Network Access Policy

RIIO T1
Draft – policy development
Scottish Hydro Electric Transmission Ltd
Scottish Power Transmission Ltd

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Scottish TO
Network Access Policy

BASIC INTRODUCTION & INFORMATION ON THE NETWORK ACCESS POLICY (NAP)

1.1. Executive summary

In order to ensure the safe and efficient operation of the electricity transmission network throughout the UK, it is necessary to ensure that there is an effective planning and management process, designed for the benefit of consumers. This includes comprehensive effective communication between the System Operator (SO) who are National Grid Electricity Transmission (NGET) and the Transmission Asset Owners (TOs) who in Scotland are Scottish Hydro Electric Transmission Limited (SHETL) and Scottish Power Transmission Limited (SPTL).

To meet UK and Scottish government targets on renewable energy, to maintain the Transmission Network and to replace ageing infrastructure and assets, it is necessary to switch out parts of the Transmission Network to carry out work safely. Switching out asset(s) for a period of time to permit work to be carried out on those asset(s) is described as an ***outage***.

For this work to be done with the minimum impact on system security, to consumers and to the users of the network, a process has been established that involves the SO and TOs working closely together, known as the Network Access Policy (NAP).

The NAP covers the planning approach taken by the TO's and the SO as well as describing the necessary consultation and stakeholder engagement that may be required.

Key to delivery of this process is a flexible approach taken by all parties in areas such as outage timing, working with other stakeholders such as generators, innovative solutions to network issues and frequent and effective consultation to ensure the optimal system and cost outcomes can be achieved. These are costs which are ultimately borne by customers and therefore need to be minimised.

Within the NAP a short term and long term approach to planning, management and consultation is highlighted. The long term framework looks 1 to 8 years ahead (or more where required) to help schedule works, avoid duplication of effort, work with connected users and ensure that connection dates for new generation customers can be achieved. The short term framework looks at proposed works in the current year, and looks at how they are scheduled and managed including how system faults and other real time events can affect the safety, reliability and security of the network.

1.2. Introduction

This NAP has been developed through close discussion and consultation between NGET, SPTL and SHETL, to meet the conditions and expectations set by the industry regulator OFGEM in the RIIO regulatory periods.

In addition, there is an expectation that there will be considerable discussion and liaison between NGET and SPTL / SHETL as well as with other stakeholder to ensure a flexible, innovative and managed approach is taken to network activities.

The NAP is developed in the context of consumer impact and penalty mechanisms introduced by OFGEM such as constraint costs, where generators of electricity are compensated by the SO for being unable to produce energy when circuits become unavailable for electricity exporting. The constraint cost mechanism and other SO incentives are currently being reviewed by OFGEM and may change in the future.

1.3. Network Activities during RIIO T1

There will be considerable work carried out on the transmission network during the 8 year period covered by RIIO T1. There is a need for the replacement of the existing infrastructure as it reaches the end of its useful life, as well as the construction of new infrastructure to facilitate the growth in renewable energy projects. SPTL's main focus is on infrastructure replacement, SHETL's is on new infrastructure development. Both types of work require significant capital investment.

1.4. Principles of the NAP

All Scottish TO's must ensure that the transmission network in Scotland provides a means for the safe and reliable transportation of electricity throughout the country.

They must ensure that the operation, maintenance and development of the network are undertaken with the principle of value for money for all consumers and users of the network.

The NAP is also developed to ensure that there is transparency in the trade off between the interests of the System Operator and that of the transmission asset owners.

This means that the operational and construction costs of work scheduling for the TOs , the impact on project delivery timescales, the constraint payments made to generators by the SO and the likely impact on network users, consumers and other stakeholders all need to be considered as part of the planning and management process.

1.5. Improvements from the introduction of the NAP

The NAP process requires enhanced co-ordination and liaison between the SO / TOs and other stakeholders. There will be as a minimum monthly face to face meetings and working groups to identify issues and solutions and increased transparency on intended works and their impact both in the short and longer terms.

Two frameworks have been developed through the SO and Scottish TOs working closely together and consulting other interested parties.

The short term framework focuses on the current year. It deals with planned work and monitors their progress as well as managing real time issues such as faults and system emergencies.

Many of these short term issues may be due to damage caused by severe weather conditions such as snow, ice, wind and lightning. Some may be due to asset deterioration or third party damage and this may result in system power flows to be rerouted through alternative circuits.

These issues are normally temporary in nature but can have a considerable impact on the transmission of a safe and reliable power supply if not managed effectively.

The short term framework is designed with the assumption that works will normally be delivered in the timescales identified, however, in exceptional circumstances, this may not be possible. This may be for a number of reasons such as the weather related issues identified above, but may also be due to project related issues.

Where this occurs, NGET and the Scottish TOs will work together to identify solutions to overcome these issues, looking at potential alternative dates, using different working practices and innovative network solutions.

The longer term framework looks further ahead, normally as far as 8 years and concentrates on long term scheduling of works and the potential impact on the network.
Due to the expected increase of investment and works by both SHETL and SPTL, this long term planning becomes more significant to ensure projects on the network do not clash, that

alternative means of energy supply can be identified and all necessary contingencies can be prepared. It also allows for enhanced stakeholder engagement, seeking information from network users such as generators on their own proposed plans and works and further improves the effectiveness of system management.

1.6. Monitoring and Review

The NAP is an ongoing process which required frequent review, usually through regular meetings between the SO and TOs, with stakeholders and with other interested parties.

This regular consultation and engagement with stakeholders is a key component of the process and will allow the SO and TOs to adapt and change the way they work in response to ongoing feedback, review and change management.

In addition, an annual formal review will also ensure that the document changes and adapts to real life experience from those involved.

DETAILED INFORMATION ON THE NAP

2.1. Obligations

Transmission Owners (TOs), have an obligation to provide transmission services to the System Operator (SO) as set out under the transmission licence (our Standard Licence Condition D2).

Transmission system assets in the UK are established to support the transfer of electrical energy around the country between sources of generation and the customers of energy trading and retailing services markets. System Operation is under the control of NGET as the SO. The Scottish companies, in their role as TO's , have an obligation to provide transmission services to NGET, as set out under the licence (Licence Condition B12) and the SO-TO Code (Section C) This includes the obligation to make available their network assets to facilitate the safe, economic, and reliable transmission of electricity within its licensed area.

The Network Access Policy does not seek to replace the SO-TO code (STC) or the suite of STCP planning codes. The documentation is related to outage planning and lays out our expectation of the outage management processes that will be required to implement and reflect our goal to achieve business plan delivery in RIIO T1.

The activities of the TOs can be affected significantly by factors that are outside of the TOs control, primarily due to actions/decisions taken by the SO. Similarly the activities of the SO can be affected by TO actions. This policy is intended to help define the principles for a baseline level of service acceptable to both the Scottish TOs and the SO, which allows for improved coordination and management of the transmission network.

In its role as SO, NGET incur costs when it takes actions to resolve constraints that can arise in providing system access such that insufficient capacity on the transmission system is a reality given the pattern of electricity generation and consumption. These constraint costs can be substantial and are, in large part ultimately passed on to consumers.

Constraint costs are affected by the availability of the transmission network. This is, in turn, affected by "real time" activities of the TOs, for example taking equipment out of service for maintenance or refurbishment to protect the reliability and health of transmission network assets over the longer term.

Constraint costs may be reduced if the duration of these works is shortened or if works are undertaken at times of favourable energy flows (e.g. when a specific power station that would be behind a constraint is also on maintenance). TOs can also contribute to reducing constraint costs by prioritising actions to sustain asset ratings and / or enable increases in ratings where appropriate either temporarily or permanently, which maximise power transfers.

The object of the Scottish TOs Network Access Policy is to clarify what the SO, and other stakeholders, can expect from the Scottish TOs insofar as how our actions affect the availability of the transmission network.

The policy sets out how we will plan and manage outages and deal with risks of over-runs. Our ultimate aim is to secure the best long term outcome (incl costs) for customers. This policy is in addition to our existing obligations under the licence and STC, which form the starting point or "base level" of service of our Network Access Policy.

2.2. Policy Objective

The objective of this policy is to set out the principles to be applied by SHETL and SPTL in seeking to agree, plan and organise transmission network construction and maintenance activities. These activities ensures that the availability, reliability and utilisation of the Scottish TOs assets

are optimised having regard to the duties and obligations of transmission owners, the SO and end users of the services for which the assets are provided.

The aim of the TOs and SO is to plan and organise outages that minimises the end costs to customers, whilst at the same time meet our legal, licence and regulatory output requirements. In this respect we have taken into account:

- The cost of implementing any actual works on the transmission network which require a network outage on part of the SHETL or SPTL transmission networks, and
- Potential constraint costs on the network, associated with outages.

2.3. Communication

It is recognised that the Scottish TOs (SHETL and SPTL) do not have the same information available to them as National Grid on the likely impact of their actions on system constraints. This severely limits the TOs ability to independently identify and resolve system constraints and contribute more fully to effective management of outage planning in the longer term.

Communication between the TOs and SO is critical to the success of delivering the respective business plans which seeks to accommodate a large increase in onshore/offshore renewable connections, increased export capacity, reduced constraints and the modernisation and maintenance of assets. More frequent and detailed communication between the SO and TOs will be required.

Although the SO is the owner of the specific codes relevant to the planning process, SPTL and SHETL consider the outage planning process an equal responsibility between the SO and TOs.
The Scottish TOs have therefore discussed and agreed with the SO that there are significant benefits to have available to them the same information as the SO has in respect of Generation Outages. This would allow the Scottish TOs to make better informed decisions when placing outages to minimise their impact on constraint costs and ultimately the customer. The Scottish TO's consider regular communication (minimum monthly) with the SO essential to the success of an informed Network Access Policy. The liaison will greatly aid coordination between the SO and TOs. Examples of this are through:

- SO requests to the TO for voluntary improvements in its service, based on the SO's understanding of the latest information on the scale, location and timing of constraint costs.
- The TO being able to offer enhanced services to the SO, which the SO could choose to take up, again based on the SO's understanding of constraint costs.

2.4. Principles & Prioritisation for Managing System Outages.

Over the coming decade it is expected that there will be significant expansion of the Transmission Network to facilitate the growth of renewable generation in Scotland to meet national renewable energy targets. The potential scale and timing of this investment is not fixed as it depends on new generation projects proceeding. Nevertheless, forecasts indicate that there will be significant investment in the network relative to the value of the existing businesses.

The expected scale of investment will result in a significant increase in the volume of requested outages on the transmission network for associated construction and connection works. These outages are in addition to the routine level of outages across the expanding interconnected transmission network required for essential operations, maintenance and fault repairs. It is clear that there

will be significant implications with respect to system constraints in securing the required overall outage programme but equally national renewable energy targets, system safety and security of supply will be compromised if the required outages are not managed and delivered.

The Scottish TOs recognise that managing the impact of works on the network is critical to system operation. It is important to balance the need of securing system outages with the need to manage all costs directly associated with an outage, in order that these may be arranged in the best interests of all stakeholders, including the end users.

This policy assumes that critical outage windows will normally be agreed many years in advance, in particular for large capital projects (see Long Term Outage Planning Framework). Achieving a firmer long term view with the SO. The potential of "bundling" together more than one outage for the increasing volumes of network outages will be essential to leverage the necessary outage efficiencies in relation to identification of costs / constraints, enhanced TO services, supply chain management and stakeholder requirements including the timing of connections.

In addition there is a need for flexibility from the SO in outage management with scope for a wider outage season in which outages may be booked outside of British Summertime (traditionally between beginning April and end of October) and for further flexibility from the TOs to extend the working week beyond Monday to Friday if necessary. Where requested to work extended hours additional costs incurred by the TO's and claimed back from the SO they would be minimal compared to constraint costs.

Key components of this flexible approach are the Short and Long Term Outage Planning Frameworks that outline the delivery requirements of the Scottish TO's Capital Programmes. This approach requires earlier firm outage placement for critical projects. As highlighted in the outage frameworks, this will be achieved through regular monthly / weekly strategic SO/TO planning forums, specifically working to agreed protocols, and timescales of, for example, the Strategic Wider Works arrangements, and a more frequent SO/TO outage programming forum. In defining and prioritising outages, our policy is to apply the following principles:

- To ensure that the GB Transmission Network is operated safely and securely,
- To ensure the development and maintenance of an efficient, co-ordinated and economical system of electricity transmission and,
- To ensure consultation with all affected network stakeholders regarding necessary coordination of activities to optimise the availability and utilisation of assets.

In meeting the above principles, the priorities in managing system outages, in order of precedence will be:

1. System faults and repairs, quality of supply and urgent asset interventions to ensure the safe operation of the system.
2. The replacement, refurbishment and maintenance of transmission network assets, to ensure the ongoing safe and secure operation of the transmission system and subsequently minimise longer term system costs.
3. Customer connections, renewable energy connections and re-enforcement to accommodate carbon reduction and maximise the export capacity of the Transmission Network which will reduce constraints.

2.5. Assumptions

The following assumptions should be applied:

1) In co-ordinating and directing the flow of electricity on the transmission system, the SO shall ensure that it does so in accordance with its transmission licence, and associated standards and obligations.

2) In managing outages, and in complying with the STC and STCPs, outages will be planned taking into account:

   - The impact on maintaining a safe, secure system,
   - The impact on system costs in short, medium and longer term, and
   - Resourcing requirements.

3) Through the outage management process the TOs and the SO shall work together to resolve any SO / TO trade offs in the best interests of the consumer. Where the TO incurs additional costs in the current year as a result of these agreements they shall be appropriately remunerated through the agreed mechanism in line with STCP 11-3 TO Outage Change Costing.

2.6. Policy Execution

Outage proposals are generally based on the TOs most efficient cost of delivery of its works. There may be exceptions where the TO's are limited by available outage windows or inclement weather conditions. Schemes and implementation programmes will be developed taking account of the potential for constraints, where known. The basis of assessment of the options will be to minimise the overall cost to the electricity consumer.

In addition, any efficient capital expenditure requirements identified by the SO may be included in the TOs plans. For example where it would be beneficial to group together programmes of works utilising the same outages and outage windows.

To facilitate co-ordination of outages across the GB transmission system the SO will chair regular Transmission Outage Planning Forums. These forums will include appropriate representatives from the SO and the TOs as required.
Circuit outage windows will be formally agreed in line with the Outage frameworks by the SO based on the TO proposals and discussion at the Transmission Outage Planning Forums. Circuit outage plans will be formally agreed in line with the Short and Long Term Outage Frameworks and refined at one year ahead. Reviews at the agreed timescales will be carried out between the SO and the TOs.

The Scottish TOs will endeavour to utilise a single network planning tool to capture all network outages in all timeframes. This will give the required flexibility and accuracy to meet the needs of the Scottish TOs, the SO and all other stakeholders in relation to co-ordinating outages in the interests of achieving the most efficient plan.
To ensure we minimise the real time cost as we continue with our works to strengthen the networks, the Scottish TOs will facilitate regular stakeholder participation in programme coordination. In addition transparency of future outages will be provided through the publication of intended programmes of works to those stakeholders affected and to those who can assist in directly influencing its efficient development.

The Scottish TOs will coordinate their outage planning activities centrally through a dedicated team working across new connections, investment planning, project delivery and network control. This approach will deliver a single point of contact for all stakeholders with an interest in network availability.

Through the programming forums we will endeavour to develop effective levels of information sharing. The effectiveness will be judged through

better resolution of issues and earlier identification of any potential programming conflicts. In addition we will seek to ensure that the availability, reliability and utilisation of the Scottish TOs assets are optimised having due regard to our duties and obligations as TOs, the needs of the SO and impact on end users of the services for which the assets are provided.

The respective TO's programming teams will ensure focus on the following areas:

- Liaison on the programme of circuit and equipment outages, with the SO and all stakeholders
- Liaise on any changes to these outages
- Aim to minimise the duration of those outages
- Ensure outage overlap and duplication is avoided.
- Bundling of outages (where outages for a number of projects on the same circuits have the opportunity to be programmed during the same outage window)
- Ensuring plans are in place to return equipment to service quickly should the need arise (Emergency Return to Service)

Essentially, the TOs will seek to ensure the most efficient placement of outages, with regard to the information made available through liaison with the SO and all other concerned stakeholders.

A critical component of this will be the level of interaction and timing of permissible information flow between SO and TO's. This will also directly influence any timescales that will apply to requests for any changes to outage plans already agreed with the SO.

Where the SO requires an amendment to an agreed outage window or an agreed outage the Scottish TOs will consider the following options to minimise the associated constraint costs.

- Increased manpower – additional resource enabling shorter overall outage
- Temporary increase in circuit loading – short term increased loading of circuit to reduce constraint with subsequent low loading period to minimise asset impact.
- Network reconfiguration – changes in network configuration, and
- Alternative engineering outage arrangements – outage requiring sub-optimal work procedures and increased costs.

Managing risks relating to over-runs and delays to outages will be addressed through detailed return to service and contingency plans which will accompany all outages requests for approval by the SO. Where the TOs incur additional costs as a result of SO requested improvements to return to service times they shall be appropriately remunerated through the agreed cost recovery mechanism. This process is explained more fully under Section 3.3 Change Control Process.

2.7. Providing enhanced services over and above the baseline level of service.

During the RIIO T1 period, there may be opportunities for the Scottish TOs to do things that go beyond the minimum requirements of the network availability policy and which are in the interests of consumers. Opportunities may arise from a number of different sources, such as changes over a period of time in the costs that a TO faces or innovations to asset management practices during the price control period, for example:

- Compressed working hours – shorter outages but longer overall project durations
- Real time equipment monitoring
- Thermal monitoring
- Sag monitors
- Reduction of Emergency Return to Service times
- Short term ratings
- Temporary intertrip schemes
- Energy management schemes / constraint management across boundaries
- Temporary bypass schemes
- Hotwiring schemes
- Meteorological Office Ratings Enhancement
- Bringing investment forward
- Enhanced supply chain / procurement / resourcing contracts
- Greater use of short term ratings

This may be driven by SO requests to the TO for voluntary improvements in its service, based on the SO's understanding of the latest information on the scale, location and timing of constraint costs. Alternatively the TO could offer enhanced services to SO, which the SO could choose to take up, again based on the SO's understanding of constraint costs. The TO's are open to any suggestions for improvements in its service however the TO's will always need to consider the full impacts of any enhanced service.

2.8. Monitoring and Review

The NAP is an ongoing process which will be frequently reviewed. This would usually be through regular meetings between the SO and TOs, with stakeholders and with other interested parties.

This regular consultation and engagement with stakeholders is a key component of the process and will allow the SO and TOs to adapt and change the way they work in response to ongoing feedback, review and change management.
In addition, an annual formal review will also ensure that the document changes and adapts to real life experience from those involved.

Scotland Wide – Short Term Outage Planning Framework

The detailed framework \ timescales for short term planning are specified in the STCP 11-1. This framework will run alongside the STCP's for a period of no greater than 12 months before amendments to the suite of STCP are proposed.

The assumption is made that within the current year the only changes normally made to the outage plan are those that are unforeseen by the TO such as faults, safety issues, defects that affect apparatus ratings, unforeseen project issues and unforeseen maintenance requirements.

3.1. Project Prioritisation Approaches

The year ahead plan (year 1) identifies all outages required by the Transmission Owner in the next year which is then agreed with the SO. If changes are subsequently required to this plan during the current year due to unforeseen issues, a means of prioritising network access is required for the SO and TO. Therefore four categories of outages have been identified to assist in prioritising network access during the current year (year 0), these are as follows.

- Faults, safety issues and \ or defects that affect apparatus ratings.

These are high priority works that are identified within year which without rectification would affect the safe, secure and efficient operation of the TO's transmission network.

- Agreed Large / Complex Projects

These are higher priority / complex projects looking at wider works, which will be agreed between the SO and the relevant TO's. These works are mostly transmission owner driven and are key projects agreed and / or provided through RIIO T1, to develop and maintain an efficient, coordinated and economical system of electrical transmission. They represent large capital expenditure and tend to be complex both in implementation and their effect on the electricity network. As a result, early agreement and planning is particularly important and beneficial. In general all of the outages associated with these large projects require agreed placed outages in all timescales.

- Outages on key boundaries

Outages on key circuits / boundaries are generally driven more by the SO. These scheme works are known to affect the electricity transmissions system and forecasts of constraint limits and actions are required to manage system flows. These types of outages on the key boundaries are normally driven by capital projects such as new connections and asset replacement, but could be due to maintenance or other works. These outages need careful management due to the potential clash between TO requirements and system cost risk.

- Other outages (less sensitive)

The less sensitive outages are those that are not included in the above categories and do not heavily impact on the interconnected transmission system and therefore may be treated in isolation. These types of schemes can include work such as discrete connection schemes, "like for like" asset replacements and maintenance.

3.2. Planning of Work

The overall aim of the planning process is for the TO and SO to deliver the TO's non load and load related work programmes whilst minimising the overall cost to the end consumer. Using the year ahead plan as a starting point the SO will aim to minimise the movement of these outages. However various unforeseen events can occur within the year including issues such as faults and changes in generator availability, resulting in a need to change outage timing. Additionally it may be cost effective

for the SO to request changes to the placement of outages to align with more favourable system conditions, e.g. wind. The SO should balance the benefits in minimising constraints against the costs associated with moving outages and the impact on the work being done, including potential knock on effects on the programme of works for other projects. The TO will aim to minimise the changes requested to the year ahead plan and mitigate the impact of these changes where possible. Additionally the TO will provide flexibility where possible in working with the SO to align outages with favourable system conditions.

3.3. Change Control Process

In the event that the SO or TO requires to make a change to the agreed outage plan and that change may result in system security issues, excessive constraint costs, severe project delay' or excessive costs to the TO, the TO and SO will then jointly prepare a Change Control Document. The document will specify the reason for the change to the outage plan, the impact the change will have on the SO and the impact the change will have on the TO. The change control document will identify if the change to the agreed planned outage can be effectively managed from a system security and overall system constraint cost view point.

Factors for consideration in the Change Control document include:

From the SO:

- Potential constraint payments, based on bid prices submitted by potentially affected generators; and
- Potential system security issues based on transmission system availability and generation profile.
- Alternative options for re-routing power, increasing demand and / or other commercial arrangements for minimising potential constraint costs.

From the TO:

- Potential costs from delaying the outage, including manpower costs, equipment hire, variation costs and environmental / wayleaves issues.
- Alternative options for redeploying resources, such as bringing forward an alternative outage, compressed / extended working patterns etc...
- Use of dynamic line ratings on either the affected or adjoining circuits.
- Where demand customers are affected, use of standby / mobile generation to maintain security of supplies.
- Potential cumulative effect on other projects of rescheduling outages.

The within year outage plan change control process will provide the SO, TO's and OFGEM clearer visibility of what effect changes to the TO's outage plan will have on within year / long term system constraint costs. All parties will strive to ensure their outage plan delivery will maintain a safe and secure system while delivering their RIIO T1 outputs and also minimising the within year / long term constraint cost to the customer.

Where the TO & SO outage change control process identifies a system security issue the TO will work with the SO to eliminate the system security concern.

Where the TO & SO outage change control process identifies the costs to the TO significantly exceed the potential constraint costs if the outage is rescheduled , in such instances the TO's outage change request shall be agreed.

Where there is a significant effect on a project (either the immediate project or other affected works) by rescheduling an outage, these potential costs and the impact on any customer connection dates must be considered in the TO calculation of costs for rescheduling outages.

3.4. Regular Meetings

To facilitate the communication between the SO and TOs regular meetings will occur between the SO & TOs and between the TOs which will include the details required for the costs benefit analysis as well as highlighting the ongoing risks to the plan, including the status of all outages and potential TO cross boundary outage clashes including those outages currently underway and those that are due to start.

The meetings between the SO & TO will discuss:

From the SO

- Identify those outages which are at risk due to significant constraint costs and the associated forecast constraint costs.
- Identify those outages that require movement as a result of within year outage requests / restrictions to the system access
- Highlight the options for the TO, in terms of extended service that could minimise the impact of either costs or impacts from other access issues.

From the TO

- Identify the impact of any fault outages on the ongoing plan.
- Raise requests for urgent maintenance requirements
- Highlight any operational restrictions that the TO places on the system as soon as they are aware.
- Highlight any risks to the current outage plan as soon as they are aware of them, such as possible outage overruns etc.
- Identify outage change costs for those outages identified as at risk by the SO and TO.
- Identify the extended services and associated costs that they could offer to the SO to mitigate any system access / cost impacts.

If required, additional meetings may be arranged if an urgent operational issue is identified by either the SO or TO.

Scotland Wide – Long Term Outage Planning Framework.

The objective of this process is to ensure that both the increasing Scottish Capital Programme is delivered and that the Transmission system is managed and operated safely, securely and efficiently. To help to achieve this objective it is proposed that capital schemes are adequately developed and have sufficient information about outage and resource requirements as they enter the year ahead plan build stage. In addition a planning framework has been developed to manage outage requests from 1 to 8 years ahead. The Diagram (Fig 1.1) indicates the relationship between the planning stages and milestones.

4.1. Project Prioritisation Approaches

Three categories of outages have been developed as follows:

- **Agreed Large / Complex Projects**

These are higher priority / complex projects looking at wider works, which will be agreed between the SO and the TO's. These works are mostly TO driven key projects agreed through the RIIO process to develop and maintain an efficient, coordinated and economical system of electrical transmission.

They represent large capital expenditure and tend to be complex both for implementation and their effect on the electricity network. As a result, early agreement and planning is particularly important and beneficial. In general all of the outages associated with these large projects will have agreed placed outages in all timescales.

- **Outages on Key Boundaries**

Outage changes on key circuits / boundaries are generally driven by the SO. Outages on these are known to have a greater effect on the operation of the transmission system and forecasts of constraint limits and actions are required to manage system flows. Outages on key boundaries are normally driven by capital projects to increase the transfer capability, provide new connections or asset replacement, but could also be due to maintenance or other works. These outages need careful management due to potential clash between the delivery of system enhancements and operational costs.

- **Other Outages**

The less sensitive outages are those that are not included in the above categories and do not heavily impact on the interconnected transmission system and therefore may be treated in isolation. These types of schemes can include work such as discrete connection schemes, "like for like" asset replacements, maintenance, etc.

4.2. Planning of Work

- **3 – 8 Year Ahead – High level view of works.**

A 6 monthly review of the work required to be carried out on the transmission system will be undertaken. For "Agreed Large Projects" this stage will look in detail at all of the planned outages. "Key Boundaries" will primarily be assessed based on outage volumes which will then lead to more detailed reviews where major congestion is identified. The remaining outages will not be reviewed routinely unless any specific schemes or outages are agreed between the SO and TO's. The process will reflect the fact that schemes and outages will become progressively more certain moving from 3 to 8 years ahead. A primary objective of the 3 – 8 year ahead process will be to ensure that a deliverable 3 year ahead plan moves into the 2 year ahead process.

- **2 Year Ahead – Assembling outage plan for critical work.**

The works generally become progressively firmer and therefore with a more stable plan of works a more detailed programme can be formulated. Based on information available in the 3 – 8 year ahead stage, capital expenditure and resource / outage requirements for the overall plan are determined at a high level. This stage will identify any delivery "pinch points" and options to overcome them. Critical works with outage placements should be agreed by the end of the 2 year ahead stage. These will be reviewed on a monthly basis.

- **Year Ahead – Fixed in Plan**

At the year ahead stage the detailed plan build process commences. In this phase all the capital schemes will have been developed to a sufficient level to provide a reasonably accurate assessment of outage and resource requirements. The plan is developed over several months and will be optimised against the critical requirement that the plan should be deliverable. During this phase the most realistic choices are made in relation to the planning process in the planned works.

4.3. Committed Capital Schemes

Many Capital Schemes will become "committed" from 2 years onwards once they reach the execution phase. The TOs will submit to NGET a detailed Stage by Stage Outage Diagram for consideration and confirmation that the outages are available to enable the TOs to proceed to construction with a degree of confidence. Any confirmation at such an early stage can only be based on the information known at that time and may be subject to change.

However when major network projects in the 2 year ahead plan are fixed and the TOs have signed contracts for the major works to go ahead the SO will allow these to take priority over any short term constraint issues at the time in line with the Short Term Outage Planning Framework when the costs incurred to the TO would be greater than those to the SO if the outages were to be cancelled.

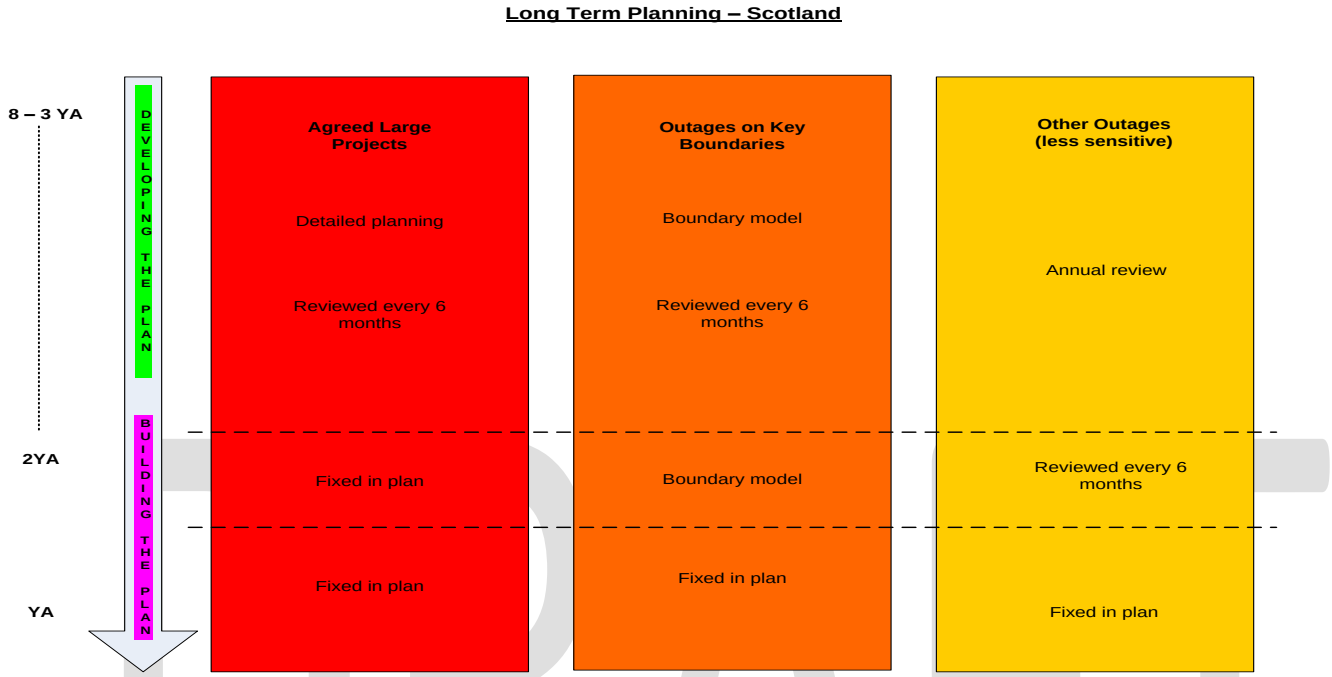

Figure 1 – Long Term Planning – Scotland. Outages and Priorities