

South African Renewable Energy Masterplan (SAREM)

Progress update and feedback



18 Nov 2021

Agenda

Objective: provide feedback to SAREM stakeholders on the status of the Masterplan formulation process and take feedback from stakeholders for consideration in the coming phases.

| | Time | Duration (minutes) | Item | Lead |
|----|-------|--------------------|-----------------------------|--|
| 1. | 12:00 | 5 | Opening logistics | Cilnette Pienaar, GreenCape |
| 2. | 12:05 | 5 | Welcome and opening remarks | Noma Qase, DMRE |
| 3. | 12:10 | 10 | SAREM framing and status | Noma Qase, DMRE |
| 4. | 12:20 | 5 | Opening remarks | Heather Sonn, Project Committee |
| 5. | | 5 | | Gerhard Fourie, DTIC |
| 6. | | 5 | | Tony Ehrenreich, COSATU |
| 7. | | 5 | | Hope Mashele, Gerald Borchers, Janek Winand, Industry |
| 8 | 12:35 | 15 | | Plan elements emerging: vision, opportunity, workstreams |
| 9 | 12:50 | 35 | Interactive session | Heather Sonn, Project Committee |
| 10 | 13:25 | 5 | Close | Noma Qase, DMRE |

Opening remarks

Noma Qase, DMRE

Introduction & Opening Remarks

- The Industry Working Group (IWG) is the primary interface between the Project and a broader spectrum of South African Renewable Energy Masterplan stakeholders.
- Consultation with the IWG expected to take place at scheduled intervals in order to keep everyone informed and updated about the process, research findings and planned elements.
- These sessions are expected to provide the IWG, as a key constituency of the Masterplan formulation process, with an opportunity to give feedback that can enrich the overall RE Masterplan document and implementation plan.
- On 26 August 2020, the Project Committee hosted a “town hall” type virtual meeting to introduce the Masterplan to interested stakeholders and to garner specific interest from experts who would like to form part of the IRG. This was very successful and the experts have continued to participate through various focus groups and task teams that have been established recently.
- Another feedback mechanism created for this process is through representation of various constituencies on the Project Committee and the Executive Oversight Committee of the SAREM.
- Project Committee meets twice a month. Inception meeting of the EOC took place on 26 August 2021

Introduction & Opening Remarks

- The IRP as a peg in the ground for the RE Masterplan formulation process
- With the published IRP2019, the DMRE has signalled the technologies that will form the South African energy mix. Renewables is a key part of this as a peg in the ground for the potential market for components and services, adding
 - 14,400 MW of wind
 - 6,400 MW of solar PV, including some additional
 - 4000 MW of embedded generation and
 - 2000 MW of storage
- According to SAREM estimation, to implement IRP2019 would require over 14 million solar panels and 3,600 wind turbines alone. This represents a significant opportunity in employment and GDP contribution through annual production across the value chain – a potential of up to R182 billion/year and about 39,000 people employed in bringing 2600 MW of new capacity online per year, as in 2030.

What is SAREM?

... and what is SAREM not?

A status update

SAREM's focus is on industrialisation of the renewable energy value chain.

It looks to identify opportunities to develop industrial capacity and the implementable private and public sector levers to enable this.

SAREM *is*:

- An implementation plan for driving industrialisation through the renewable energy sector and its value chain
- A collaboration between government, industry, labour and civil society
- Viewing a complex context through a lens of primary outcomes in jobs and economic growth

SAREM *is not*:

- SAREM is not a policy document
- It does not replace the IRP
- It will not solve all the needs of a complex context

Where we have come so far

- We have laid the foundation for substantive discussions on possibilities



Inception

Multi-stakeholder project committee operational
Methodological approach developed with stakeholder input
Inception report
Funding secured



Research

Literature-based research concluded and compiled into a discussion document:

- Status quo
- Country comparators
- SWOT analysis

Gaps in literature identified, with supporting research commissioned in skills, value chain value-add and economic impact



Consultation

Industry Working Group and Industry Reference Group constituted and convened
Multiple direct interviews with manufacturers and other value chain industry
Vision & Objectives defined
Focus groups' insights, leading to
Work streams defined
Task teams exploring possible actions

Steps



Progress Update for August-October Targets

- EOC inception and first formal meeting – *EOC held 26th Aug* ✓
- Consultation on draft workstreams list – *EOC go-ahead on work areas* ✓
- Constitute champions and multi-stakeholder expert team members in each workstream - *Multiple task team meetings and engagements held* ✓
- Completion of supporting research, including skills gap analysis – *some refinement required on Gross Value Add analysis with new component-level data* (✓)
- Workstreams to deliver prioritised actions and implementation framework – *Assumptions and Prioritised Interventions Report drafted* ✓
- Alignment on prioritised workstreams and levers with EOC – *EOC review pending*
- Draft plan document for validation

Targets for Nov- Feb 2022

- EOC review of Assumptions and Prioritised Interventions Document
- Task team refinement of emerging actions
- Agreement on priority actions and targets by mandate holders
- Complete First Draft Masterplan for review
- Complete Final Draft Masterplan document for adoption

Opening remarks

Heather Sonn, Chair

Introduction

Opening remarks

Gerhard Fourie, DTIC

Opening remarks: DTIC

- Main focus of SAREM is to unlock the significant unrealised opportunities around industrialisation and job creation in the renewable energy sector
 - Encouraging optimal industry growth – for the good of the industry concerned and broader society
- Converging on agreement requirement
 - Complex procurement situation (Developers, bidders, EPC, OEM's, manufacturers, importers, etc)
 - Stop – start nature of IPP programme
- What 3 key issues must be dealt with in the Masterplan from DTIC perspective
 - Private-public compact
 - Value Chain analysis - The infrastructure expansion value, local and foreign investment, optimal industrialisation and multiplier effect must be demonstrated
 - New economic opportunities are not seen as drivers for growth but perceived as threats. We need a lot of electricity in South Africa – this is a massive economic opportunity.

Opening remarks

Tony Ehrenreich, COSATU

Opening remarks

Janek Winand, Siemens-Gamesa

A wind global value chain perspective

Opening remarks

Gerald Borchers, Seraphim

A local solar manufacturing perspective

Opening remarks

Hope Mashele, Vindikulu

An emerging industrialist perspective

The opportunity and vision

Francis Jackson, GreenCape

With the energy mix defined in IRP2019 as the starting point

By 2030

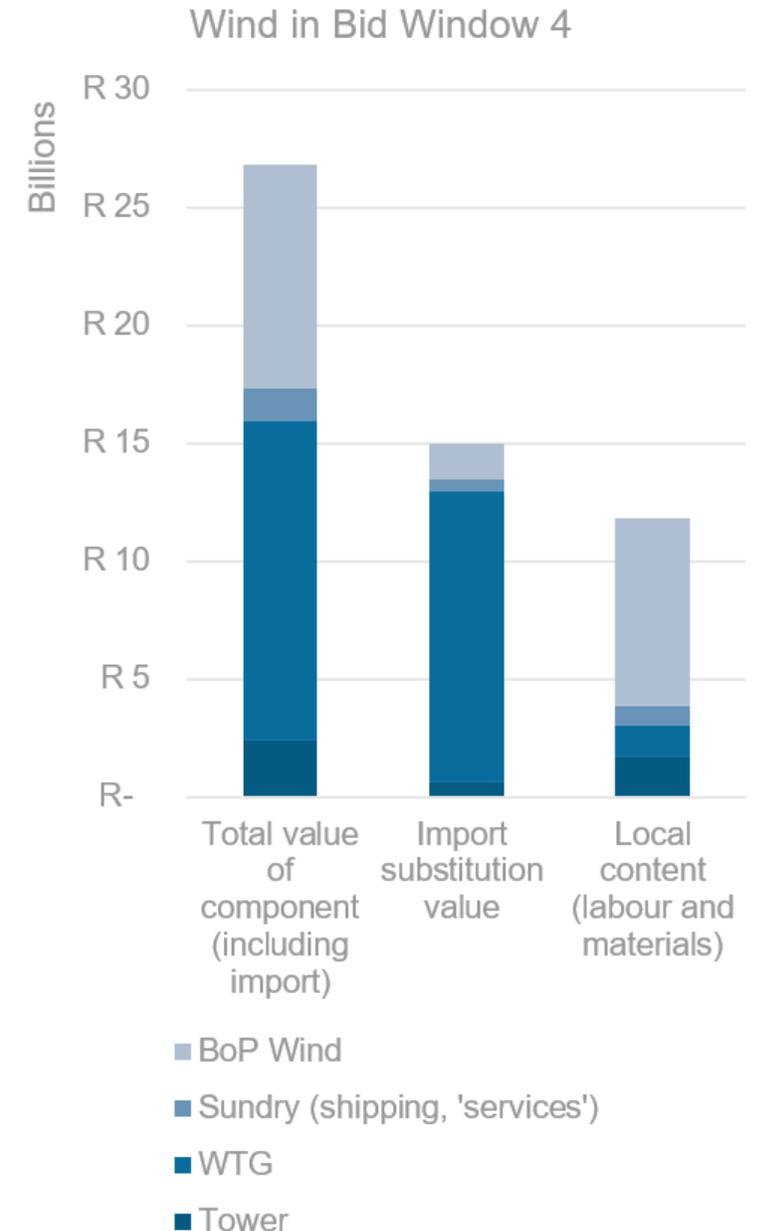
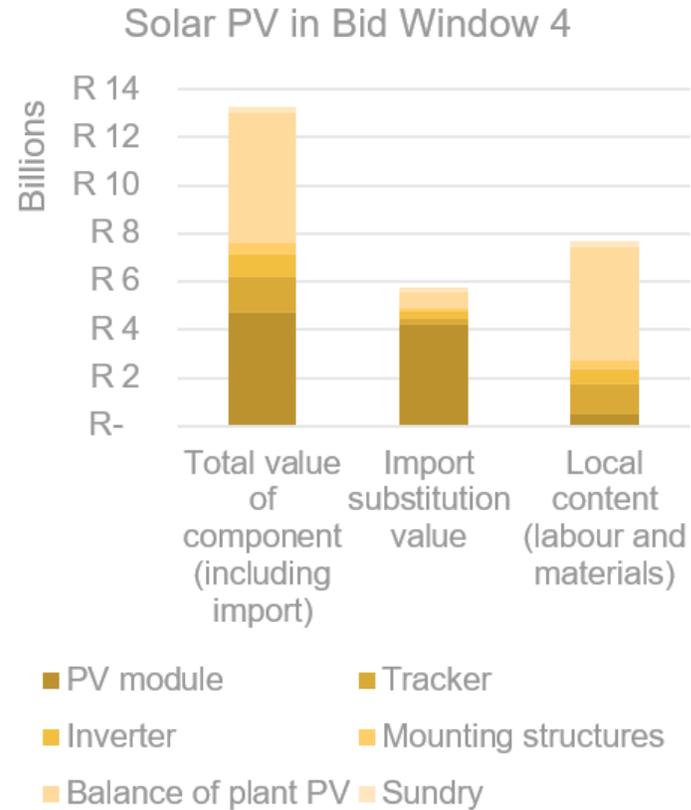
- We will need **14 million solar panels** and **3,600 wind turbines**¹
- A cumulative value of **R395 bn to be invested** in South African infrastructure
- In construction and balance of plant, operations and maintenance and manufacturing this would require **39,000 people directly employed in 2030**, a cumulative **285,000 direct job-years**
- All employment figures across the value chain rely on a consistent market for renewable energy
- Manufacturing's contribution to employment may be lower than construction per MW; however
- It is high value-add due to higher GDP contribution per unit production and type of jobs.
- Each person employed supports a family, provides livelihoods to others and stimulates employment and economic activity in their communities.
- So, how much of this can we localise?

1. Based on 450W panels, 4MW wind turbines applied to the PV and wind allocations in IRP2019

How much more could be achieved

- Bid Window 5 commitments averaged 44% of total project value
- The bulk of localisation in solar PV was in balance of plant, mounting structures and trackers. In wind it was balance of plant and towers. The bulk of the imports in solar PV was in the photovoltaic module with its associated inputs such as frames, glass and cells.
- In wind the collection of components that constitute the rotor, nacelle and drivetrain are largely untapped.

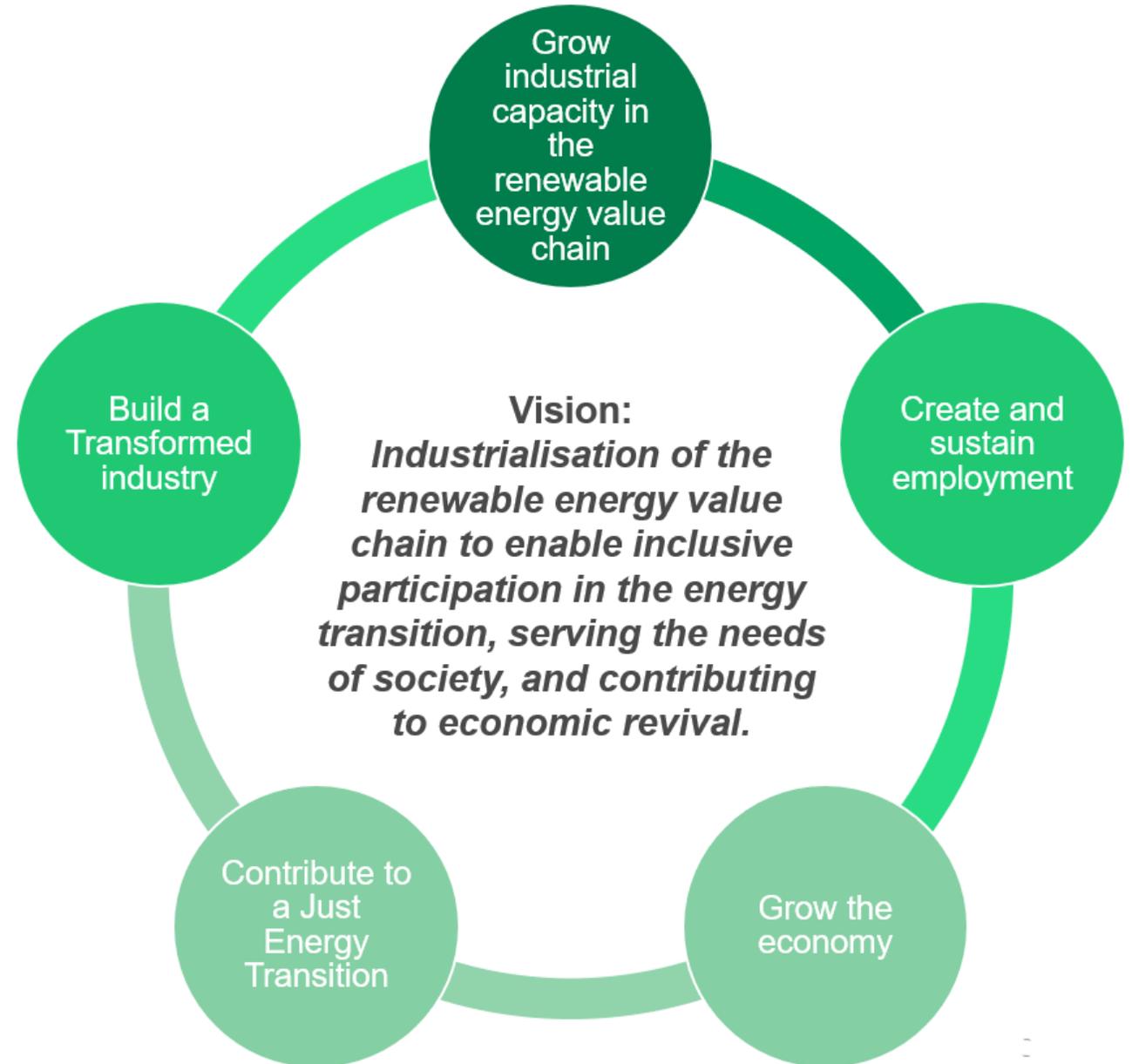
| BW4 local value | PV | Wind |
|-----------------|------------|------------|
| BoP | 88% | 84% |
| Key Components | 37% | 23% |
| Combined | 58% | 44% |



Some have pointed out that IRP2019 is a conservative case. Estimates of potential may vary according to reference values on job intensity and production value multipliers; however the magnitude of the opportunity within the range is worth chasing.

Vision and Objectives

- Stakeholder inputs have motivated high-level aspirations and objectives
- Indicators and targets in each area are to be agreed in the social compacting process



Vision – targets under discussion

| Objective | 2025 target | 2030 target |
|---|--|--|
| Grow the economy (production value, GDP contribution) | R28-33bn/year production R100-123 bn/year to GDP | R38-43bn/year production R141-164bn/year to GDP |
| Create and sustain employment (direct new jobs) | 26,000-29,000 | 32,500-35,000 |
| Grow capacity in the value chain (% localised) | 40-60% of key components, 80% of BoP | 70-90% of key components, 90% of BoP |
| Build a transformed industry (ownership and management of local manufacturing capacity by Black persons, women, youth and disabled persons) | 40% (R12 bn/year production value) | 51% (R21 bn/year production value) |
| Contribute to a Just Energy Transition (integrate into hotspot economies) | Geographic competitiveness initiatives in place in SEZs, EIPs, repurposing | 10% of national production value (R15bn/year), 1 major component manufacturer in a hotspot |
| | Skills programme operational | 3,500 hotspot youth & former coal sector employees trained and employed |

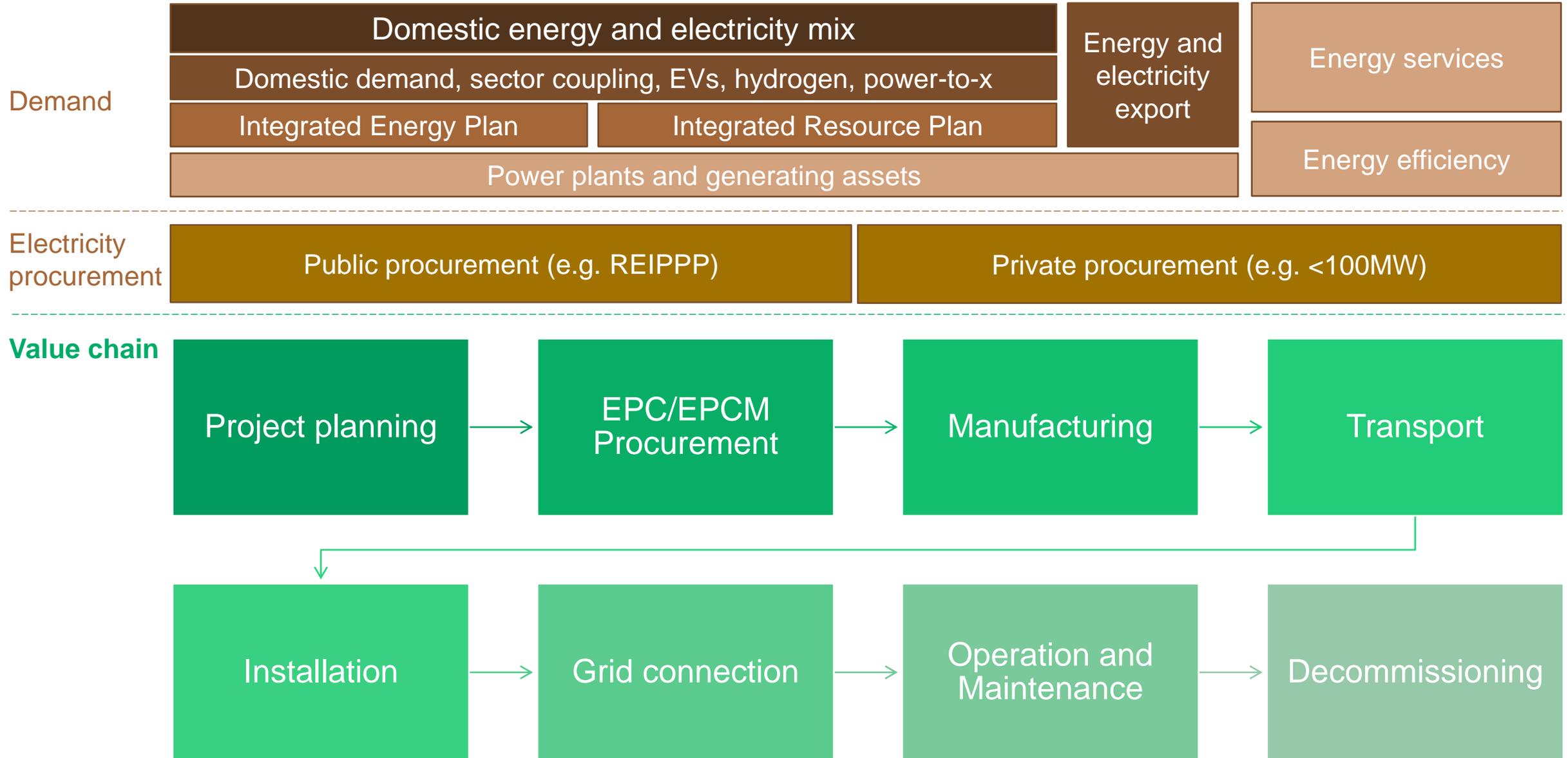
Localising 70% of components and 90% of BoP could see 32,500 new people employed in 2030 and annual contribution to GDP of R140 bn/year.

Targets need to be agreed in combination with the priority plan elements that create an enabling environment for achieving them.

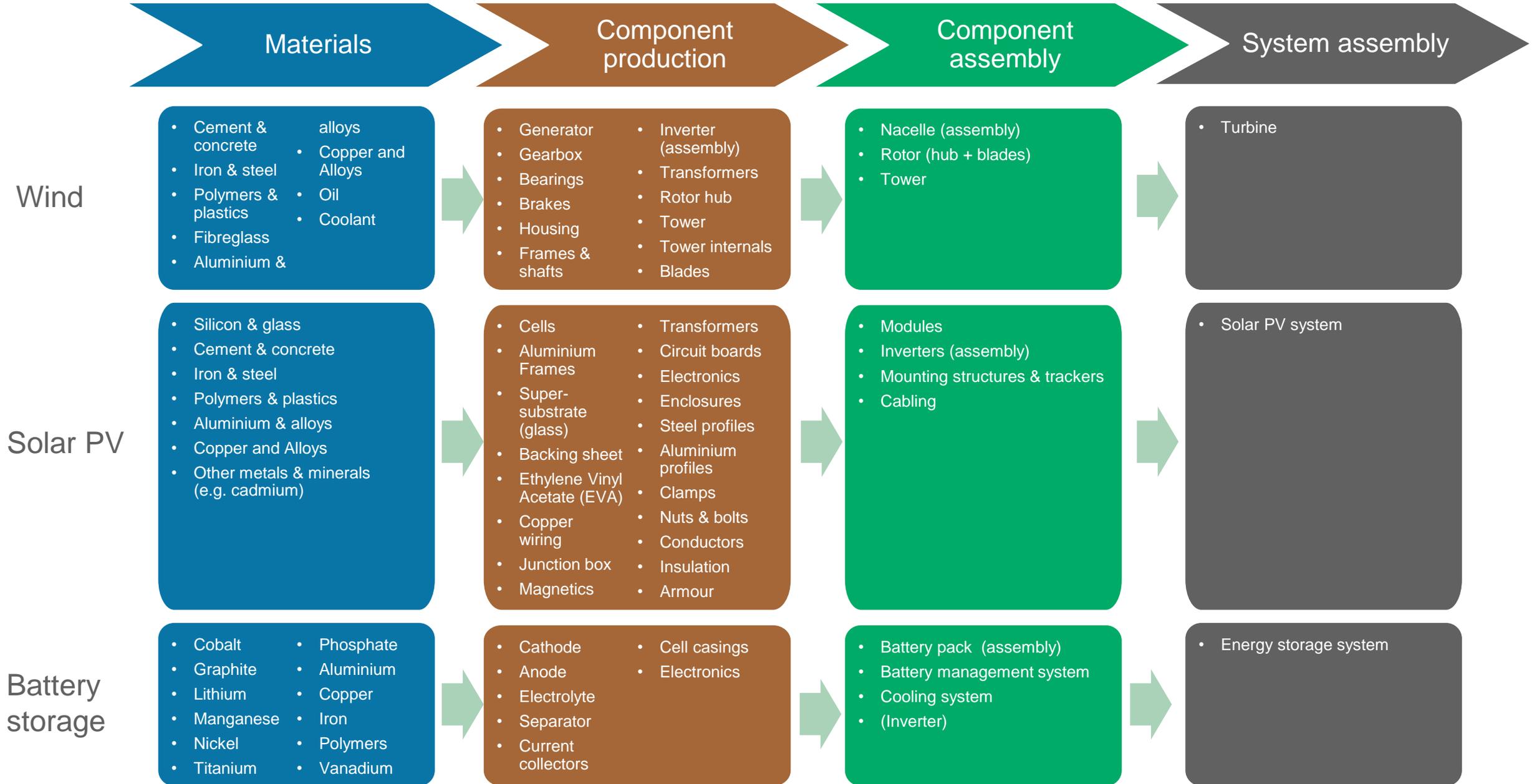
Value chain

Where is the industrialisation opportunity?

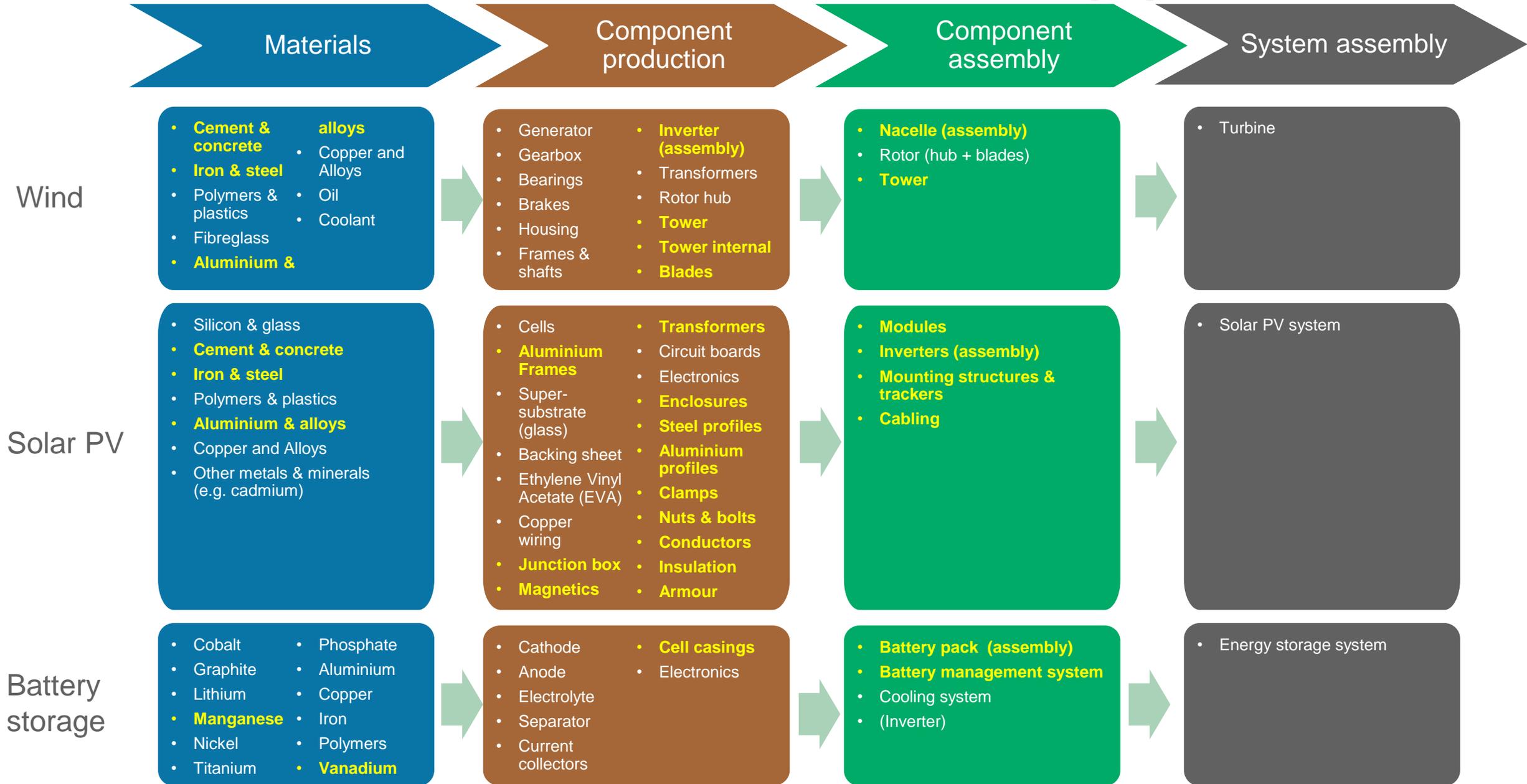
The industrialisation opportunity lies in the *value chain*



Components and materials in manufacturing



Components and materials in manufacturing: low hanging fruit



Industrialisation is to be built on the *value chain*.

Achievements have been made in construction and BoP.

Manufacturing opportunities are identified in the supply chain for key components. Some are low-hanging fruit, others require a set of conducive conditions.

Dynamics around the case for investment

Effects of government policies on firms' strategic responses

- Local manufacturing can be promoted without LCRs when market stability¹ and a combination of consumption support and production support² is provided. Firms strategies in terms of local manufacturing will depend on the combination of renewable energy consumption and production support mechanisms

| | | | | | |
|---------------------------------------|-----|---|---|-----|--|
| Countries with Consumption Assistance | Yes | II | <ul style="list-style-type: none"> • Market Strategies to Access Domestic Markets • Non-market Strategies to Increase Domestic Content & Block Imports • <i>Proclivity to Import</i> | IV | <ul style="list-style-type: none"> • Market Strategies of Quality, Differentiation & Service • Non-market Strategies to Maintain Government Assistance & Seek Foreign-Market Liberalization • <i>Proclivity for Niche Strategies</i> |
| | No | I | <ul style="list-style-type: none"> • Market Strategies focusing on Comparative National Advantage, Scale, Efficient Production & Market Size • Non-market Strategies to Shield from Pure Competition • <i>Proclivity for Shielding Non-Market Strategies</i> | III | <ul style="list-style-type: none"> • Market Strategies to Access Foreign Markets including Expansion of Production Capacity • Non-market Strategies to Maintain Government Assistance, Block Imports & Seek Foreign-Market Liberalization • <i>Proclivity to Export</i> |
| | | No | | Yes | |
| | | Countries with Production Assistance | | | |

Examples of Consumption Assistance

- Feed-in tariffs
- Tax credits

Examples of production support mechanisms

- Low interest loans to invest in plants and equipment
- R&D assistance
- Export credits

1. Kuntze and Moerenhout, 2013, 2. Haley and Schuler, 2011

Building a strategic niche for South African manufacturing will require clear ways forward both on consumption (i.e. growth of MW) and production support (i.e. trade and industrial policy)

Enabling investment in the market vs. in a winning bid

Manufacturers will be considering two trigger conditions for their investment

Invest-when-win

- Manufacturers wait until given either Preferred Bidder, Financial Close or Notice to Proceed
- Requires very tight timing on ramp-up to production capacity
- Very little line of sight to future capacity
- Timing is fully based on bid commitments
- Risk carried by the chain of contracting: supplier -> OEM -> EPC -> bidder
- Factors outside control of manufacturer require mitigating risk, e.g. delays in building plan approvals



Invest based on market certainty

- Manufacturers invest based on confidence in the potential market size and market share
- Has been effective in some markets, demonstrated pre-Bid Window 4 in South Africa
- Feedback loop is delayed – such certainty only grows after several cycles of procurement demonstrated and market is more risk-averse since BW4 stalled
- Requires mitigation of risk of uncertain cycles of procurement

Observations around current dynamics

- Whether there is sufficient capacity to meet the scale of demand
 - Sees potential suppliers waiting for firm orders to raise capital to expand; and
 - Investors holding off such capital until firm orders are in place; and
 - Bidders holding off on firm orders while capacity is not confirmed; and
 - Who will move first to take up local capacity or throw their weight into offering and securing supplier commitment?
- Cycles of learning are required to
 - Build confidence in the system
 - Ramp up capacity
- Relying on designations pits players in an irreconcilable game around timing and exemptions
- If there was sufficient scoring incentive in bids, industry would drive localisation in order to win.
- It is proposed that a weighted mechanism such as local points system would favour establishing capacity that leverages local strengths to best effect and tracks international evolution and innovation.

What does certainty ask of us?

A time perspective

- “In different ways in different time frames”
 - In the short-to-medium term: local content rules in public procurement
 - In the medium term, with diversified offtake: trade and industrial policy, supporting growth of targeted local competitiveness
 - In the long term: momentum and significant growth in MW demand beyond IRP2019

Willingness to play the game

- Policy certainty means consistency.
 - REIPPPP has seen remarkable success rate: all projects reaching financial close.
 - Consistency on policy means some learning. Are we comfortable permitting those who cannot meet bid commitments to fail?

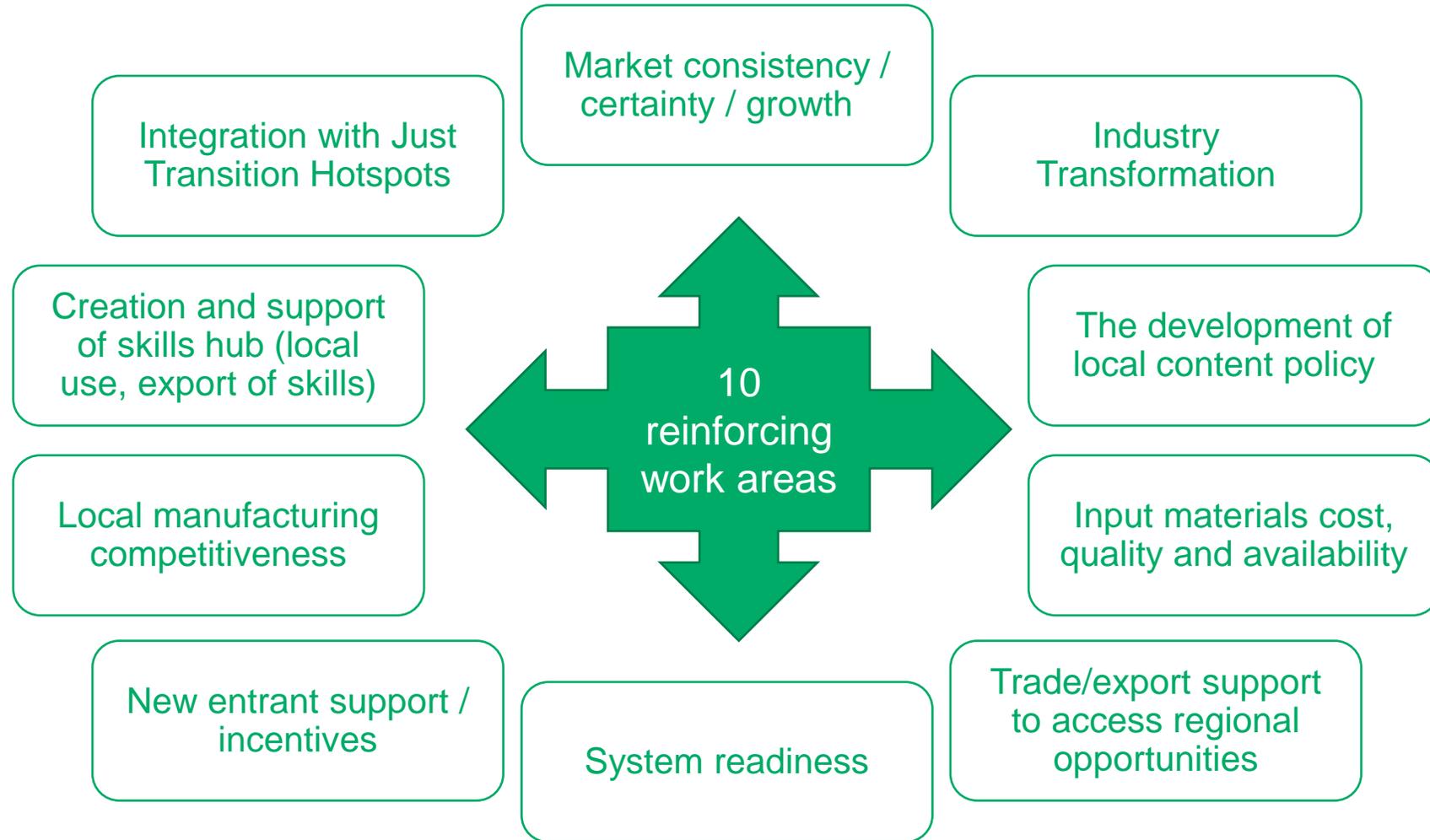
What does certainty ask of us?

Skin in the game

- As private offtake grows, consider the feedback loop to growth of the sector.
- Socio-economic imperatives for major stakeholders who inform the evolution of policy:
 - Creating employment and economic growth through local content
 - Building a transformed and inclusive industry
 - Contributing to a Just Transition
- As a corporate offtaker, a source of capital, an OEM or major component supplier:
 - How does this align with your corporate values?
 - How may this inform your procurement decisions?

Work areas

Programmatic work areas towards an enabling environment



Ten work areas have been identified.

They are interrelated and reinforcing.

Task teams in each explore possible levers.

**Priority levers adopted by the EOC will ultimately
inform the final pillars of the plan.**

Emerging elements

The snapshot of actions under consideration in the most recent discussion document covers the set of things still being debated.

The ultimate Masterplan document would include summary elements from the research report and adopted plan elements for implementation.

Integrating objectives

- We are putting together an ecosystem of competitiveness
- Our objectives include building **a transformed and inclusive industry**; and
- **Contributing to a Just Transition** by integrating with hotspots
- This requires applying this lens to each workstream; rather than considering these are standalone work areas.
- To this end; levers that build competitiveness can be targeted to:
 - Increase the capacity to compete for Black people, women, youth, people with disabilities. *For example, leveraging the Black Industrialists programme and deploying competitive capital, guarantees for emerging suppliers.*
 - Increase the geographic competitiveness of Just Transition hotspots. *For example: SEZs and eco-industrial parks in Mpumalanga, reskilling programmes.*

Emerging opportunities for action in priority areas

1. Short-to-medium term market certainty and to encourage competition to build local capacity:

- Sufficient years' consistency in smooth public procurement (REIPPPP) to kick-start industrialisation
- A new adjudication weighting with local content points scoring system.

2. Medium-term market certainty and support for establishing a manufacturing base that can compete internationally:

- Bring to bear suite of DTIC levers in trade and industrial policy to support competitiveness, with an incentive framework for export and rationalising of import duty exemptions on certain input materials.
- Explore a system of export credits and decision path to a similar set of incentives as support automotive manufacturing

3. Long-term market certainty

- Securement of international Power-to-X opportunity for significant scale-up of demand for renewable energy value chain.

4. Platform for a demand-led skills development programme

- Set up and resource a platform with participation from industry, labour and government institutions.
- Build on proactive foundational skills development, ensuring training institutions kept up date with needs of industry.
- Enable connecting available workforce with placements.

5. Transformation, leveraging private sector procurement through capital and corporate objectives:

- Commitments to supply chain transformation requirements embedded in ESG / finance terms from capital providers.
- Supply chain requirements in procurement of energy by corporates, employee shareholder schemes
- Transformation fund to provide capital for emerging new entrants. Various mechanisms to finance this fund.

Concluding remarks

- Market certainty is a key factor driving the business case for investing in local manufacturing. It manifests in several forms with actions proposed to address each.
- Procurement rules and some protection of local market would help establish local manufacturing, however it needs to be done in a way that builds competitiveness as the path to a sustainable industry. This requires
 - A phased approach
 - Integrated supporting work areas
- What's next? Settle on that critical set of enabling parameters that can support commitment to targets from all parties.



Acknowledgements

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The contents of this work do not necessarily reflect the views of the funders.

Another opportunity to engage

Friday afternoon “drop-in” slot

- Someone from the SAREM team will be present at this time every Friday to field drop-in attendees. All welcome.

1-2pm on Zoom:

<https://us06web.zoom.us/j/89086315476?pwd=N1Rub0hUdldJT0hSdVBJNGVDZW9tQT09>



Thank you

sarem@green-cape.co.za