

THEATRE GREEN BOOK AUSTRALIA

1 : Sustainable Productions

(version beta. 1)

We acknowledge the traditional owners of the land, waters and skies the Aboriginal and Torres Strait Islander people. We recognise and celebrate their culture and ongoing connection to country. We pay our deepest respect to Elders, past, present and future.

Aboriginal and Torres Strait Islander knowledge and wisdom is held in story, dance, art, landscape, waterways and the sky. For over 65,000 years Aboriginal and Torres Strait Islander people have held this knowledge in constant, living cultural practices that form an intrinsic and reciprocal relationship with with the land, water, skies and all its inhabitants.

Introduction

First Nations people are the First Artists, Scientists, Engineers, Architects and Designers. In Australia, Aboriginal and Torres Strait Islander people have lived in harmony with the land and waterways for over 65,000 years. Their multi-layered knowledge, science and value systems are bound in cultural practices that positively enrich the world and all its inhabitants. Knowledge is passed through story that is woven through landscapes, language, song, proverbs, movement and art.

'First Nations storytelling is an expression of science, numbers, knowledge, in a creative way, and a way that our children and communities will remember.'

Jasmin Sheppard

First Nations people hold intrinsic, symbiotic relationships with the land water, skies that connect to the past, present and future. Western scientific methods favour text based, analytical, reductionist methods¹ that sits in contrast to First Nations holistic and integrated knowledge systems.

To move towards an equitable, sustainable future we must create environments to find the intersection between First Nations and Western knowledge, science and value systems. To find the intersection we must acknowledge these multiple world views and create the safe, inclusive spaces for voices to be heard and meaningful relationships to be formed.

There is a fundamental difference between understanding and knowing. Western Science asks its subject matter to be understood; but knowing is softer, deeper and can be trusted"

Dean Cross

¹Mazzocchi, F, 2006, Western science and traditional knowledge: Despite their variations, different forms of knowledge can learn from each other, EMBO Report

It is critical that this knowledge is uplifted and heard whilst simultaneously protected under the guidance of Elders and First Nations knowledge holders. This point cannot be understated as the application of a Western lens to knowledge holders rights will result in a further expansion of colonial oppression.

Theatre can create the safe spaces to gather and inspire. To tell stories of the the past, and imagine a better future. We have an opportunity to shape a world that is inclusive, equitable and transitions beyond sustainable to a regenerative future for us all.



Artwork: Dean Cross

Theatre Green Book Australia

In July 2023 The United Nations Secretary General Antonio Guterres stressed that the 'era of global warming has ended and the era of global boiling has arrived, climate change is here. It is terrifying. And it is just the beginning'.²

Over the last ten years Australia has witnessed an increase in devastating floods and bushfires. Our climate is projected to continue to change into the future and will impact our way of life.

Within this context, we must be inspired to step up to the challenge and make change. The creative and cultural industry holds significant influence in shaping our values, narratives, and societal perspectives. It is essential to recognise its responsibility to address environmental challenges and contribute to a sustainable future.

With its unique ecological diversity and cultural vibrancy, Australia holds an exceptional opportunity to lead the way in sustainable arts practices. Theatre can play a crucial role to gather, educate and inspire action. The Theatre Green Book Australia builds on decades of work across the globe to support our industry transition towards sustainable practices and shape a better future.

Grace Nye-Butler and Chris Mercer



*Credit: Value for Money, Guts Dance,
Choreography Jasmin Sheppard and Sara Black*



The Theatre Green Book is a free resource for everyone . It was originally developed in partnership by the organisations whose logos are on this page.

The Theatre Green Book is built on years of thinking, research and advocacy by pioneering organisations, theatres, theatre companies and individuals. You'll find their names in the acknowledgements and bibliography, and their ideas throughout.

We would like to thank everyone who has supported the Green Book with their time, their commitment and ideas. Their names are in the acknowledgements. Special thanks to the funders of the Green Book, whose names you'll find in the inside back cover.

BURO HAPPOLD

Foreword

We're living in a climate crisis. Theatre makers - like everyone else - want to respond to that emergency. But for theatre, the need to change is particularly urgent. If theatre is to be part of the most vital conversation humanity faces, then it has to change its practice.

The Green Book provides clear standards for that change. In other volumes it will show how to improve the sustainability of theatre buildings and theatre operations. This volume is about making productions more sustainably.

The climate emergency is the reality in which theatre - like everything else - is now made. But producing sustainable shows is not an end in itself. Theatre's purpose, range, creativity and ambition should remain as broad and vital as ever. Indeed, it is that very creativity and theatre's ability constantly to reinvent itself which will generate fresh theatrical thinking in this new reality.

Theatre artists always work within parameters (of time, cost or scale). Working in the context of the climate emergency, they should feel no more restricted in creative ambition than they do now. Rather, their purpose is to channel that creativity through a new set of premises.

Working together, theatre-makers of all kinds - freelancers and venues, companies and producers - have collaborated on the Theatre Green Book. Based on widely agreed values and strategies, the result is a shared standard for making work, as a community, in the reality of the climate crisis.

Paddy Dillon, Global Green Book Co-ordinator

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The Theatre Green Book has brought together theatre-makers and sustainability experts from across the globe to create a common sustainable theatre standard.

In a hurry? Go to the sections shaded green

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Sustainable Productions

AT A GLANCE

“Imagine if we succeeded as a society in completely upending our relationship with the environment so that it had primacy. If we learnt from First Nations peoples how to live in balance with it, sustainably, regeneratively, respectfully. As artists and arts workers we have dedicated our lives to making and sharing art experiences that touch hearts and open minds. We can imagine different futures, and inspire change. We can innovate and lead by example, and decarbonise the structures in which art is made and presented. As an industry we can make this happen, if we work collectively and make it a priority. Is doing so not the most important and critical mission of our time?”

Antonia Seymour, Executive Director Arts on Tour

Sustainable Productions has three standards:

- **Baseline**
- **Intermediate**
- **Advanced**

To achieve the baseline standard, a production team need to:

- Ensure 50% of materials are procured from reused or recycled sources
- Ensure 65% of materials lifecycle is extended through storage or re-use
 - Avoid harmful and unsustainable materials
 - Design and operate efficient technical systems
 - Reduce travel and freight distances

To support the above, Green Book teams need to:

- Agree on a standard before starting
 - Appoint the team early
 - Work collaboratively
 - Measure outcomes
 - Share lessons learned

'Intermediate' and 'Advanced' standards follow the same principles with higher targets.

The Creative Challenge

1 The Concept
Making work sustainably begins with the concept.

Invitation
Team
Budget & Schedule Parameters

Preliminary Design
Design Development
Final Design

3 Flexibility
Embrace opportunities to reduce negative environmental impact

Procurement
Construction/Fabrication
Bump In

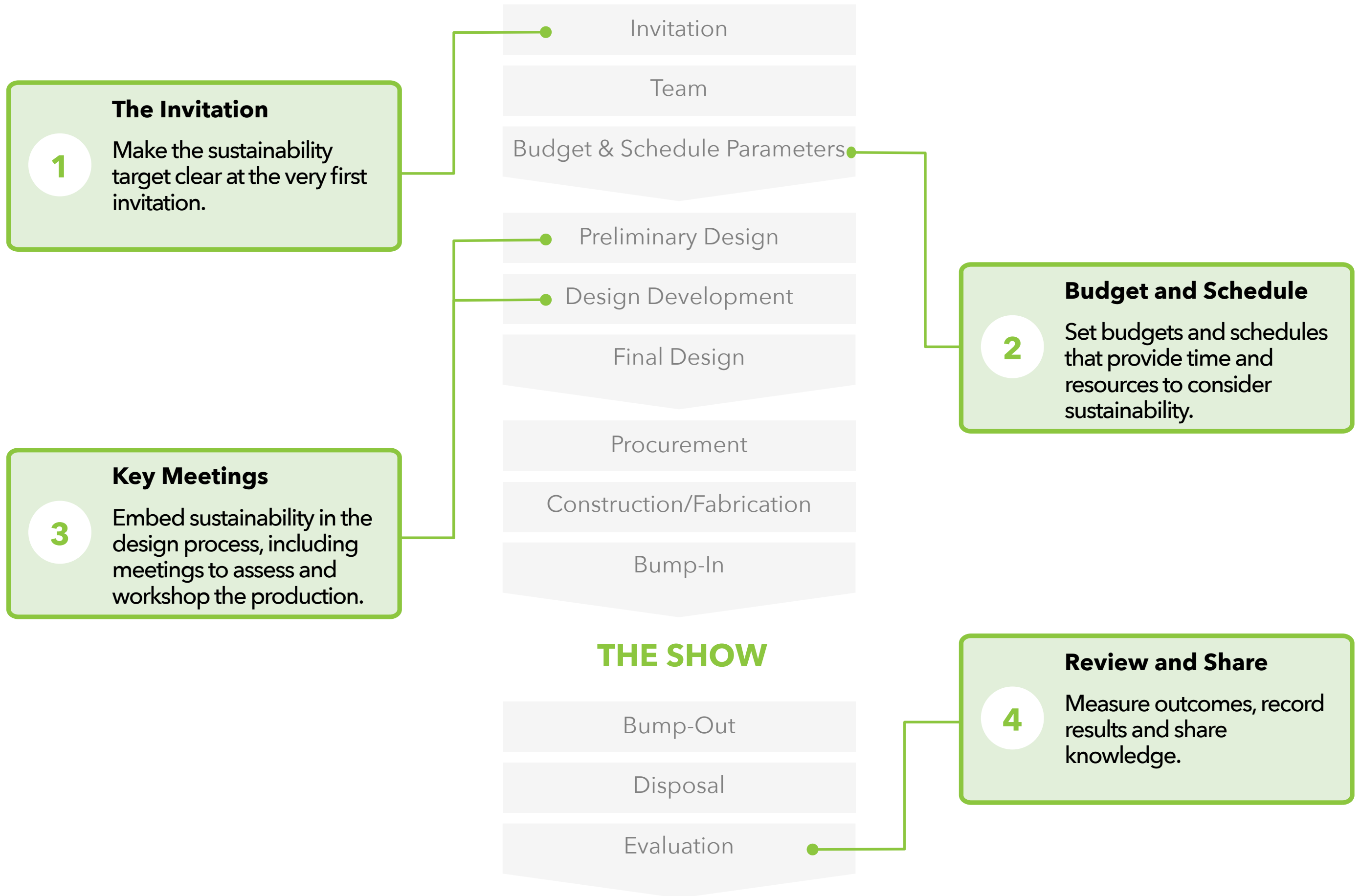
THE SHOW

Bump Out
Disposal
Evaluation

2 Collaboration
Sustainable productions thrive on collaboration within the whole team.

4 Materials
Aim to source and dispose of materials responsibly.

Producing



Making and Disposal

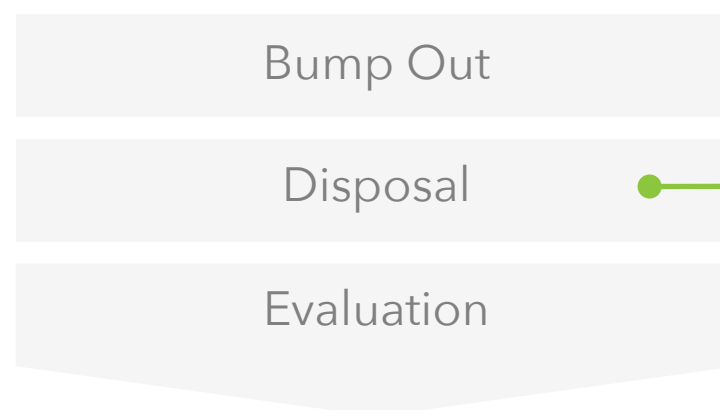
1 Time
Set timeframes that enable sustainable design and sourcing.



2 Workshops
Embed sustainability practices into workshop and construction processes.

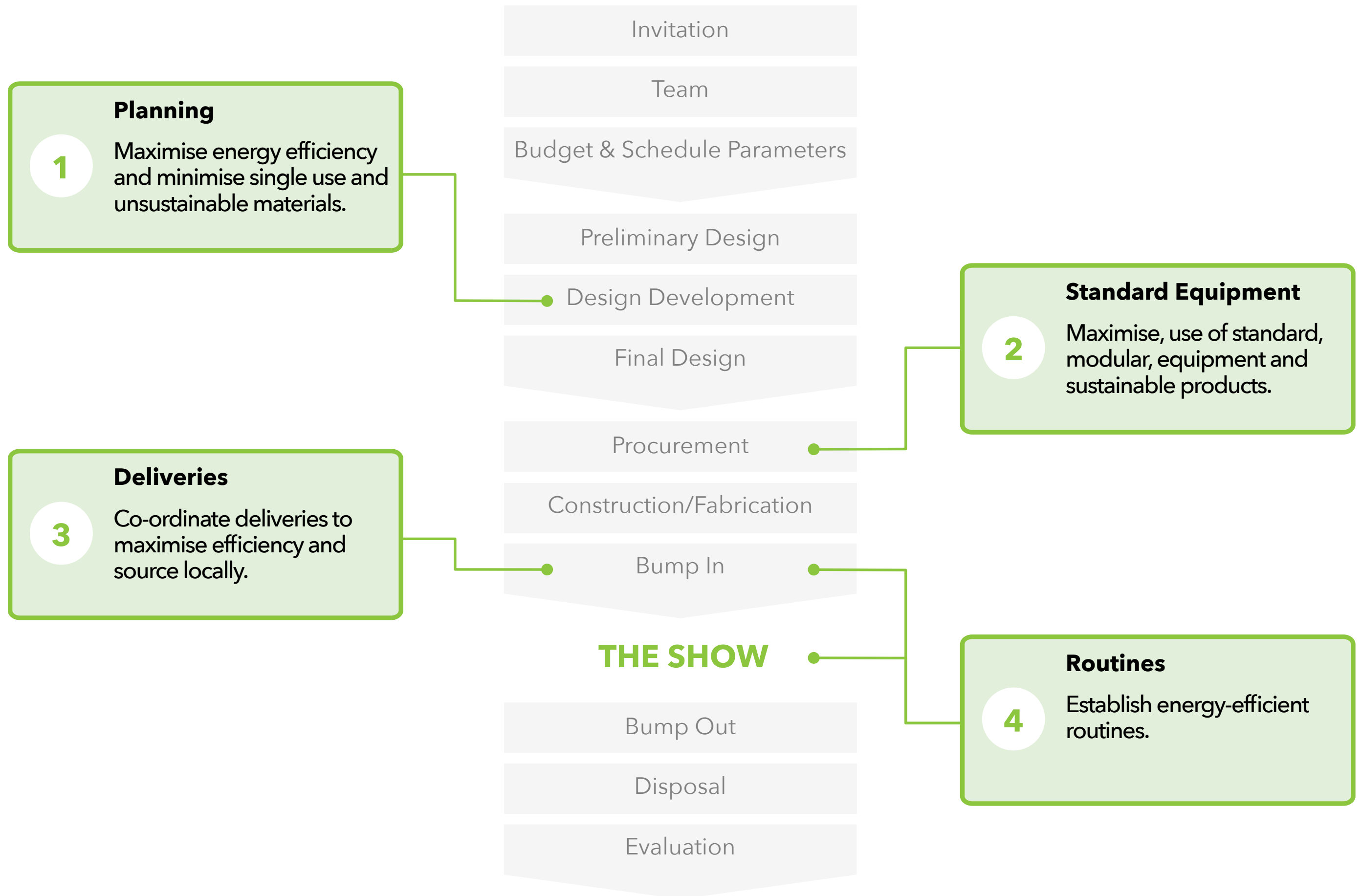
3 Materials
Use recycled and sustainable materials.

THE SHOW

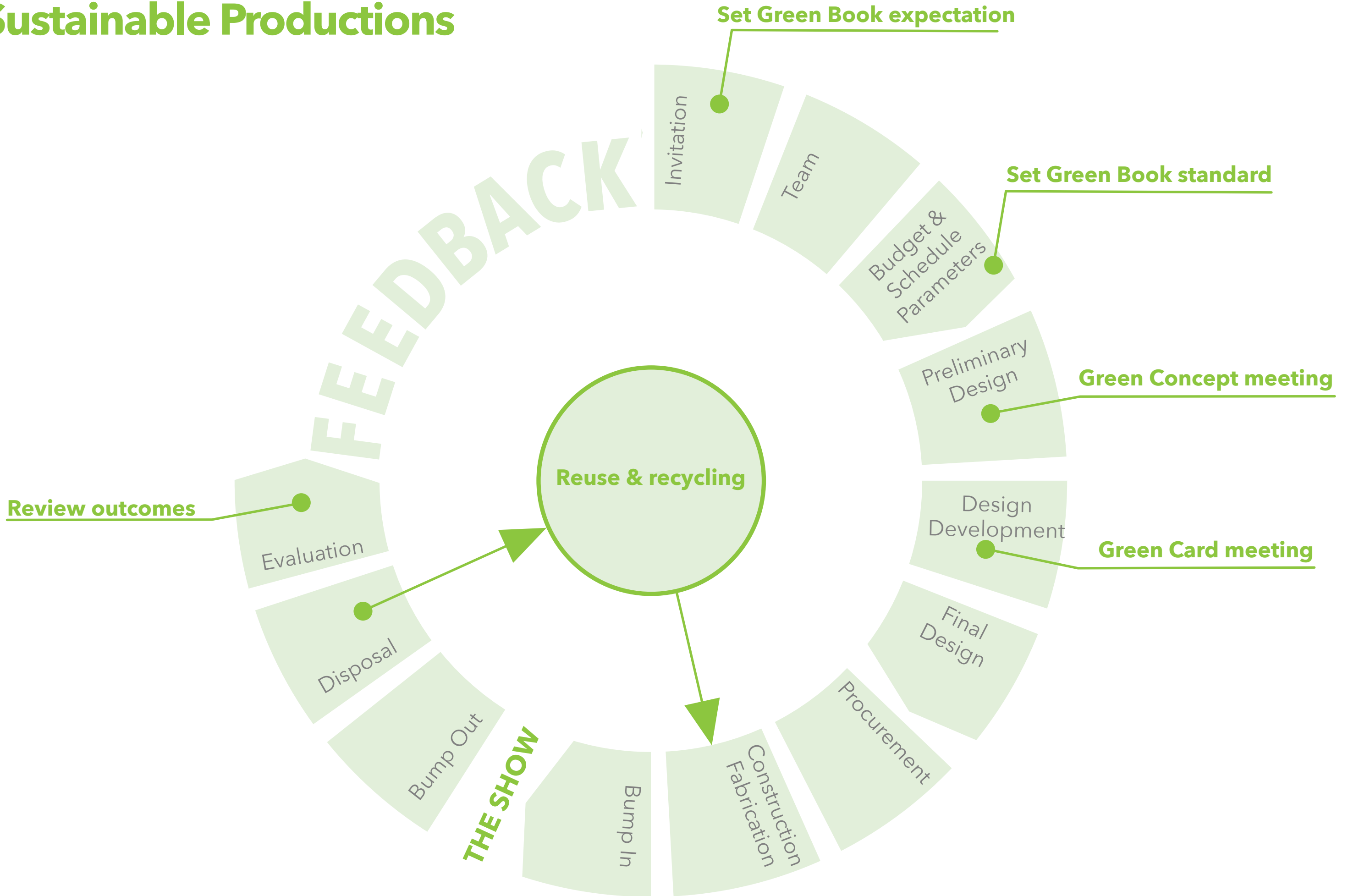


4 Post Show
Ensure scenery, props and costumes are retained, deconstructed, or disposed of responsibly.

Technical



Sustainable Productions



More detail? *Keep scrolling to the next section*

THE PRINCIPLES

In a hurry? *Click on THE GUIDANCE to jump to detailed guidance*

THE GUIDANCE

sustainable productions

THE PRINCIPLES

"Climate theatre shouldn't be vegetables - it can and should be just as entertaining, hilarious, sexy, complex, shocking and moving as "normal theatre". It can be difficult to represent the breadth of one's responses to the climate crisis in a single play or piece, but if you crack open even the teeniest sliver of something truthful in your process, people will connect with it, and maybe feel less alone."

Ang Collins, Playwright

1 Introduction

1 Why the Green Book?

“As storytellers, we have a unique capacity to explore key issues with audiences both on and off the stage. In a warming world, this means taking leadership in communicating the importance of environmental action, whether that be through the content of our projects or the sharing of our practice.” Staging Change, 2019

The climate crisis is an immediate threat to our safety, equity and prosperity. We urgently need to limit carbon emissions, reduce biodiversity damage, and transition society to a place in which people, places and communities are supported and vulnerable groups protected.

Theatre cannot solve the climate crisis alone, but it can play an urgent role in addressing it. Theatre can question, challenge, provoke, entertain and surprise. It can reflect the preoccupations of generations facing a time of dizzying, frightening change.

To achieve that, theatre itself needs to change. We need to make work responsibly and sustainably. Freelancers, theatres, producers and companies all need a single, shared standard to work to. Hence the Theatre Green Book.

1 Why the Theatre Green Book Australia?

The Theatre Green Book, first launched in the UK has had a major impact on the industry. It is considered a key resource to support the sector transition towards sustainable practices. As the industry globally engages in this transition we need tools and a common language to support effective collaboration whilst also being nuanced to the unique practices that exist within various regions.

The Theatre Green Book Australia utilises the global Theatre Green Book as a base to create a framework that speaks to the Australian theatre industry, whilst enabling practitioners to work within a common framework with colleagues across the world.

2 A Clear Path to Sustainability

The Theatre Green Book Australia provides theatre makers a path towards sustainability. It builds on years of work by creative practitioners and sustainability pioneers like Julie’s Bicycle, Creative Carbon Scotland, SiPA, Ecostage and now Australian theatre makers. It maps the journey towards a way of theatre making that is low carbon and low waste, considers biodiversity loss, values people, and contributes to a more sustainable society.

Theatre makers in Australia have started the transition by reusing and recycling, switching to energy efficient equipment, researching alternative materials and reconsidering how they tour. This guidance is built on their expertise.

Everyone in theatre starts their career by creatively stretching resources: resourcefulness is an inherent part of theatrical practices. As we respond to the climate crisis we need to utilise the resourcefulness, dynamism and creativity that sits at the heart of theatre practices.

3 A Creative Opportunity

The climate crisis is a multifaceted challenge but also provides a creative opportunity to shift the parameters in which theatre is made.

No one yet knows what productions will look like, in the reality of the climate emergency. Theatre makers will answer that question project by project. Throughout history, theatre has shown an extraordinary capacity for reinvention. Our response should not feel bound in restrictions, but as an invitation to explore innovative, dynamic and creative practices.

4 Scope of the Green Book

The Green Book has three components. Together, they give theatre practitioners clear, practical and detailed guidance:

- 1 Sustainable Shows (volume 1)
- 2 Sustainable Buildings (volume 2)
- 3 Sustainable Operations (volume 3)

5 Sustainable Productions

Theatre productions have an environmental footprint. Creating theatre uses energy, materials, travel and freight, which often results in waste.

The Theatre Green Book Australia provides guidance in how to reduce the negative impact of these activities. This guidance highlights how everyone involved in the chain of a production can engage in sustainable practices. It presents actions that can be taken by theatre makers now, as well as those to be adopted rapidly as expertise grows and sustainable infrastructure develops.

The principles are designed for theatre making of all types and scales to create more with less; to collaborate more closely; to focus on people not objects; to replace consumption with creativity.

6 Reasons to Change

Theatre isn't alone in facing change. People and Industries across the planet are impacted by climate change.

Our approach can be overwhelmingly positive for our industry and the communities we serve.

- Greater collaboration can dissolve hierarchies, and foster respect among the many talents that contribute to making a piece of theatre.
- Embedding sustainability provides the opportunity to shift our focus from resources to people.
- Working locally can strengthen connections between theatre makers and their communities.
- Creating safe spaces to elevate and support a diverse range of voices and perspectives to engage in discourse related to the multifaceted climate related challenge.

This guidance has been built on the expertise of freelancers, buildings, specialists and organisations. The collaboration and mutual respect which theatre-makers have collectively brought to the Green Book is the key to working sustainably – in every sense.

Net Zero & Climate Active

Climate Active is an ongoing partnership between the Australian Government and Australian businesses to drive voluntary climate action.

The Climate Active Initiative and Climate Active Carbon Neutral Standard supports and guides businesses as they account for and reduce their emissions.

The Theatre Green Book Australia provides a path to lead towards net zero emissions: a well-managed 'Advanced' production is expected to have a minimal carbon footprint. Carbon Calculators for example Arup's 'Circulate' tool can support productions measure their carbon footprint. Climate Active carbon neutral certification requires auditing by a climate active certified consultant. More information can be found at the following sites.

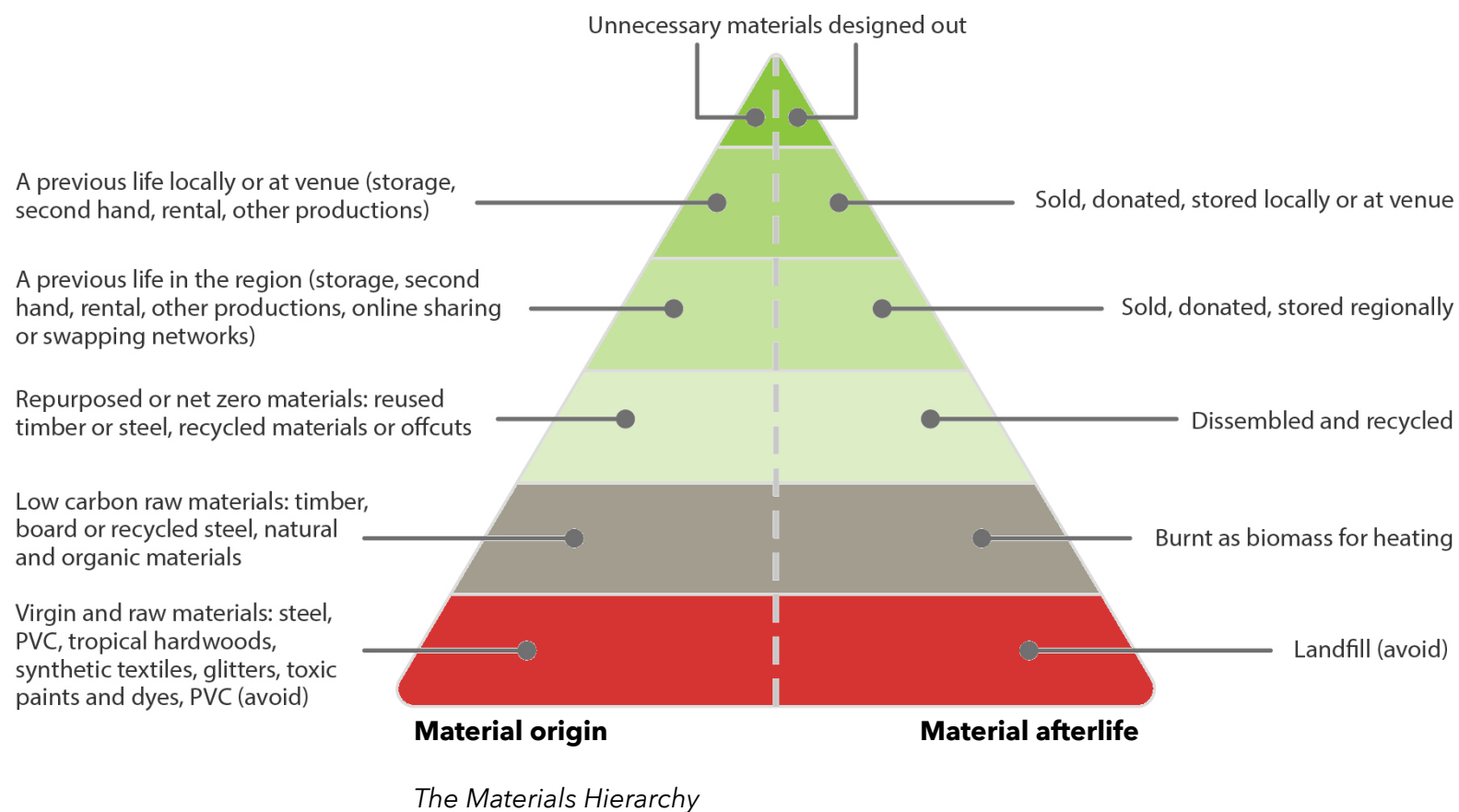
Climate Active

<https://www.climateactive.org.au/be-climate-active/certification>

Arup - Circulate Emissions Calculator

<https://circulate.arup.com/login>

2 Key Principles



1 Sustainable Practices

Sustainable creating

Sustainability begins at the outset, with the creative teams vision and design concept. The team can work collectively to achieve that vision with sustainable practices that minimises environmental impact.

Planning and communicating

Budgets and schedules need to consider the time and resources to support sustainable practices. Sustainable outcomes thrive on collaboration and communication. Collaboration structures (including meetings and workshops), should embed sustainable considerations, practices and knowledge sharing.

New tools and processes

Materials Inventories and (for more Advanced shows) carbon calculators can forecast and track material use and measure carbon impact. The development of workshop and construction processes should minimise material waste and safe disposal.

Sustainable materials

If procurement of materials is required it should consider environmental sustainable product certification for example Forest Stewardship Council (FSC) or Good Environmental Choice Australia (GECA), information on a products chain of custody and the materials embodied carbon. More information can be found in the following pages.

Clean travel and transport

Minimising freight and travel plays a key role in reducing environmental impact. When required to travel or transport goods consider opportunities to utilise low emission options such as rail, electric vehicles and public transport.

2 The Materials Hierarchy

Initial material selection should consider the re-use of recycled materials. If not plausible procurement of materials should consider local sources and certified sustainable materials.

The process mirrors post production in which materials should be re-used, recycled, donated or stored.

3 Carbon Calculators and Materials Inventories

Carbon calculators help people assess the emissions associated with a design, process or product. Carbon calculation requires systems and processes to gather data on materials, consumption, energy and waste.

The Green Book recommends their use on Advanced shows. *Go to the Toolkit for information on carbon calculators.*

In the meantime, materials inventories can provide teams a snapshot of where materials and products come from, and how easily they can be recycled.

Go to the Toolkit for a list of carbon calculators and typical materials inventory.

What do We Mean by Green?

The Green Book uses 'sustainability' and 'greener practices' as catch-alls to cover a broad range of environmental considerations including decarbonisation, waste reduction, eliminating dangerous materials, products or practices. The intent is to keep the guidance simple and readable, regardless of anyone's prior knowledge.

The Future Materials Bank keeps an excellent lexicon of terms at www.futurematerialsbank.com/lexicon.

Training and Learning

Theatre's shift towards sustainable practices needs training to support a broader understanding of the principles on which green guidance is based.

Widespread climate and environmental sustainability literacy training will support the whole sector move forwards. Meanwhile theatre's own networks can help share theatre makers' experiences, innovations, new techniques and lessons learnt.

3 The Creative Challenge

1 A Different Challenge

The challenge facing theatre writers, directors and designers is to conceive and create ambitious new productions that express everything they wish to say about the world while working within the reality of the climate crisis.

That reality, and the challenge of responding to it, is already shaping the work of many writers, designers and directors.

A work of theatre can, of course, take the climate emergency as its subject - in which case it's all the more important to create it in a way that reflects climate realities. However making shows sustainably is not an end in itself. It isn't theatre's purpose or ambition which have changed; but the parameters within which it's made.

Parameters are, of course, nothing new - theatre makers have always worked within boundaries of cost, space and time. Limitation can be a spur for invention; constraint and creativity to interact. Almost without exception, theatre artists in their early careers work within severe constraints, making shows with whatever's to hand.

The climate emergency has brought a different set of parameters, however. Working within them is a different creative challenge.

2 A Different Approach

Some theatre-makers have been exploring this challenge for years; for others, it will be new. The future direction of theatre will take shape through the work and the manner in which it is made.

The role of this guidance is not to suggest creative solutions, but to outline parameters to support the development of sustainable theatre practices. Sustainable practices, at first sight, may suggest aesthetic austerity and minimalism; however, this is not the only solution for achieving sustainable practice.

Sustainable practices shouldn't stifle artistic creativity. Theatre has always responded to crucial new subjects through creativity and invention, and, in the process, discovered unanticipated new forms of expression.

3 A Different Way of Working

In the collaborative spirit in which theatre is made, no one person can 'own' sustainability. Everyone's practice is affected; everyone is dependent on others, from production companies to set-builders, to designers and artists. Responding to the climate emergency is a collective responsibility.

Embedding sustainability will require innovation, collegiality and collaboration, that promote different forms of creative practices and relationships. To support the development of sustainable solutions, safe, collaborative environments need to be constructed to ensure all voices are respected and heard.

Makers, builders and technicians expertise are needed at early stages, iterative conversations are essential to deliver the artistic vision in its most sustainable form. Working in this way needs time. Schedules and budgets should provide greater time and resources to allow sustainable considerations as equal to budget, time and engineering. Chapter four provides detail on the principles of producing shows more sustainably.

Responding to the climate emergency is a collective responsibility, and the work it generates will be a collective endeavour.

4 Some starting-points

It is no part of this guidance either to prescribe creative answers, or predetermine outcomes. There is no single creative prescription for the new approaches that respond to the climate crisis. Collectively, theatre-makers are inventing them, show by show and season by season.

For the many theatre-makers who have already engaged with the challenge of the climate emergency, the notes that follow may therefore seem superfluous. They should be read not as prescriptive, but as a series of starting-points which summarise theatre-makers' experience so far.

New Writing and Devised Work

New writing and devised work present unique challenges. Rehearsal is a journey of discovery and change. That energy mustn't be squeezed out of the process. Planning in advance shouldn't exclude the effect of the unanticipated.

Directors and designers can balance the drive of late design and fabrication, with the opportunity to make sustainable choices. The aim must be to make sustainable choices, not to exclude them.

While exploring new work, consider the source of the materials used and the object being built. Is it certified, can it be used in another production, repaired, deconstructed or recycled?

The concept

The director and designers hold leadership and can heavily influence the sustainability ambition of a production. Responsibility for working sustainably lies with everybody, and teams must collectively rise to that challenge. However, making work within the parameters of the climate emergency is a journey that starts with the initial concept.

Collaboration

By working together, teams can embed sustainable design and practices using their common expertise.

New production milestones required to support this:

- Green Book standards are discussed at the parameters meeting.
- A sustainability meeting at concept stage lays the foundation to embed sustainable thinking.
- The Preliminary Design phase integrates a 'Green Card' meeting where the whole team audits design against Green Book targets, workshops options, and agrees actions prior to the final design.

Flexibility

Collaboration requires flexibility. Working with a team to explore a sustainable outcome requires sharing control and supporting all members of the team to have a creative voice.

Losing a few centimetres here or adding some there might make it possible to reuse last year's revolve, or support the workshop cut a floor from fewer sheets. A reused stair from a previous show might not be the first idea - but it might be the right one. Designers and fabricators working sustainably keep their minds open to change.

Time

Engaging in sustainable practices takes time for innovation, design and procurement of sustainable materials. Producers and production managers need to factor the time required into design and build schedules.

Theatre-makers need time to find new answers to new questions.

Efficiency

Minimising material use should be a common goal for designers and fabricators. Efficient and sustainable thinking is aligned with creative process. To achieve this, design and development should minimise material waste and maximise the value of each element.

Different approaches

Typical scenery wall construction generally referred to as flats is often constructed from new ply cladding on either timber, aluminium or steel frames. Some designers have found it helpful to start from a different place - from a space's architecture; from what's available in theatre stores; or from the particular qualities of reused or recycled materials.

Sustainable making

The first step of sustainable making is to minimise, through design, how much material a set, prop or costume requires. The next is to find reused components or recycled materials - ideally locally, to reduce freight. Failing that, new materials should be sourced from environmental sustainable sources. There are a number of recognised product certification schemes for example Forest Stewardship Council (FSC), Carpet Institute Environmental Certification Scheme (ECS) and Good Environmental Choice Australia (GECA). At all times avoid sourcing virgin material from non-certified sources and suppliers.

Look ahead

Productions don't end at the final curtain. In a circular economy, materials never become waste. Theatre makers need to think of that in advance. If the team has made something of value, there will be other ways of valuing it again. Don't assume that a show's scenery, props and costumes final audience is the skip.

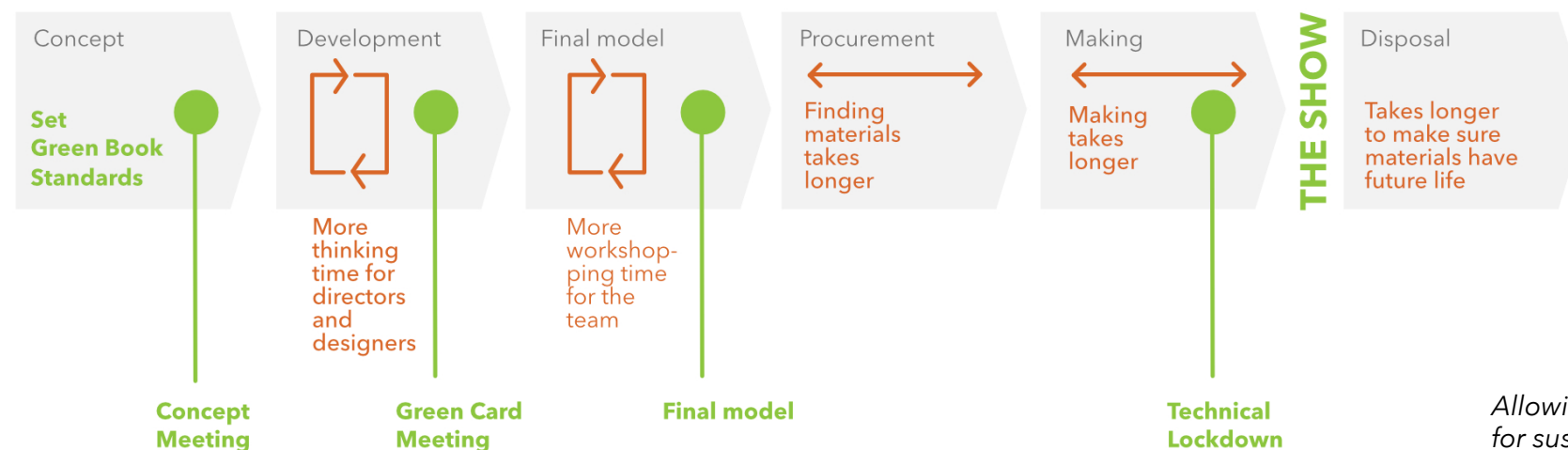
What is a Circular Economy

The circular economy is a system where materials never become waste and nature is regenerated. In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. The circular economy tackles climate change and other global challenges, like biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources.

Ellen Macarthur Foundation

www.ellenmacarthurfoundation.org

4 Producing a Show



1 Key Principles

Producing a show sustainably requires:

- Setting a clear sustainability target at the outset.
- Setting up the team, budget and schedule to support sustainable practices.
- Provide education, systems and tools to achieve a sustainable outcome.

2 Communications

Setting a standard

The Green Book sets three clear standards: Baseline, Intermediate and Advanced. The **GUIDANCE** defines actions for each, and provides an outline of responsibilities.

The ambition is for Green Book standards to become familiar in the industry globally, providing a common framework to approach sustainability.

The Invitation

It's essential to define the sustainability standard with the first invitation and contracting of team members. Outlining it at the start, will allow it to be built into creative thinking from the outset.

Appointments

Sustainable working requires teams to be appointed early, to enable the creative and production team to achieve creative ideas in a sustainable manner.

A Sustainability Champion, appointed from within the team, can help, support, encourage and co-ordinate however sustainability is everyone's responsibility.

A Green Production Agreement, signed by everyone, binds the team to collaborate towards a common goal. Contracts with suppliers, creatives, contractors, makers and production departments should reference the same standard.

Go to the Toolkit for more on Sustainability Champions, and sample wording for a Green Production Agreement.

Collaborative working

Sustainable theatre-making requires early collaboration. The creative team, contractors, makers, suppliers and production departments should be engaged early to offer suggestions and workshop solutions. Theatre companies should create safe spaces to elevate and support a diverse range of voices.

Sustainability needs to be a constant refrain, however three key meetings can support sustainable practice:

- Green Book standards are discussed at the parameters meeting.
- A sustainability meeting at concept stage lays the foundation to embed sustainable thinking.
- The Preliminary Design phase integrates a 'Green Card' meeting where the whole team audits design against Green Book targets, workshops options, and agrees actions prior to the final design.

Go to the Toolkit for more on Meeting, Sharing and Reviewing.

3 Schedules and Budgets

Schedules

Engaging in sustainable practices takes time for innovation, design and procurement of sustainable materials. Producers and production managers need to factor the time required into design and build schedules. Designers need time to explore creative solutions, achieving them sustainably requires iterative conversations among the team.

IN THE TOOLKIT

- Green Production Agreement
- Sustainability Information for Teams
- Sustainability Champions
- Carbon Calculating Tools
- Climate Literacy Training Courses
- Budgeting for Sustainable Shows
- Scheduling for Sustainable Shows
- Materials Inventory
- Stage Management
- Meeting, Sharing, Reviewing
- Outdoor / Site Specific Productions
- Biodiversity Assessments

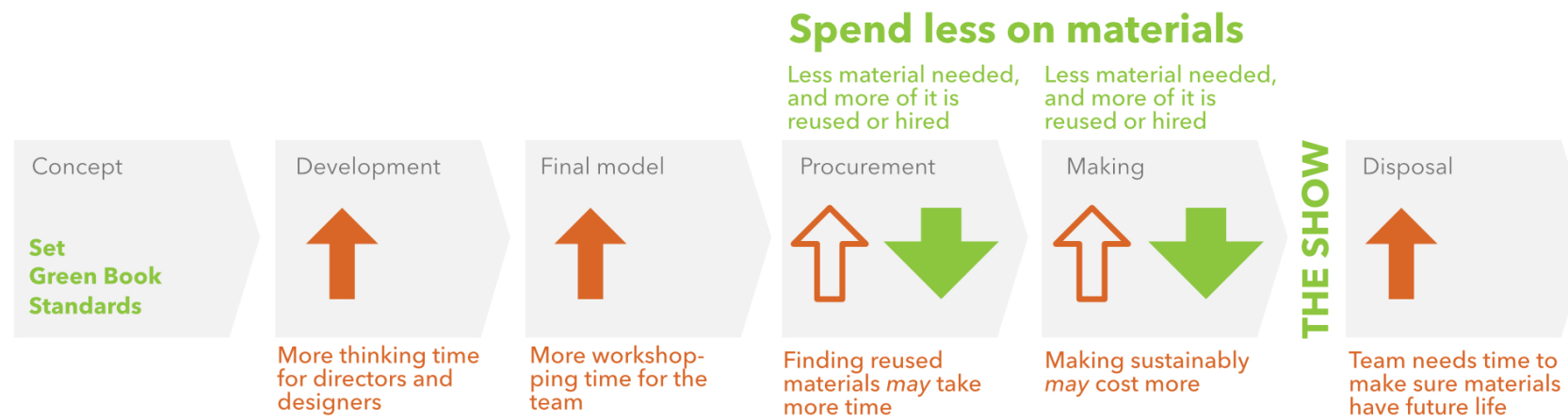
Budgets

Budgets should reflect the same shift as schedules, enabling extra resources for designers and makers to engage in collaborative conversations that meaningfully consider sustainability.

Producers and production managers should consider a change in budget dynamics, for example a new set made with sustainably-sourced materials, or the reuse of components and recycled materials.

Go to the Toolkit for more information on schedules and budgets

Rethinking costs : budgeting for sustainability



Spend more on people's time

Arup has released a free online carbon calculator focused towards the arts and culture sector to measure carbon emissions related to Travel, Freight, Energy and Waste.

Developing a Materials Inventory that the entire team can contribute to can be an effective tool to track materials, apply carbon emissions factors, identify where they have been procured and opportunities for re-use, and how they can be reused afterwards.

Go to the Toolkit for links to various tools and a sample Materials Inventory.

Sharing and training

Embedding sustainable practices will increase as the sector's climate literacy develops. Theatre-makers will learn by trialling and sharing, so it's essential, after a show, to review outcomes and share honestly what worked, and what didn't.

Making work sustainably can be something to share with audiences, who will increasingly expect sustainable practice.

By gathering data, production company's can lay the groundwork for carbon budgeting, and support staff and freelancers with training.

Go to the Toolkit for guidance.

Managing a show

Embedding sustainability within the productions season requires a unique set of systems and processes. Once a production has opened it will be in the care of the stage management, wardrobe and technical production teams.

There are a number of opportunities to reduce environmental impact for example selection of consumables such as rechargeable batteries, care and maintenance of costumes and props. For long-running shows, managing a production sustainably is a significant part of reducing its footprint.

There's more in section 9, Managing a Show.

The end of the show

A sustainable production doesn't end on closing night. Returning materials and components, costumes and props for further use is every bit as important as procuring and constructing them in a sustainable manner in the first place.

Production companies should consider sustainable disposal systems and protocols. Good relationships with local second hand shops, community centres, other theatres and prop stores will help make sure materials have an afterlife - and nothing ends up in the skip.

4 Tools and Methods

Information

Theatre makers need tools and systems to support sustainable outcomes.

Production company's and production managers can support freelancers with information on in-house and local resources. They can facilitate design and production teams in sharing components, materials, floors, equipment, knowledge and experience. Strong theatre networks are an essential resource for sustainability. Go to the Toolkit for a checklist of information to provide.

Evaluating

Carbon budgeting and calculation for theatre productions is an emerging field.

The Australian Governments National Greenhouse Accounts (NGA) Factors has been prepared by the Department of Climate Change, Energy, the Environment and Water, and is designed to support individuals and organisations estimating their greenhouse gas emissions.

The Australian National Greenhouse Accounts Factors provides an emissions factor which can be utilised to calculate the carbon emissions impact of energy sources and materials.

Commissioning Multiple Shows and Seasons

Shows commissioned in a series or season, have the opportunity to consider sharing resources and reuse components.

For example, consecutive shows may be able to bulk purchase sustainable materials, or create modular scenery and props that could be re-used.

The result may have significant savings in materials and energy, along with the costs and emissions associated with construction and transportation.

Touring

Touring can expand the reach of a production however the carbon impact of freight and travel can be significant.

See Arts of Tour Greener Touring Toolkit for more information

<https://artsontour.com.au/initiatives/greentouring/>

Outdoor and Site Specific Shows

Outdoor and site specific shows can be extremely sustainable. There are a number of place specific challenges to consider and opportunities to explore.

Go to the Toolkit for more guidance.

5 Scenery

1 Key Principles

Key principles are to eliminate the procurement of non-sustainable materials, reduce freight, within a broader ambition of constructing scenery that limits environmental impact.

The materials hierarchy

- The first step is to minimise, through design, the volume of material.
- The next is to find reused components or recycled materials - locally sourced.
- Failing that, new materials should be sourced from certified ethical and sustainable sources.

2 Communications & Planning

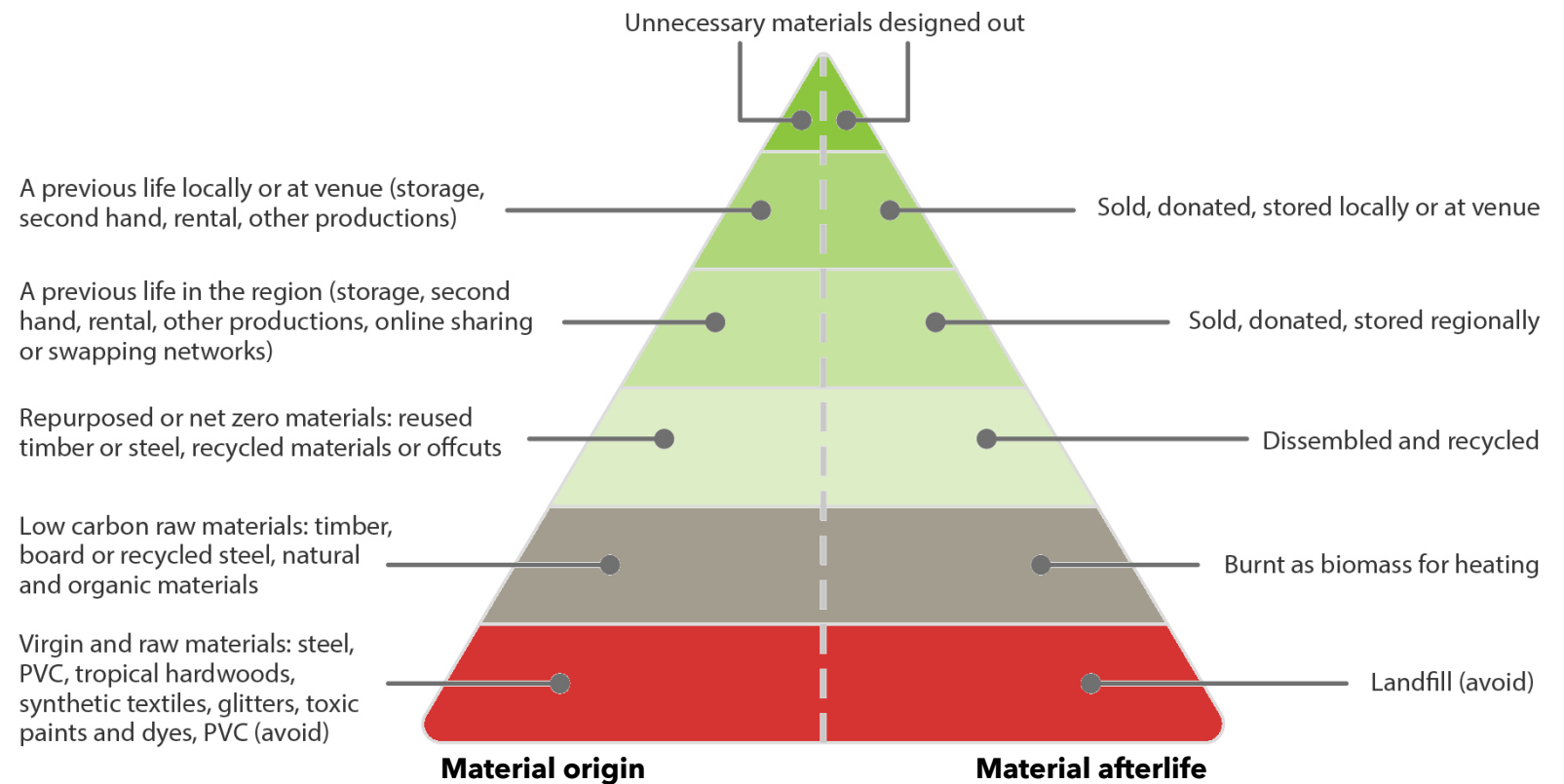
To work sustainably, production companies should appoint staff early, and promote collaboration.

Designers, collaborators and makers should be provided information on available sustainability resources. Companies should identify opportunities to collaborate with teams working on other productions, to share materials, components and equipment.

Budget and schedule should allow for an iterative approach to design and construction between designers, production managers and makers to support sustainable outcomes.

3 Design

Sustainable material selection and construction processes should be embedded throughout the design and construction process.



Engaging builders, makers and suppliers early in a collaborative sustainable design creates an environment to explore a broader range of sustainable material and construction methods. Directors and designers should approach that dialogue flexibly, to allow space for sustainable solutions.

Sustainability needs to be a constant refrain, however three key meetings can support sustainable practice:

- Green Book standards are discussed at the parameters meeting.
- A sustainability meeting at concept stage lays the foundation to embed sustainable thinking.
- The Preliminary Design phase integrates a 'Green Card' meeting where the whole team audits design against Green Book targets, workshops options, and agrees actions prior to the final design.

4 Materials

Reuse and recycling

Reuse means taking components and using them again. Recycling means breaking something into materials that can be used again.

The capacity to re-use and recycle materials will strengthen as sharing and storage systems across the sector are better established. Until then, a lot can be unearthed through venue storage, networks of designers, production managers, set builders, online sharing sites, and second-hand shops.

Go to the Toolkit for more on Reuse and Recycling.

Sustainable sourcing

Scenery construction typically use steel, aluminium, softwood, plastics, ply (and other sheet materials). Steel and aluminium has a high level of embodied carbon. There are instances of plywood on the market from suppliers that are not engaging in sustainable practices. The negative impact of plastics on ecosystems is well documented.

Theatre-makers can reduce their impact by specifying and sourcing sustainable materials. There are a number of environmental sustainable product certification schemes. The Green Building Council of Australia provides an outline of a number of recognised product certification schemes and standards

<https://new.gbca.org.au/product-certification-schemes/recognised-product-certification-schemes-and-standards/#GECA>

Go to the Toolkit for more information on Sustainable Sourcing.

Materials to avoid

Some materials are particularly damaging, through scarcity, manufacture, or chemical harm. These include polystyrene, PVC, steel and tropical hardwoods. They should be phased out of use in theatres as quickly as possible.

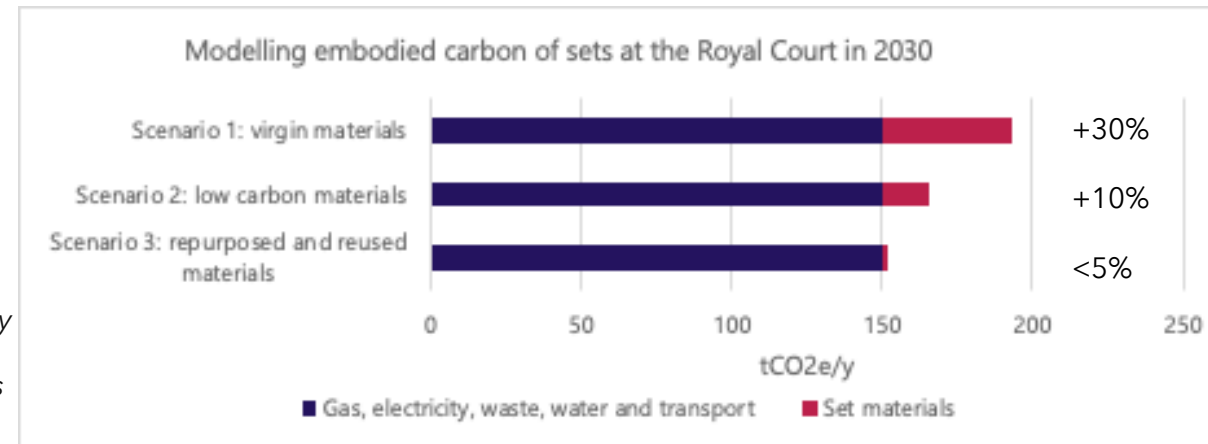
Go to the Toolkit for a list of Harmful Materials.

How Much Carbon in a Set?

Sets and scenery are a significant part of theatre's footprint - depending how they're sourced.

The Royal Court Theatre uses 30,000 kg a year of steel, timber and boards. By 2030, when they'll be halfway to carbon zero, that will represent about 30% of their overall carbon footprint from building and operations.

Sourced sustainably, the same sets could represent only 10%. Reduce the need for new materials still further through design, reuse and recycling, and they'd be less than 5%.



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Scenic Art

Scenic art is a specialist theatre skill that can play a key role in the transition to sustainable practices.

- Paints, equipment and materials can be harmful, and should be sourced sustainably.
- Some of the guidance for props also applies to scenic art.
- Scenic artists should be consulted early to ensure time and budget is allowed for sustainable practices (such as the costs and drying-times of water-based paints).

Go to the Toolkit for more guidance on Scenic Art.

Special Effects and Automated Parts

Special effects have an environmental footprint. For example, snow becomes waste and dry ice involves chemical manufacture. It's always worth looking for more sustainable alternatives.

Go to the Toolkit for more guidance.

5 Tools & Processes

Evaluation

Measuring carbon emissions associated with scenery construction will become easier with tools and training. In the meantime, materials inventories provide a vital snapshot of where materials in a show come from, and allow designers, makers and builders to plan for their reuse after the show.

Set-makers should consider recording all materials used, by weight if possible, and make sure these are captured in the Materials Inventory.

Go to the Toolkit for links to available Carbon Calculators and a sample Materials Inventory.

Modular design and designing for deconstruction

Sets often include generic components: rostra, flats, doors, windows, stairs, balustrades. Designed to modular dimensions, those components become far easier to reuse in new sets - allowing them to be utilised for other productions.

Go to the Toolkit for more guidance.

Designing and making for disassembly

There are a number of opportunities to construct scenery in a manner that enables it to be returned to its original materials. This process is referred to as 'designing for deconstruction'. That enables scenery to be disassembled effectively to allow materials to be re-used. Generic materials, kept in whole sheets with fixings that can be removed can be recycled and utilised for a future production.

Go to the Toolkit for more guidance.

Sustainable working : Designers

Foamboard, glue and paint contain harmful chemicals, and most models are disposed. Production companies can support by providing robust, reusable model boxes .

For set modelling, most designers already reuse materials where they can, and more sustainable foamboards and glues are becoming available. In future CAD modelling programs may cross-reference to inventories of set materials and components.

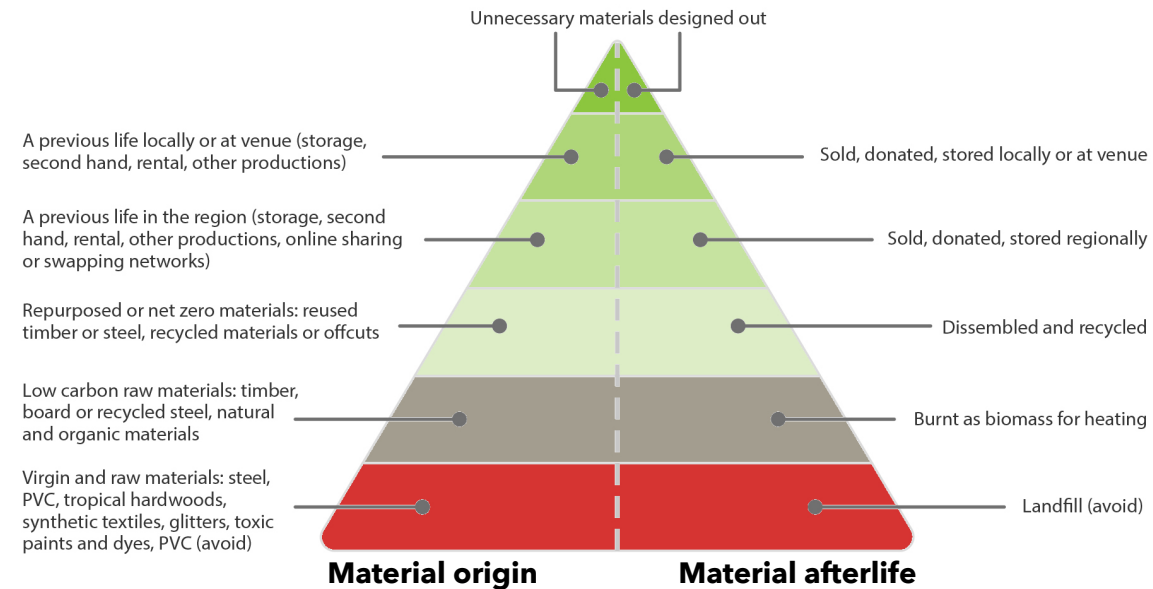
Go to the Toolkit for more guidance.

Sustainable working : Makers

Workshops and makers can shift to sustainable tools and practices, such as electric tools, batteries, air drying, sinks that separate harmful waste, and cold laundries for textiles.

Go to the Toolkit for more guidance.

6 Props



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Props

1 Key Principles

Key principles is to eliminate the procurement of non-sustainable materials, reduce freight, within a broader ambition of constructing props that limits environmental impact.

Sourcing ready-made props

A key opportunity is reusing existing props and furniture and ensuring they have a future life after the production.

To reduce purchasing new props and materials, designers and props supervisors require more time for sourcing, and a flexible approach to using what's available.

Production companies should allow time and budget for this approach and utilise theatre networks for sustainable props sourcing.

Making props: the materials hierarchy

- The first step is to minimise, through design, how much material a productions fabricated props require.
- The next is to find reused components or recycled materials - ideally locally, to reduce freight.
- Failing that, new materials should be sourced from ethical and sustainable sources.

Workshops

There are systems and processes workshops can implement to engage in sustainable practices. For example waste reduction, chemical disposal and the procurement of sustainable materials.

Go to the toolkit for guidance on sustainable workshop practice.

2 Communications and Planning

Working sustainably requires collective thinking. Designers and props departments or supervisors need to engage early to source props and furniture from sustainable sources. Production companies and theatres should provide information on what's available from storage, and identify local second-hand shops and networks. They should connect designers with teams working on other productions to see what can be reused.

Budget and scheduling should allow for extra communication and collaboration between designers, production managers and makers to engage in sustainable practices.

Directors and designers can support by early identification of props required for rehearsal. Last-minute changes may sometimes be unavoidable - however the impact should be considered holistically.

3 Reuse and Recycling

Apply Circular Economy design principles to eliminate waste and pollution, circulate products and materials at their highest value. Wherever possible, it's important to source reused props and furniture, rather than making or buying new.

There are many sources to explore, already familiar to designers and props supervisors, including theatre props stores, networks of props stores in other theatres, productions being planned for the same stage, props hire companies, local second-hand shops and networks, online second-hand resources for theatre, social media and online second-hand networks.

As critical as increasing re-use of props is considering the post show life of props to extend their life cycle by returning to store, or sold through second-hand networks.

Go to the Toolkit for Reuse and Recycling resources.

4 Materials

Sustainable sourcing

The negative environmental impact of plastics glues, paints, enamels and other chemical products often used in props construction is well documented.

Theatre makers can reduce their impact by specifying sustainable materials. There are a number of environmental sustainable product certification schemes. The Green Building Council of Australia provides an outline of a number of recognised product certification schemes and standards

<https://new.gbca.org.au/product-certification-schemes/recognised-product-certification-schemes-and-standards/#GECA>

Go to the Toolkit for more information on Sustainable Sourcing.

Materials to avoid

Some materials are particularly damaging. These include polystyrene, PVC and tropical hardwoods. They should be phased out of use in theatres as quickly as possible.

Go to the Toolkit for a list of Harmful Materials.

Last Minute Ordering

Shows often order at the last minute, using next day delivery. That means a lot of one-off deliveries. Consider the following:

- Design and source flexibly, consider stock items.
- Use local suppliers.
- Make single orders from limited sources so as to streamline deliveries.

7 Costumes, Hair and Makeup

1 Key Principles

Sustainable sourcing and construction of costumes aims to eliminate the use of unsustainable and inorganic materials. Sustainable practice for hair and makeup utilises products that are sourced sustainably, and that limits environmental impact.

Sourcing costumes

Costumes should be reused or recycled. Some may come from store, others - including basics like T-shirts or jeans - should come from second-hand sources. It's equally important to ensure that costumes are returned to storage or the second-hand market after the show, rather than thrown away.

Making costumes

Making costumes is one of theatre's greatest skills. Sustainable costumes use recycled or sustainable textiles. They're designed to be durable and recycled afterwards.

Fast Fashion

What is Fast Fashion?

'Fast fashion is a design, manufacturing, and marketing method focused on rapidly producing high volumes of clothing. Fast fashion garment production leverages trend replication and low-quality materials (like synthetic fabrics) in order to bring inexpensive styles to the end consumer.'

Audrey Staton

<https://www.thegoodtrade.com/features/what-is-fast-fashion/#:~:text=Fast%20fashion%20is%20a%20design,>

During the season

Wig and Wardrobe departments can consider maintenance techniques that limit the use of harmful chemicals, and the energy used in washing and drying. Early collaboration between Designers, Costume, Wig and Wardrobe departments can play a key role in identifying opportunities to minimise environmental impact.

2 Communications and Planning

Costume departments / supervisors need to be engaged early to allow time for sustainable sourcing of clothing items and materials. Planning early can reduce last minute ordering, next day delivery and use of suppliers that engage in 'fast fashion' practices. Budget and scheduling should allow for extra communication and collaboration to engage in sustainable practices.

Production companies and theatres can provide information on what's available from store, and on local second-hand shops and networks.

3 Reuse and Recycling

Apply Circular Economy design principles to eliminate waste and pollution, circulate products and materials (at their highest value), and regenerate nature are key considerations. Wherever possible, it's important to re-use or recycle clothing and materials. It's equally important to give clothes a second life through storing, selling or donating after the production closes. If they have reached end of life consider disposing through sustainable recycling operations.

Go to the Toolkit for more information on reuse and recycling.

4 Materials

Sustainable sourcing

If possible, costume departments should use recycled or deadstock fabrics and cottons. Failing that, textiles should be certified organic,

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contain only organic dyes, consider sourcing locally, and be machine washable, to avoid chemical or dry cleaning. Scraps should be recycled in textile banks.

For hair and makeup, sustainable, non-toxic products should be used, with clear environmental labelling and disposal instructions.

Go to the Toolkit for more information on Costumes.

Materials to avoid

Some materials used in costumes, wigs and make-up can be environmentally damaging. These include glitter, synthetic dyes and products containing parabens and triclosan. For fastenings, use sewing, ties, pins & clips, instead of tapes, pastes & glues.

Cosmetic products should be accredited with an ACO Certification under the Australian National Standards, COSMOS or similar, and come in 100% recyclable, compostable or reusable packaging.

5 Caring for Costumes and Wigs

Sustainable care of costumes and wigs means reducing the use of harmful chemicals and energy. Launder textiles below 30°C with products that meet GECA Ecolabel requirements. Tumble drying should be avoided if possible.

6 Deliveries

The impact of last-minute, one-off deliveries should be considered holistically.

Combined orders from single sources will avoid the need for multiple deliveries, and the planning involved will help reduce reliance on last-minute ordering. Co-ordinating with other production departments can further reduce deliveries.

Sourcing locally should be a priority.

8 Lighting, Sound, Video

1 Key Principles

Lighting, sound and audio-visual equipment use energy, even when on standby. Some equipment also generates heat, requiring cooling from air conditioning systems.

Manufacturing technical equipment often uses scarce materials and minerals. Maintenance and disposal also have an impact.

Deliveries have a carbon impact, and ancillary products like gaffer tape and gels contribute to waste.

Technical theatre is a relative success story for sustainability. New technologies use less energy. Equipment is modular, and is often kept on site or hired, resulting in easy reuse. This provides a strong foundation for further progress, by looking at the impact of technical theatre over its full lifespan.

2 Design

Designers can start reducing energy by minimising equipment and considering natural acoustics and lighting - where possible - to reduce energy need.

There are opportunities to broaden sharing technical equipment resources between productions and companies. Bespoke systems require more resources, and often more energy too. If possible, use in-house lighting and systems.

3 Communications and Planning

Working sustainably requires lighting, sound and video designers to integrate their thinking at the earliest stages of a show's conception. Production companies should engage early with designers and provide relevant information to what's available locally, and connect them with other teams to share thinking and equipment.

4 In Use

Power up and power down routines can minimise energy use. For lighting, this might include switching off discharge lighting between the end of the reset or rig check. This can also be applied between matinee and evening performances; and turning off dimmer racks, PSUs, drivers and other technical equipment overnight.

Tool and consumable selection for example cable ties and PVC tapes can be replaced, in many conditions, with cloth ties, snap fasteners and clamps.

Ancillaries like lighting gels should be used for as long as possible and stored for reuse, rather than being thrown away. For long-term installations, dichroic filters may be a better option.

5 Equipment

Technical equipment and systems should be carefully maintained and repaired frequently to maintain energy efficiency, and refurbished (where possible) rather than thrown away. They should be replaced only when they have reached end of life.

Lighting and AV teams can extend equipment lifespans with careful handling and more frequent maintenance. Maintenance training is often available for complex units.

Equipment no longer needed may still be useful to others. If it has reached end of life, ensure equipment is disposed of safely. Consider how it can be reused, donated, repurposed, recycled or stored. This includes bespoke lights, equipment, screens, lighting gels, and practicals.

ISO E-Waste recycling schemes can ensure safe disposal.

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6 Deliveries

If there isn't adequate equipment in-house, consider renting or order in bulk from a single local supplier, combining orders across departments if possible.

Avoid multiple deliveries of ancillary products or spares. Instead, plan ahead, communicate with other departments and productions to streamline deliveries. When hiring, try and ensure enough spares are included to cover the full run. Use of low carbon transport methods for deliveries - such as electric vehicles - can also help reduce transport emissions.

Go to the Toolkit for more details on working sustainably.

Receiving Venues

In many receiving venues, each production has its own technical set-up, requiring transport and set-up, often to recreate similar rigs.

- Collaboration between productions can share equipment and systems. Explore whether flexible supplier and hirer contracts can allow transfer of rentals between teams.
- Venues can hire and sublet equipment, or require incoming productions to use local hirers or green transportation.
- Venues can help productions develop shared guidance on use of standard systems and equipment.

9 Managing a Show

1 Managing a Run

The sections above indicate how to develop and produce a show sustainably up to opening night. It's essential to keep on managing it sustainably through to closing night - and beyond to final disposal.

During this period, much of the production team will have moved on to other projects. Stewardship of the show's sustainability ambitions will often pass to the stage management and show crew.

With long-running shows, that stewardship may go on for years before the show is finally closed and disposed of.

2 Stage Management

If stage management are provided with sufficient resources and training they can make a significant and instant contribution to 'greening a show'. They can engage in monitoring and support the show during a period when late changes might threaten sustainability targets.

If it's possible to appoint the stage manager early, they can be engaged in broader sustainability conversations and ensure this ambition is embedded throughout rehearsals, production week and throughout the season.

3 Consumables

Prudent choice of consumable items for example, rechargeable batteries for equipment, paper, food, blood, printer ink and packaging can reduce a production's footprint.

4 Touring Productions

Stage Management teams that visit receiving venues have an opportunity to work with local suppliers who engage in sustainable practices. Influencing purchase decisions in that way may only make a small difference venue by venue - but the cumulative effect over many weeks and many productions is significant.

In the touring sector there are a broad range of opportunities. Please refer to Arts on Tour Greener Touring Guidelines.

<https://artsontour.com.au/initiatives/greentouring/>

5 Costume Care

Ancillary products such as hangers and bags should be sourced sustainably and reused between productions.

A sustainable approach to laundry includes avoiding unnecessary cleaning, washing at lower temperatures, and selecting detergents carefully. Washing techniques should aim to filter out micro-fibres. Drying cupboards are preferred to tumble dryers.

Dry-cleaning should be avoided where possible. Repairs are always preferable to remaking.

6 Disposal of Costumes

There are many options for disposal of costumes at the end of a season. Some may be returned to store. Others might be resold through the second-hand market, donated to charity - or given to performers. Worn-out costumes should be disposed of through materials and textile banks.

See the Toolkit for more detail on sustainable costume care and disposal.

7 Disposal of Sets, Props and Furniture

With long-running shows, Stage Managers may have a role in disposal, finding new homes for props, furniture or other elements.

Some may return to store. For others there may be a ready second-hand market through websites or second-hand shops.

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10 Looking Ahead

New Initiatives

There are initiatives, mentioned throughout this document, which should make it quicker and cheaper to deliver ambitious shows sustainably, as we transition to new ways of working.

Principle considerations are outlined below:

1 Modular Design

Technical design is already largely modular. Expanding the range of modular components can support scenery construction deliver stronger environmental sustainability outcomes.

Modular floors, flats, and generic architectural elements like windows and doors can be reused across shows, reducing the need to build them from scratch for each production. Development of modular components, shared within venues or between venues, could provide designers a base set of structures with a lower environmental impact (since they are used for a long period of time), as a basis for the bespoke elements of each design.

2 Virtual Modelling

Increasing use of CAD software, Blender, Cinema 4D, Sketchup and other virtual design platforms will enable set, lighting, sound and AV designers to work collaboratively and remotely on models. This can lead to a stronger resolution of design that can optimise the approach to construction and reduce waste.

3 Materials Passports

With a shift to reuse and repurposing of materials, some industries are beginning to develop documents that trace where materials have come from and how they have been used. This allows a better understanding of embodied carbon and the materials chain of custody.

4 Storage Facilities

Well-managed storage of props, sets and objects is essential to supporting reuse and repurpose of materials. This requires facilities with well-catalogued and recorded management systems, online browsing capabilities and easy booking systems.

5 Carbon Calculators

Carbon calculators can support productions understand their carbon footprint and inform decision-making.

Crucially, once carbon footprints are used widely, typical standards for productions will be better understood, allowing for targets and carbon budgets to be set.

Arup - Circulate Emissions Calculator

<https://circulate.arup.com/login>

6 Design for Disassembly

If materials are glued, cut and taped they can be difficult to recycle or adapt for reuse later. Designing and constructing in such a way that allows for the component to be taken apart once it's use is complete can ensure materials can be sustainably reused or recycled after a production is complete.

This may mean keeping materials in sheet form, using mechanical connections (like sewing, screws, pins and clamps), and keeping clear drawings and instructions to aid disassembly.

Go to the Toolkit for more details on all these initiatives.

7 Working at Different Scales

The Theatre Green Book Australia aims to provide recommendations for productions of all kinds, at all scales. Its guidance has been developed by freelancers and venues, by venue-based and touring companies working at large and small scales.

The principles of sustainability are the same:

- Creating safe environments for diverse thinking and collaboration
- Education, training and communication
- Guidance, resources and materials
- Reporting and feedback

The guidance that follows is designed to be achievable at all scales – however companies must make their own decisions about how to satisfy them with the resource available.

Productions vary in style, size, venue typology, production team set-up and more. Shows have different priorities, and face different challenges, as do venues of different scales, working with different performance types in different locations.

sustainable productions

THE GUIDANCE

“As we collectively face the reality that our practices have consequences, we are also presented with an opportunity to remake our profession. This ‘ecological turning’ is a pivotal point in the history of the performing arts, to be defined by the theatre makers of today, but particularly by those of tomorrow. The urgency for this reimagining has never been greater.”

*Dr Tanja Beer, Co-director of The Performance + Ecology Research Lab
(P+ERL), Griffith University | Queensland College of Art*

3 Steps Towards Sustainability

Choose which Green Book standard to work to. The following pages give detail on each.

	1 Baseline
Invitation	B.1 The production's Green Book Baseline standard is stated as part of the initial invitation to everyone involved.
Production Agreement	B.2 A Green Production Agreement is signed by everyone involved in the production.
Team	B.3 The full team is appointed early to allow for collaboration on sustainability.
Sustainability Champion	B.4 A Sustainability Champion is appointed at the outset to track, guide and support sustainability efforts across the team.
Budget & Schedule	B.5 The budget and schedule are set to support sustainable working.
Concept	B.6 An early meeting at preliminary design stage includes makers, so the whole team can develop sustainability vision.
Development	B.7 A 'Green Card' meeting in which the whole team reviews the design against the Theatre Green Book standard.
Evaluation	B.8 A Materials Inventory lists the sources of all materials, and their planned disposal routes after the show.
Making	B.9 The Sustainable Workshop guidance is understood and agreed by all, to establish green workshop practices.
	B.10 50% of each category of materials used in the production (set, props, costumes etc) is from a recycled source.
	B.11 50% of new materials are sustainably sourced including plastics.
	B.12 Maximum of 50% of all paint finishes use VOC content
	B.13 Production owned vehicles milage is calculated.
Technical	B.14 Technical teams follow guidance in chapter 8, reducing energy through power down routines etc.
Costumes	B.15 The Costumes guidance is understood and followed, to maximise reuse and manage costumes sustainably.
Review	B.16 A review meeting is held by the Sustainability Champion to assess the show's outcome and share lessons learnt.
Disposal	B.17 After the show, 65% of materials are re-used or recycled. Technical systems are maintained, reused or sustainably returned.
Outdoors	B.18 Outdoor / Site Specific shows follow Green Book guidance for Outdoor / Site Specific shows.
Touring	B.19 Touring shows follow Green Book guidance and Arts on Tour Greener Touring Toolkit.

	2 Intermediate
	I.1 The production's Green Book Intermediate standard is stated as part of the initial invitation to everyone involved.
	I.2 As Baseline.
	I.3 The team is given an information pack of in-house & local resources to support sustainability.
	I.4 All key members of the team have undertaken carbon literacy training before production starts.
	I.5 As Baseline.
	I.6 As Baseline.
	I.7 As Baseline.
	I.8 As Baseline.
	I.9 As Baseline.
	I.10 75% of each category of materials are from a recycled source.
	I.11 All other materials are sourced sustainably.
	I.12 No VOC's are used in any paint products.
	I.13 Production owned and rental vehicles milage is calculated.
	I.14 As Baseline.
	I.15 As Baseline.
	I.16 As Baseline.
	B.17 After the show, 80% of materials are re-used or recycled. Technical systems are maintained, reused or sustainably returned.
	I.18 As Baseline.
	I.19 A Carbon Calculator is used to understand the impact of each leg and follow the Arts on Tour Greener Touring Toolkit

	3 Advanced
	A.1 The production's Green Book Advanced standard is stated as part of the initial invitation to everyone involved.
	A.2 The Green Production Agreement contains a clear divestment and ethical funding statement.
	A.3 All supply contracts, tender documents and contracts require Green Book Advanced standard to be met.
	A.4 A Carbon Budget is set, and the Sustainability Champion trained in using a Carbon Calculator.
	A.5 As Baseline.
	A.6 As Baseline.
	A.7 Sets are designed with modular components for easy reuse.
	A.8 A Carbon Calculator is used to track the production's footprint.
	A.9 Sets are made for easy disassembly to allow for recycling of materials.
	A.10 100% of materials in the production are from a recycled source.
	A.11 All new materials embodied carbon is known.
	A.12 As Intermediate.
	A.13 All vehicle and freight milage is calculated.
	A.14 As Baseline plus energy use is calculated.
	A.15 All materials and costumes purchased are from a certified source.
	A.16 As Baseline.
	A.17 After the show, 100% of materials are re-used or recycled. Technical systems are maintained, reused or sustainably returned.
	A.18 An Ecological Impact Assessment is carried out for any outdoor locations used.
	A.19 As Intermediate

Who does what? Baseline

		Producers	Directors & Designers	Production Managers	Production Staff, Makers, Suppliers
Invitation	B.1	Reference Green Book Baseline standard as part of the initial invitation to all team members.			
Production Agreement	B.2	Prepare a Green Production Agreement, which all team members sign.	Sign Green Production Agreement.	Sign Green Production Agreement.	Sign Green Production Agreement.
Team	B.3	Appoint the full team early to allow for collaboration on sustainability.	Welcome early collaboration. Create a safe space for collective working.	Provide the team with information about in-house resources.	
Sustainability Champion	B.4	Appoint a Sustainability Champion	Support the Sustainability Champion in helping the team meet targets.	Support the Sustainability Champion in helping the team meet targets and and maintain Materials Inventory.	Support the Sustainability Champion in helping the team meet targets and and maintain Materials Inventory.
Budget & Schedule	B.5	Set budget and schedule to support sustainable working.		Support budget and schedule. Establish data and communications systems. Co-ordinate sustainability meetings.	Provide insight on suggested changes to budget and time needed based on previous experiences.
Concept	B.6	Attend early meetings to help achieve the creative vision sustainably.	Include sustainability in conceptual thinking. Work on the concept to reduce late change. Do more with less.	Co-ordinate team to collaborate on sustainability in early concept meeting.	Attend early meetings to help achieve the creative vision sustainably.
Development	B.7	Attend 'Green Card' meeting to help review sustainability and suggest actions to improve.	Collaborate to realise ideas sustainably. Prefer reused / shared resources.	Co-ordinate 'Green Card' meeting to review sustainability and agree actions.	Attend 'Green Card' meeting to help review sustainability and suggest actions to improve.
Evaluation	B.8	Help the team resolve questions and reach decisions so as to embody the creative vision in a sustainable show.	Contribute to Materials Inventory listing the source of ALL materials, and their planned disposal.	Contribute to Materials Inventory listing the source of ALL materials, and their planned disposal.	Contribute to Materials Inventory listing the source of ALL materials, and their planned disposal.
Making	B.9			Ensure Sustainable Workshops guidance is understood and agreed by all.	Follow Sustainable Workshops guidance.
	B.10	Help the team resolve questions and reach decisions so as to embody the creative vision in a sustainable show.	Help ensure 50% of each category of materials (set, props, costumes etc) is recycled.	Help ensure 50% of each category of materials (set, props, costumes etc) is recycled.	Ensure 50% of each category of materials (set, props, costumes etc) is recycled.
	B.11		Minimise virgin materials. Source sustainably where possible.	Co-ordinate team to minimise virgin materials, & source sustainably.	Minimise virgin materials. Source sustainably where possible.
	B.12		Ensure a maximum of 50% of all paint finishes use VOC content	Ensure a maximum of 50% of all paint finishes use VOC content	Ensure a maximum of 50% of all paint finishes use VOC content
	B.13		Contribute to recording of production owned vehicles milage.	Contribute to recording of production owned vehicles milage.	Contribute to recording of production owned vehicles milage.
Technical	B.14			Support technical teams in following guidance in chapter 8	Technical teams follow guidance in chapter 8, reducing energy through power-down routines.
Costumes	B.15			Support wardrobe teams in following Costume guidance in chapter 7	Follow Costumes guidance in chapter 7 to maximise reuse, source and manage costumes sustainably.
Review	B.16	Call a Sustainability Review, and share lessons learnt.	Attend the Sustainability Review, and share lessons learnt.	Support the Sustainability Champion collate data. Attend the Sustainability Review, and share lessons learnt.	Support the Sustainability Champion collate data. Attend the Sustainability Review, and share lessons learnt.
Disposal	B.17		Support planning of how 65% of materials can be reused, donated, repurposed, recycled or stored.	Co-ordinate to ensure that 65% of materials are re-used or recycled.	Help ensure that 65% of materials are re-used or recycled. Dispose of technical equipment sustainably.
Outdoors	B.18	Follow Green Book guidance on Outdoor / Site Specific shows.	Follow Green Book guidance on Outdoor / Site Specific shows.	Follow Green Book guidance on Outdoor / Site Specific shows.	Follow Green Book guidance on Outdoor / Site Specific shows.
Touring	B.19	Follow Green Book guidance on touring and Arts on Tour Greener Touring Toolkit.	Follow Green Book guidance on touring and Arts on Tour Greener Touring Toolkit.	Follow Green Book guidance on touring and Arts on Tour Greener Touring Toolkit.	Follow Green Book guidance on touring and Arts on Tour Greener Touring Toolkit.

Who does what? Intermediate

		Producers	Directors & Designers	Production Managers	Production Staff, Makers, Suppliers
Invitation	I.1	Reference Green Book Intermediate standard as part of the initial invitation to all team members.			
Production Agreement	I.2	Prepare a Green Production Agreement, which all team members sign.	Sign Green Production Agreement.	Sign Green Production Agreement.	Sign Green Production Agreement.
Team	I.3	Appoint the team early and connect them with other teams. Provide sustainability resources.	Work collectively. Collaborate with other teams to share resources, materials & equipment.	Share sustainability information. Share resources, materials & equipment with other teams.	Collaborate with other teams to share resources, materials & equipment.
Sustainability Champion	I.4	Appoint a Sustainability Champion Support the team in carbon awareness training.	Support the Sustainability Champion in helping the team meet targets.	Support the Sustainability Champion in helping the team meet targets.	Support the Sustainability Champion in helping the team meet targets.
Budget & Schedule	I.5	Set budget and schedule to support sustainable working.		Help set budget and schedule. Establish sustainable communications. Co-ordinate sustainability meetings.	
Concept	I.6	Attend early meetings to help achieve the creative vision sustainably.	Include sustainability in conceptual thinking. Work on the concept to reduce late change. Do more with less.	Co-ordinate team to collaborate on sustainability in early concept meeting.	Attend early meetings to help achieve the creative vision sustainably.
Development	I.7	Attend 'Green Card' meeting to help review sustainability and suggest actions to improve.	Collaborate to realise ideas sustainably. Prefer reused / shared resources.	Co-ordinate 'Green Card' meeting to review sustainability and agree actions.	Attend 'Green Card' meeting to help review sustainability and suggest actions to improve.
Evaluation	I.8	Help the team resolve questions and reach decisions so as to embody the creative vision in a sustainable show.	Contribute to Materials Inventory listing the source of ALL materials, and their planned disposal.	Contribute to Materials Inventory listing the source of ALL materials, and their planned disposal.	Contribute to Materials Inventory listing the source of ALL materials, and their planned disposal.
Making	I.9			Ensure Sustainable Workshops guidance is understood and agreed by all.	Follow Sustainable Workshops guidance.
	I.10	Support the team in reaching decisions to achieve the creative vision in a sustainable show.	Support 75% of each category of materials (set, props, costumes etc) to be recycled.	Help ensure 75% of each category of materials (set, props, costumes etc) is recycled.	Ensure 75% of each category of materials (set, props, costumes etc) is recycled.
	I.11		Help source all other materials sustainably, using lowest carbon options.	Co-ordinate team to source all other materials sustainably.	Source all other materials sustainably, using lowest carbon options.
	I.12		Help makers avoid Harmful Materials. Avoid polystyrene, PVC, VOC's and tropical hardwood.	Share Harmful Materials guidance. Help team avoid polystyrene, PVC, VOC's and tropical hardwood.	Avoid Harmful Materials, including polystyrene, PVC VOC's and tropical hardwood.
	I.13		Specify essential props and materials early. Avoid last-minute deliveries. Prioritise local suppliers.	Track all vehicle mileage. Prioritise local makers and suppliers.	Co-ordinate across teams to minimise deliveries. Avoid packaging. Prioritise local supplier's.
Technical	I.14		Prefer modular systems. Resist unnecessary technical upgrades. Use natural acoustic if possible.	Encourage sustainability collaboration between technical and other team members.	Technical teams follow guidance in chapter 8, reducing energy through switch-off routines etc.
Costumes	I.15		Prefer reused. Source responsibly. Specify organic textiles with organic dyes.		Maximise reuse. Source & manage responsibly. Specify organic textiles with organic dyes.
Review	I.16	Call a Sustainability Review, and share lessons learnt.	Attend the Sustainability Review, and share lessons learnt.	Support the Sustainability Champion collate data. Attend the Sustainability Review, and share lessons learnt.	Support the Sustainability Champion collate data. Attend the Sustainability Review, and share lessons learnt.
Disposal	I.17		Support planning of how 80% of materials can be reused, donated, repurposed, recycled or stored.	Co-ordinate to ensure that 80% of materials are re-used or recycled.	Help ensure that 80% of materials are re-used or recycled. Dispose of technical equipment sustainably.
Outdoors	I.18	Follow Green Book guidance on Outdoor / Site Specific shows.	Follow Green Book guidance on Outdoor / Site Specific shows.	Follow Green Book guidance on Outdoor / Site Specific shows.	Follow Green Book guidance on Outdoor / Site Specific shows.
Touring	I.19	Follow Green Book guidance on touring and Arts on Tour Greener Touring Toolkit. Track vehicle milage.	Follow Green Book guidance on touring and Arts on Tour Greener Touring Toolkit. Track vehicle milage.	Follow Green Book guidance on touring and Arts on Tour Greener Touring Toolkit. Track vehicle milage.	Follow Green Book guidance on touring and Arts on Tour Greener Touring Toolkit. Track vehicle milage.

Who does what? Advanced

Use the links to go straight to resources in the Toolkit.

		Producers	Directors & Designers	Production Managers	Production Staff, Makers, Suppliers
Invitation	A.1	Reference Green Book Advanced standard as part of the initial invitation to all team members.			
Production Agreement	A.2	Prepare a Green Production Agreement with a clear divestment and ethical funding statement.	Sign Green Production Agreement.	Sign Green Production Agreement.	Sign Green Production Agreement.
Team	A.3	Appoint team early. Write Green Book standard into all tenders and contracts.	Work collectively. Collaborate with other teams to share resources, materials & equipment.	Share sustainability information. Share resources, materials & equipment with other teams.	Collaborate with other teams to share resources, materials & equipment.
Sustainability Champion	A.4	Appoint a Sustainability Champion trained in carbon Calculators. Set a carbon budget.	Support the Sustainability Champion. Work with the team to understand and achieve the carbon budget.	Support the Sustainability Champion. Work with the team to understand and achieve the carbon budget.	Support the Sustainability Champion. Work with the team to understand and achieve the carbon budget.
Budget & Schedule	A.5	Set budget and schedule to support sustainable working.		Help set budget and schedule. Establish sustainable communications. Co-ordinate sustainability meetings.	
Concept	A.6	Attend early meetings to help achieve the creative vision sustainably.	Include sustainability in conceptual thinking. Work on the concept to reduce late change. Do more with less.	Co-ordinate team to collaborate on sustainability in early concept meeting.	Attend early meetings to help achieve the creative vision sustainably.
Development	A.7	Call a 'Green Card' meeting of the whole team to review sustainability and agree actions.	Design using modular components for easier reuse of components.	Co-ordinate team to design with modular components for easier reuse.	Assist designers in modular design for ease of reuse.
Evaluation	A.8	Help the team in reaching decisions as to achieve the creative vision in a sustainable show.	Supply data for carbon calculation. Use carbon evaluation to inform design decisions.	Co-ordinate data for carbon calculation.	Supply data for carbon calculation.
Making	A.9		Support design for disassembly, for easy recycling.	Ensure Sustainable Workshops guidance is understood and agreed by all.	Make sets to modular systems for easier reuse. Make for disassembly for easier recycling.
	A.10	Help the team in reaching decisions as to achieve the creative vision in a sustainable show.	Help ensure all materials (set, props, costumes etc) are recycled	Help ensure all materials (set, props, costumes etc) are recycled	Ensure all materials (set, props, costumes etc) are recycled
	A.11		All materials are certified from sustainable sources.	All materials are certified from sustainable sources.	All materials are certified from sustainable sources.
	A.12		Support makers to ensure the production uses no toxic or environmentally harmful materials and is VOC free.	Co-ordinate the team to ensure the production uses no toxic or environmentally harmful materials and is VOC free.	Ensure the production uses no toxic or environmentally harmful materials and is VOC free.
	A.13	All milage is calculated.	All milage is calculated.	All milage is calculated.	All milage is calculated.
Technical	A.14		Prefer modular systems. Resist unnecessary technical upgrades. Use natural acoustic if possible.	Encourage sustainability collaboration between technical and other team members.	Follow Technical guidance. Make modular rigs for easy disassembly.
Costumes	A.15		Prefer reused. Source responsibly. Specify organic textiles with organic dyes.		Maximise reuse. Source & manage responsibly. Specify organic textiles with organic dyes.
Review	A.16	Call a Sustainability Review, and share lessons learnt. Share data from carbon calculation.	Attend the Sustainability Review, and share lessons learnt.	Support the Sustainability Champion collate data. Attend the Sustainability Review, and share lessons learnt.	Support the Sustainability Champion collate data. Attend the Sustainability Review, and share lessons learnt.
Disposal	A.17		Help plan in advance how 100% of materials can be reused, donated, repurposed, recycled or stored.	Co-ordinate to ensure that 100% of materials are re-used or recycled.	Help ensure that 100% of materials are re-used or recycled. Dispose of technical equipment sustainably.
Outdoors	A.18	Follow Green Book guidance on Outdoor / Site Specific shows.	Follow guidance on Outdoor / Site Specific shows.	Commission an Ecological Impact Assessment for outdoor locations.	Follow Green Book guidance on Outdoor / Site Specific shows.
Touring	A.19	Follow Green Book guidance on touring and Arts on Tour Greener Touring Toolkit.	Follow Green Book guidance on touring and Arts on Tour Greener Touring Toolkit.	Follow Green Book guidance on touring and Arts on Tour Greener Touring Toolkit.	Follow Green Book guidance on touring and Arts on Tour Greener Touring Toolkit.

Sustainable Productions

TOOLKIT

*A toolkit of resources for working sustainably can be found on the
Theatre Green Book website at:*

www.theatregreenbook.com.au

Australian Acknowledgements and Thanks

How the Green Book Australia has been prepared

For years, the Australian theatre scene has actively worked to shrink its carbon footprint and infuse sustainable practices into productions. We owe immense thanks to those who've championed this cause, directly shaping this document or laying its crucial groundwork. Your tireless efforts have been instrumental in shaping a more sustainable path for theatre in Australia.

Our sincere thanks go to Paddy Dillon, Lisa Burger, and the countless pioneers who paved the way for the Australian Theatre Green Book. Your contributions have been invaluable.

This is just the beginning. We welcome conversations, diverse views, and collaborations from the arts and environmental communities. Together, we'll enhance the Green Book, shaping a more sustainable future for our creative landscape.

A Bibliography is included on the next page.

Future versions of the Green Book Australia

The Green Book draws together the understanding of best practice sustainable theatre-making at the time of writing. However, 'best practice' will evolve and develop as understanding of sustainable theatre-making grows, research sheds light on new opportunities and challenges, more options for low carbon and reused materials become available, and the wider political and infrastructure landscape unfolds.

Recommended standards and targets will be refined as part of this process, as will many of the principles and goals.

Thanks

With very special thanks to the many individuals and organisations who have provided input and support in developing the guidance in this volume:

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United Kingdom Acknowledgements and Thanks

How the Green Book has been prepared

Theatre has been working to reduce its carbon footprint and embed sustainable practice into its productions for many years. Many of the people who have pioneered such efforts have been involved in the development of this document, or their work has been foundational to it.

The Green Book has been prepared through an extensive period of interviews, focus groups and consultation with dozens of theatre-makers, as well as a survey of nearly 200 practitioners. This process has been coupled with an extensive literature review of guidance on green theatre – including work by Broadway Green Alliance, Creative Carbon Scotland, Culture Declares Emergency, Freelancers Make Theatre Work, ISAN, Julie’s Bicycle, SiPA, White Light and more – to develop a database of recommendations for greener theatre processes. These recommendations have then been organised by their relative impact on reducing carbon emissions, the ease with which theatre-makers believe they can be implemented (at the time of writing) and the stakeholders and groups whose involvement would be needed to achieve them. The Green Book brings this information together in one place, and sets out simple standards and systems to make shows more sustainably.

A Bibliography is included on the next page.

Future versions of the Green Book

The Green Book draws together the understanding of best practice sustainable theatre-making at the time of writing. However, ‘best practice’ will evolve and develop as understanding of sustainable theatre-making grows, research sheds light on new opportunities and challenges, more options for low carbon and reused materials become available, and the wider political and infrastructure landscape unfolds.

Recommended standards and targets will be refined as part of this process, as will many of the principles and goals.

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We apologise if any names have been missed. Very many others have helped through the many theatre organisations, companies and freelance collectives who are working for sustainability, and whose thinking has contributed to this guide. .

Bibliography and Other Resources

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White Light, 2012. White Light Green Guide.

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Other Resources

Further information on sustainable theatre can be found at:

<https://juliesbicycle.com>

<https://www.broadwaygreen.com/about-us>

<https://www.nida.edu.au/about-nida/nida-green>

<https://artsontour.com.au/green-touring/>

<https://circulate.arup.com/login>

<https://www.facebook.com/groups/1678475945707436>

<https://www.facebook.com/bumpoutsydney>

Books

A Practical Guide to Greener Theatre : Introduce Sustainability into your Productions, Ellen E Jones, Routledge, 2013

Ecoscenography: An Introduction to Ecological Design for Performance, Tanja Beer, ISBN 978-981-16-7178-4

