# Architectural Value-Added Products



Energy saving

構造図

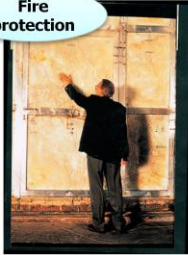
Specia21

New application



TEC glass : Large display with touch panel

Fire protection



Pyrostop

Architectural glass Value-Added products

Energy creation



Solar

Aesthetics

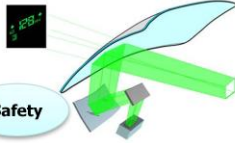


オプティホワイト  
Optiwhite (High transmission glass)

# Automotive Value-Added Products



Head up display



Safety

Safety



Anti-fogging glass

Light-weight



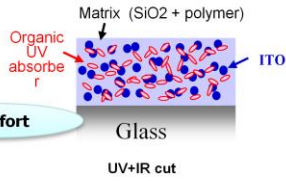
Thin glass manufacturing technology



Safety

Wire heated glass

Automotive glass Value-Added products



Comfort



Security

Laminated front door glass



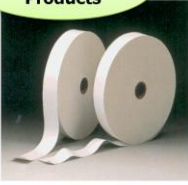
Convenience

Antenna technology



# Technical Glass Value-Added Products **NSG** GROUP

**Functional Products**



Battery separator for idling start and stop system

**Information Device**



SLA for LPH

**Display**



UFF for cover/touch panel glass

**Technical glass Value-Added products**

**Functional Products**



Glass cord for belt in oil

**Functional Products**



Glass flake for anticorrosion paint

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